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The following abbreviations are used in volumes of the *Official Records of the World Health Organization*:

- **ACABQ** — Advisory Committee on Administrative and Budgetary Questions
- **ACAST** — Advisory Committee on the Application of Science and Technology to Development
- **ACC** — Administrative Committee on Coordination
- **CIDA** — Canadian International Development Agency
- **CIOMS** — Council for International Organizations of Medical Sciences
- **DANIDA** — Danish International Development Agency
- **ECA** — Economic Commission for Africa
- **ECE** — Economic Commission for Europe
- **ECLA** — Economic Commission for Latin America
- **ECWA** — Economic Commission for Western Asia
- **ESCAP** — Economic and Social Commission for Asia and the Pacific
- **FAO** — Food and Agriculture Organization of the United Nations
- **IAEA** — International Atomic Energy Agency
- **IARC** — International Agency for Research on Cancer
- **IBRD** — International Bank for Reconstruction and Development
- **ICAO** — International Civil Aviation Organization
- **ILO** — International Labour Organisation (Office)
- **IMCO** — Inter-Governmental Maritime Consultative Organization
- **ITU** — International Telecommunication Union
- **OAU** — Organization of African Unity
- **PAHO** — Pan American Health Organization
- **PASB** — Pan American Sanitary Bureau
- **SIDA** — Swedish International Development Authority
- **UNCTAD** — United Nations Conference on Trade and Development
- **UNDP** — United Nations Development Programme
- **UNDRO** — Office of the Disaster Relief Coordinator
- **UNEP** — United Nations Environment Programme
- **UNESCO** — United Nations Educational, Scientific and Cultural Organization
- **UNFDAC** — United Nations Fund for Drug Abuse Control
- **UNFPA** — United Nations Fund for Population Activities
- **UNHCR** — Office of the United Nations High Commissioner for Refugees
- **UNICEF** — United Nations Children’s Fund
- **UNIDO** — United Nations Industrial Development Organization
- **UNITAR** — United Nations Institute for Training and Research
- **UNRWA** — United Nations Relief and Works Agency for Palestine Refugees in the Near East
- **UNSCEAR** — United Nations Scientific Committee on the Effects of Atomic Radiation
- **USAID** — United States Agency for International Development
- **WFP** — World Food Programme
- **WHO** — World Health Organization
- **WIPO** — World Intellectual Property Organization
- **WMO** — World Meteorological Organization

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of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal
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INTRODUCTION

THE YEAR 1975 was one of special importance for the World Health Organization and for the United Nations system as a whole. The United Nations General Assembly concluded its Seventh Special Session in September by unanimously adopting a resolution covering a wide variety of topics ranging from international trade to industrialization and food and agriculture and advocating the setting-up of what was termed a New Economic Order. This resolution may be considered as a turning-point in the history of the United Nations and of international cooperation, since it marked a striking reversal of the previous climate of confrontation between the richer and the poorer countries.

From the point of view of WHO, the importance of the General Assembly's resolution cannot be over-emphasized; it places the United Nations system at the centre of international cooperation and specifically calls upon WHO and its sister agencies to "intensify the international effort aimed at improving health conditions in developing countries by giving priority to prevention of disease and malnutrition and by providing primary health services to the communities, including maternal and child health and family welfare". The resolution also sets the stage for and initiates action on a restructuring of the whole United Nations system, providing for the participation of the specialized agencies at the executive level in the forthcoming work. There are other implications for WHO in relation to aid, industrialization, science and technology, and food and agriculture. In particular, the pressing need for integrated rural development is stressed.

The General Assembly's decisions can be attributed to a growing awareness of several interrelated facts:

— That it is in the interests of world peace and security for the richer nations to increase and rationalize the aid they give to the poorer countries.
— That international trade must be reorganized to place the poorer countries on a more equal footing with their richer partners.
— That technologies and systems cannot be adopted wholesale from richer countries but must be adapted to local conditions; indeed, emerging countries should be encouraged to work out their own solutions and become self-reliant.
— That an integrated socioeconomic approach to development is required, with coordination of policies for agricultural development, food production, education, and health.
— That great vigilance will be required on the part of countries embarked on industrialization and urbanization if they are to avoid the many harmful effects of these processes being experienced in a number of countries.

But what have economic arguments to do with health? Are such considerations directly relevant to the work and mission of WHO? Has the Organization a part to play in establishing and maintaining the New Economic Order? I believe that the answer must be an emphatic affirmative. I think it would be true to say that the General Assembly's deliberations and decisions have vindicated views that have long been expressed within this Organization. We are already analysing the contribution of health to rural development, of which...
economic development is only a part, and we are actively engaged with other agencies in promoting this rural
development. We have a long way to go yet, but we have made a start in reorienting the Organization's pro-
grames towards fostering social and economic development rather than confining ourselves to health develop-
ment at the purely technical level. This process will now begin to accelerate.

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In 1975 a strong emphasis was given by the Executive Board, the World Health Assembly, the Regional
Committees, and the WHO Secretariat to the subject of primary health care within the context of the strength-
ening of national health services, and in relation to the underserved millions in the developing world in both
rural and urban areas. It is quite clear that the requirements of these underserved people will not just disap-
ppear, nor will they be able to solve their problems in the course of time without some drastic and fundamental
rethinking of the relationships between communities and their health services. Separate programmes, each
designed for the control of a specific disease, are not likely to solve the overall problem, however successfully
they may attain their individual aims. It is equally unlikely that the build-up of centralized services based on
advanced health technology will effectively meet the overwhelming day-to-day health requirements of the
majority of people living in rural areas. We must remain conscious of how often the medical and health care
solutions of the industrial world are neither practicable nor acceptable for developing countries, because of
cost and inefficiency. We must also remind ourselves that the urgent health problems of developing countries
relate to poverty, to infection, to malnutrition and undernutrition, to lack of accessible potable water, and to
multiple environmental hazards. Such basic threats to health are unlikely to be countered by conventional
health service techniques, however sensitively and intensively they are applied.

I suggest that the solution must be sought in a return to the wider mandate originally given to WHO, and by
implication to all health personnel, to deal with health and health development in its all-embracing sense. There-
fore, not only must we be concerned with devising means whereby everyone, everywhere, has access to basic
health care, and to more specialized care when it is needed, but we must see that positive steps are taken,
in conjunction with other sectors, to deal with the prime factors causing the problems. It is just such a
broadly based, community-centred service, supported by the other levels of the health system and with a wider
community development responsibility, that WHO calls primary health care—a concept embracing health in
its entirety and not restricted to the provision of medical care or personal health services. From a number of
examples in countries of widely different geographical and political make-up, we are aware that such an
approach can be acceptable and effective. However, there are still many questions that must be answered.

Health and economic and social development in rural areas are closely interlinked. While there is certainly
an absolute minimum amount of production and consumption resources without which it is impossible for a
person or a family to survive, there are many people with more than this minimum who lack the ingenuity,
knowledge, or organization to be truly healthy. Similarly, it is almost impossible to visualize how a group
that is malnourished, suffering from the distorted physical and social development associated with deprivation,
and possibly diseased can cope with the strains and innovations that accompany the economic development
process. The emphasis must vary according to the nature of the situation: for example, in the onchocerciasis
areas of West Africa the health component should be the trigger mechanism for change, while in some of the
areas suffering from drought and crop failure or clearly unjust land distribution policies, action in other
sectors must take priority. There are also many examples where no special problem is obviously dominant.
Whatever the requirements of a particular community, it is unlikely that an approach confined to a single sector will be successful, and WHO is now fully aware of the need to join forces with economists, agronomists, water engineers, and community and rural developers, or, in other words, to team up with the United Nations, our sister technical agencies, IBRD, the regional development banks, and the equivalent components of national governments for a combined approach.

I have no doubt that such integrated activities are essential to solve this problem and yet I am conscious of the lack of success of many of our previous efforts. Despite these past failures, WHO must voluntarily and forcefully move in this direction for health reasons, but with care and proper thought. We feel confident enough to do so and consider that the climate of world opinion is now ready for such a move.

WHO's Constitution implies the creation and maintenance of a health service available to all the citizens of each country. The objectives of health manpower development must be concordant with those of health services development. To attain these objectives, there must be trained men and women willing and able to make the service effective and acceptable to the community they serve. The traditional pattern that gives prestige and budgetary preference to urban medical services cannot provide health services for the entire population. The allocation of staff to the various kinds of health care and the orientation of the training they receive must reflect the resolve of governments to provide balanced teams of health workers for remote rural areas and the mines, forests, and fishing villages where the bulk of the population live and work, and where they are at present poorly served, if at all, by existing health services.

To assist in this process, WHO is working with several Member States to help them establish a new system, or revise their existing system, of training for medical and other health specialists so that it is suited to local needs. To this end, the training of the traditional health professions of medicine, nursing, and sanitation must be extended to include preventive medicine and social service. Greater emphasis needs to be given to promoting more flexible attitudes of mind that will fit professional skills to the total range of problems confronting the community. While preserving their professional standards and their scientific initiative, practitioners will have to learn from the outset of their training the particular skills needed to deal with the real-life situations of the country, such as the rural epidemiological conditions and the differing customs and beliefs of local communities. They must be trained in organizational skills so that they can work in teams and train, supervise, and stimulate the interest of the local people in the practical work of the service.

The traditional health professions, however, require a long and expensive training and it would be folly to assume that most developing countries could afford to train within a reasonable time the numbers of professionally qualified people needed to provide nationwide health coverage. Even if this were possible, it is doubtful whether the investment would be justified by the results, a doubt now being expressed even in some of the richer countries. To meet this difficulty, WHO is working to promote the training and use of medical assistants and primary health care workers as members of an integrated system that will eventually provide health care for the entire population. In particular, we are looking into the usefulness for certain countries of front-line health workers—individuals chosen by the community and given a minimum basic health training so that they can provide part-time health care while continuing to work in the community.

The training of professional and nonprofessional health workers must be interrelated so that they can all make effective use of their various skills. This can come about only if the teachers of both professional and
auxiliary personnel are experienced in community health, and particularly rural community health, and are able to demonstrate how an integrated health team works. Such multiprofessional training is still in its infancy and much experimentation will be needed in different cultural settings before firm conclusions can be reached. WHO is therefore experimenting with multiprofessional training and the preparation of teachers for their expanded role, the object being to transform the future health team into a truly integrated group that can provide effective and acceptable care for the people. It may well be a long time before the results of such experiments are seen, but I consider this to be an investment that WHO must make.

* 

The importance of the social implications of the New Economic Order is clearly apparent in the fields of maternal and child health and of nutrition. It is an unfortunate commentary on our present social and political systems that the vast wastage of mothers and young children occurring in many countries still fails to provoke an effective national or international response. Despite agreement on the urgency of the problem and abundant recommendations, resolutions, and plans of action, there has been no commitment at either the national or the international level to ensure that large numbers of mothers will not die during pregnancy or labour each year and that infants born in underprivileged homes will not succumb. Massive investment is required, particularly in rural areas of nonindustrialized countries, to forestall the devastating effects accruing from the notorious synergism of unregulated fertility, malnutrition, and infection. The economic losses caused by such human decrement are only now being recognized.

One of the Organization's main preoccupations in this field is the pursuit of knowledge and the development of techniques to improve reproductive health and protect the health of women and children at greatest risk, in particular with a view to reducing perinatal and infant mortality and morbidity. The Organization's strategy is to pay close attention to identifying high-risk groups so that better health service coverage can be provided for them.

1975 was International Women's Year, and the status of women and its relation to health and development were major subjects of discussion. WHO took an important part in the World Conference of International Women's Year, which emphasized the significant contribution that women can make to all aspects of development. The status of women in society is closely linked with both the health of that society and its level of socioeconomic development; the elimination of social injustices linked with the unequal status of women is an indispensable part of the development process. The connexion between the educational status of women and childbearing and childhood malnutrition has often been described. WHO has therefore tried to promote concern for the quality of health care given to women, particularly during their reproductive years, so that they can become the foundation on which physically, mentally, and socially healthy families are built.

Fundamentally, malnutrition is not a health problem but a social one. Crash programmes can alleviate emergency situations, but the effect will be purely temporary unless more comprehensive programmes are instituted at the same time—programmes designed to improve the lot of the many millions of people throughout the world now living in poverty. Malnutrition, through its effects on child mortality and morbidity, mental and psychological development, work capacity, and adult behavioural patterns, tends to perpetuate the disparity between the richer and poorer sections of the world's population.

Specific actions are required of the health sector, as of other developmental sectors, to correct this situation, but only an integrated multisectoral attack will be truly successful. An independent approach is
unthinkable; the various agencies and institutions involved must work closely together to make the most
efficient use of scarce resources. Any approach adopted must also create opportunities for the people them-
selves to participate fully and to develop their potential and resources for improving their condition. Charity
has no place in long-term efforts to eliminate chronic hunger and can lead only to the perpetuation of an
untenable situation. In short, malnutrition cannot be corrected without social development.

WHO favours integrating nutrition services into health services, particularly those provided to high-risk
families and individuals at the primary level of health care. Efforts are being made to control specific nutritional
deficiency diseases such as protein-calorie malnutrition, hypovitaminosis A, and nutritional anaemias by
means of direct vitamin distribution or food fortification. Special attention is being given to the training of
personnel—nutrition specialists, physicians, nurses, and other health workers. In cooperation with UNICEF,
FAO, IBRD, and interested bilateral agencies, a multidisciplinary approach is being developed for nutritional
surveillance and food and nutrition planning.

The danger of ignoring our failures and learning only from our successes is that we may thereby lose
hard-won knowledge and waste scarce resources. In the malaria and smallpox eradication programmes we
can see instances of broad campaigns where WHO has learned from its mistakes and is continuing to learn
from them. The main lesson learned is that, in the fight against disease, too much emphasis must not be placed
on health technologies alone. What we can achieve in this field depends directly on the level of economic
development of the countries concerned.

The malaria eradication programme has become a controversial issue in the last two or three years. The
enthusiasm of the late fifties and early sixties dwindled into apathy by the late sixties and more recently even
into disillusionment. Although not yet widespread, the opinion that the programme has failed has been ex-
pressed recently in some quarters. The once “most praised” public health endeavour on a global scale is now
being severely criticized because of setbacks or slow progress, and the positive experience that the programme
has brought to public health concepts is being forgotten. Many questions are being posed: Was malaria
eradication a Utopian idea to start with? Where, when, and how did the programme go wrong? Are technical
problems such as the resistance of vectors to insecticides and of parasites to drugs responsible for setbacks
and, if so, could this have been foreseen by scientists and technicians? Has the overall strategy been wrong or
its implementation premature? Have both governments and international organizations provided the support
at all levels that the programme required?

It is a fact that malaria has been eradicated in over 20 countries and areas and in parts of many other
countries, freeing a population of nearly 800 million from risk of the disease. Transmission of the disease
has also been greatly reduced in areas inhabited by 775 million people. However, a realistic appraisal of
most eradication programmes shows that they cannot be completed successfully within fixed time limits,
in part because of the economic difficulties confronting most developing countries.

Many health administrators find themselves in a most difficult dilemma regarding the malaria problem.
Reducing malaria to the point where it would no longer be a major public health problem may require as much
manpower and money as a time-limited eradication programme. This is a considerable investment and one
cannot foresee how long it will be necessary to provide such support. At the same time we must recognize that,
unless transmission is significantly reduced, the devastating effects of endemic malaria will be felt again.
We tend to forget the past severe malaria epidemics such as those in India, where before the control programme began there were up to 75 million cases of malaria annually in a population half the present size.

The malaria programme in some countries is perhaps an example of a health venture that was inadequately linked to the development of local health services and of services in other sectors, with the result that an initial dramatic success was followed by a partial failure. Be that as it may, we can deal with the problem of resurgent malaria, even with the limited means available to us. However, it will require a realistic and rational appraisal of manpower, and financial and technical resources directed towards planning and implementing measures, as dictated by specific conditions in the countries concerned.

Efforts to eradicate smallpox, a disease whose transmission process is considerably less complex than that of malaria, have also demonstrated the vital need for complete coordination with local services. After the first two years of the campaign it was necessary to replace the strategy of indiscriminate mass vaccination by one based on surveillance. Indeed, evaluation and re-evaluation have been necessary throughout the campaign, which is now drawing to a close. During 1975, the smallpox eradication programme celebrated its most significant achievement to date when, in November, the continent of Asia was declared free of smallpox. The last known case of variola major, the most serious form of smallpox, occurred in Bangladesh on 16 October. Despite an intensive search by more than 100 000 Asian health workers to detect unknown or hidden foci, no subsequent cases were found. However, two years of search and surveillance activities must be conducted after the occurrence of the last case before it can be confirmed that smallpox has been eradicated.

At the end of the year only one country in the world, Ethiopia (and in that country only 58 villages), was still infected by smallpox. Under an emergency programme decreed by the Government, more than 500 Ethiopian health workers, assisted by international staff and using four helicopters, cross-country vehicles, mules and donkeys, are engaged in an all-out final effort to eliminate the last outbreaks. Financial assistance for the Ethiopian programme and programmes in other areas was provided from WHO's regular budget and by the provision of personnel and generous donations of cash and vaccine from 23 countries. To verify that eradication has been achieved, countries of western Africa began in 1975 a systematic search for evidence of possible cases that may have occurred since the last known case in Nigeria in June 1970. Preparation for similar activities began in countries of central Africa, in Afghanistan, and in Pakistan.

WHO has become increasingly aware of the need to stimulate research in all aspects of tropical diseases and is making efforts to interest the developed countries in contributing to their control. There is an urgent need for better measures for the control of tropical diseases, remedies that can be used particularly in a rural environment and that are cheap, simple to administer and, above all, effective. The World Health Assembly requested that a plan be developed to assist tropical countries in the research necessary to produce such remedies. In late 1974, a tropical disease research group was established in WHO to work with the staff in Geneva and the Regional Offices on the special programme for research and training in tropical diseases. This is an example of a goal-oriented project completely in line with the New Economic Order. The goals are to obtain effective new vaccines, diagnostic tests, drugs, and measures for vector control through research and development and concurrently to assist the tropical countries to improve their own research. The special programme, which will be concerned with malaria, schistosomiasis, filariasis, trypanosomiasis, leishmaniasis, and leprosy, will work through multidisciplinary task forces of scientists from all parts of the world who have
been selected for their skills in biomedical research and their knowledge of tropical diseases. These task forces will define the elements that appear to be indispensable for disease control and will plan and monitor the research required to develop them. One such task force is already working to produce a skin test for the early diagnosis of leprosy and towards developing a vaccine against this disease. The research planned by task forces will be carried out in an international network of laboratories in industrialized countries working in close collaboration with institutions in the tropical countries. The plan for the special programme is worldwide but initially the main focus is in tropical Africa, where all six diseases are rampant.

The special programme and the concepts that lie behind it offer a new and unique challenge to WHO. Health workers see the need and scientists believe that it is within the capacity of present-day research to respond. Through the special programme, WHO provides the way to channel the scientific effort and to provide the funding. At a meeting with potential donors in November 1975, WHO was requested to show in detail how it would respond to the challenge and coordinate these activities with other research programmes on tropical diseases. At this meeting, US $2.6 million were pledged to the Organization so that planning could continue and pilot operations could begin.

Striking features of the special programme are its multidisciplinary scientific approach and the planning and funding of its activities on a world scale. It aims to become a platform for partnership between the developing countries of the tropics and the industrially developed countries to assist some of the most forgotten and most neglected groups of the world’s inhabitants.

The noncommunicable diseases and the control of pharmaceutical substances provide examples of areas where WHO has a protective role to play in regard to the developing countries. In these fields, some advanced, complicated, and expensive techniques, often of doubtful value in the richer countries, are completely out of place in the poorer countries because they can contribute little to health development; on the contrary, by consuming valuable resources that are in short supply they may do serious harm. I am far from suggesting that new techniques developed in the richer parts of the world should not be imported into the less favoured countries; what I wish to emphasize is that, to be worth importing, these techniques must be relevant to the pressing needs and prevailing situation in their proposed new setting or be adapted to those needs and situation. If such adaptation is not feasible, then their importation should be vigorously opposed.

The reduced incidence of certain infectious diseases and the eradication of the others, combined with higher standards of living and improved medical care, is leading to an increase in the proportion of middle-aged and elderly people in the world’s population. One result will be an increased frequency of chronic diseases; evidence from some countries in Africa, Asia, and Central and South America indicates that cancer and cardiovascular diseases are already becoming leading causes of death and, together with mental conditions, leading causes of morbidity. The important tasks facing the medical profession, scientists, and health policy makers today in regard to these diseases are therefore (1) to promote research on etiology, prognosis, treatment, and rehabilitation; (2) to control them wherever this is feasible; and (3) to find ways of protecting the developing countries against having to face the same health problems as those now besetting the developed parts of the world.

Undue stress has often been laid on the development and use of new and dramatic curative procedures. We must resist the temptation to introduce sophisticated medical practices such as intensive care units into
the less privileged parts of the world, where they are irrelevant when viewed against a background of much more urgent health problems. This is why WHO in its cardiovascular diseases programme—to take only one example—is concentrating on methods of prevention and control that are applicable at community level, special emphasis being given to activities outside the hospital. As knowledge becomes available, it will be important to ensure that it is properly applied, so that the developing countries avoid the mistakes that have in the past been made in the developed countries.

The problems of providing the people of the world with an adequate supply of the most useful drugs and vaccines, and of ensuring that the products are accessible and effectively administered to those who need them, are becoming more and more pressing. The Organization has continued to develop requirements and standards for the quality control of prophylactic, diagnostic, and therapeutic substances and to exchange information on their safety and efficacy. However, this whole programme has been reviewed and is now being reoriented so that WHO can cooperate better with Member States in solving their drug problems. A new subprogramme on drug policies and management has been established, while the project for the international monitoring of adverse reactions to drugs is being integrated into a broader programme for the exchange of information on drugs and the evaluation of their efficacy, with a view to providing Member States with more useful information.

Essential drugs and vaccines are indispensable tools for the attainment of health by all people. They are mostly produced in the industrialized countries or by subsidiaries of multinational companies. It has long become mandatory that countries or groups of countries importing and exporting pharmaceuticals formulate drug policies of greater worldwide public health interest, giving adequate priority to essential drugs and vaccines. If trade in these products is left to depend solely on supply and demand, this can only result in imbalances and inequities. In many developing countries, the lack of national drug policies allows foreign pharmaceutical firms to influence the market demand to a considerable extent and to control the transfer of pharmaceutical technology when local production is undertaken by their subsidiaries or under licensing agreements. Furthermore, the regulation of the supply and prices of raw materials greatly influences the local production of finished pharmaceutical products. Thus, many developing countries remain dependent on foreign interests and spend a high proportion of their limited health resources on importing finished products or raw materials for local production of drugs, many of which are not even suited to their real health needs.

The number of essential drugs and vaccines required to meet the real health needs of underserved populations is not large. By giving priority to making these essential products available and to promoting the development of better ones, WHO will be instrumental in promoting a dialogue between the governments and the pharmaceutical industry, including multinational companies. In this way the industry's production and research activities could be redirected towards meeting the needs of the underserved populations of the world. A step forward in this direction has been made in the field of vaccines in the WHO expanded programme on immunization, which aims at speeding up the supply of adequate quantities of vaccines in good condition to the populations concerned, so that a high proportion of susceptible subjects can be vaccinated at the optimum age.

Another area that came in for scrutiny during the year was rural water supply and sanitation. In the past, WHO, in its programmes of collaboration with Member States, has implicitly endorsed the purely sectoral approach taken by many countries on the assumption that better rural water supplies and sanitation, in addition
to improving health and the quality of life, would also necessarily contribute to the development of the rural economy. No one questions the health and environmental effects of these measures, but the notion that by themselves they can have a measurable effect on the rural economy has been rejected in favour of the idea, consonant with the concept of the New Economic Order, that a concerted effort consisting of various sectoral programmes is required. Today, planners are generally convinced that only a multisectoral effort can achieve the desired goals of improving both the economic and social status of poor communities.

The same conclusion has been reached by the ad hoc Working Group on Rural Potable Water Supply and Sanitation, formed by WHO and six other organizations that were concerned about the slow rate of progress in the introduction and improvement of rural water supplies and sanitation in developing countries—UNICEF, UNDP, UNEP, IBRD, the Organization for Economic Cooperation and Development, and the International Development Research Centre of Canada. The Working Group, the aim of which is to stimulate greater international support in this sector, proposed in November 1975 an integrated international programme to accelerate the provision of facilities and suggested that action in this field should not be narrowly sectoral but linked with a global concept of rural development. This action should include the promotion, support, conduct, and evaluation of technological, adaptive research projects in the field of water supplies and sanitation in rural areas.

In several developing countries where integrated rural development programmes have been in progress for a number of years, the role of rural water supply and sanitation has unfortunately not been recognized. WHO will seek to achieve more balanced rural programmes by supporting the inclusion of this essential sector. The transfer of water supply and sanitation technology has too often been characterized by the tendency to introduce unsuitable equipment and procedures that are too costly, too sophisticated, and too difficult to operate and maintain. Developing countries need labour-intensive techniques that are geared to existing local skills, equipment requiring minimum maintenance, a high degree of standardization, and simplified designs that can be manufactured locally. It is necessary to provide incentives to engineers and manufacturers in both developed and developing countries to deal realistically with these problems.

Throughout 1975, steady progress was achieved in transforming the relationship between the Organization and its Member States from that of donor and recipient to one of genuine partnership. This was apparent at the Twenty-eighth World Health Assembly, where an atmosphere of keen national participation prevailed and a large number of important resolutions on programme matters were adopted, particularly those of direct concern to developing countries. At both sessions of the Executive Board, too, there were encouraging signs of uninhibited dialogue leading to ever-closer relationships between the Board and the Secretariat and the shared acceptance of responsibility for the future orientation and delivery of the Organization's programme. As examples, I should like to mention the Executive Board's ad hoc Committee on Malaria and ad hoc Group on the Promotion of National Health Services.

The Executive Board's organizational study on the interrelationships between the central technical services of WHO and programmes of direct assistance to Member States, which was approved by the Twenty-eighth World Health Assembly, emphasized the unity of concept and action that must pervade the Organization's activities: this is based on an integrated approach to the development of the Organization's programme, all programme activities at all levels being mutually supportive and parts of a whole. Initial steps have since been taken to give life to these basic concepts.
Within Member States, the need for this unity of concept and action has been emphasized through continuing efforts to promote country health programming. There has been no change in the policy of promoting such programming as a national process, WHO’s function being to develop methods, to foster interest, and to collaborate and support wherever necessary. Since this unsophisticated approach to programming was adopted, the process has been initiated and has progressed to varying degrees in Algeria, Bangladesh, Burma, Congo, Laos, Nepal, Pakistan, Sudan, and Thailand. In the Region of the Americas, the programming process of quadrennial projections has given way to national health planning and programming which, with minor variations, is very similar to country health programming. The national health planning and programming process has so far been initiated in Brazil, Costa Rica, Ecuador, Guatemala, Honduras, and Paraguay.

Despite this progress, it is doubtful whether the full implications of country health programming have been properly appreciated. Such programming is a long-term process, not a one-time intensive planning effort. In order to attain the systematic development of health programmes and services, countries that have not already done so will need to set up permanent mechanisms for formulating health policies and translating these policies into operational programmes. This implies a continuing process of planning, implementing, monitoring, controlling, evaluating, and replanning—a truly new approach for most countries—and the need for appropriate mechanisms to launch the venture and maintain its dynamism will continue for the foreseeable future. It is clear, therefore, that a trend has been initiated which, if it achieves its purpose, will have far-reaching consequences for the organization of ministries of health throughout the world.

A number of countries that have begun country health programming are already engaged in formulating major and detailed operational programmes covering areas identified as deserving priority attention. Governments have taken the courageous step of deciding to move forward in these priority areas, even though this means the temporary neglect of other, less urgent areas. The Organization has been active in focusing international attention on some of these national health priorities, so as to channel multilateral and bilateral aid into programmes where it is most needed. There are already encouraging signs that such agencies as UNDP, IBRD, and a number of bilateral aid agencies are prepared to invest large sums in health development programmes formulated in this way. WHO’s coordinating role in this field is still in its infancy, but it has been gaining momentum throughout the year and will continue to do so in the years to come.

WHO’s achievements in 1975 were possible because we were able to establish a dialogue with the governing bodies and with Member Governments. We have now reached the point where fundamental decisions have to be made about WHO’s future role. Are we to become a stagnating technocracy, content with purveying conventional medical wisdom and know-how, or are we to collaborate with governments, with other agencies, and with communities themselves to forge new methods and approaches for developing health as a social asset?

I think there can be no doubt as to which choice will be made. Our aim must be to work with all concerned to attain an acceptable level of health for all the people of the world, not merely those living in the comfortable suburbs of affluent cities but also those existing and toiling in slums, far-flung rural areas, mountains, and remote islands. Only then will the aims expressed in our Constitution have been fulfilled.

Director-General
PART I

GENERAL REVIEW
1. STRENGTHENING OF HEALTH SERVICES

1.1 The Organization’s activities in the promotion of national health services were given new impetus during the year. The examination by the Executive Board of the health service problems of the developing world in 1972 and 1973, culminating in the presentation of the Board’s organizational study on methods of promoting the development of basic health services to the Twenty-sixth World Health Assembly, was followed by an appreciation of the possibilities for WHO action in this field. As a result, it was proposed to the Twenty-eighth World Health Assembly in May 1975 that national programmes in primary health care be developed as a matter of urgent priority, following a multisectoral approach and with particular emphasis on underserved groups in both rural and urban areas. The endorsement of this proposal by the Health Assembly in resolution WHA28.88, in accordance with Executive Board resolution EB55.R16 adopted in January, led to intensive discussions with other international and bilateral agencies and agreements upon common priorities and various mechanisms to fit sources of funds to possible recipient countries. WHO also intensified dialogues on this subject with countries at the 1975 sessions of the regional committees and directly at different levels of government. Simultaneously, a widely based endeavour was mounted within the Organization to prepare technical guidelines and material for countries to adapt and use in their own national programmes.

1.2 There have been some successes and some disappointments. The steps taken so far have brought into relief the problem of primary health care, suggested possible solutions, initiated a wide international debate, and established a progressive and positive climate of opinion. Some countries, for example Sudan and Thailand, which have already embarked on national health programming, were quick to realize the implications of the problems and plan their basic health services. Others, including newly independent States in Africa such as Mozambique and Guinea-Bissau, include primary health care among the priorities in their policies. In 1976 it is expected that a number of countries, after examining their problems and the solutions available, will enter the preplanning and planning stages.

1.3 These results must be considered successes. However, they need to be placed beside the limited success achieved in parallel technical efforts to prepare alternatives for countries in matters such as simplified health technology, new training programmes for new types of workers, methods of evolving village organizations suited to a national health service framework, and close links and integrated activities with other sectors, including rural development. Such work is difficult to carry out until a series of country programmes has been implemented and evaluated. At the same time, the process of research into new methods and their development and testing in the field is a slow one.

1.4 Work has continued on policy planning, the design and functioning of health facilities, the adaptation of the concept of health service development institutes to include manpower development and to move towards health service manpower development programmes, the financing of health services, coherent national systems for health service information, and the implementation of an amended programme in disability prevention and rehabilitation. These and other topics are separately mentioned below.

Development of health services

UNICEF/WHO joint study on alternative approaches to meeting basic health needs in developing countries

1.5 The report on the large-scale study carried out jointly by UNICEF and WHO in 1973 and 1974 on alternative approaches to meeting basic health needs of populations in developing countries was submitted to the UNICEF/WHO Joint Committee on Health Policy at its twentieth session in February 1975. The Committee agreed with the report’s analysis and recommended that the two organizations adopt an action programme aiming at extending primary health care to populations in developing countries, particularly to those that are now inadequately provided with such care, such as rural and remote populations, slum dwellers, and nomads. It emphasized that primary health care services should be recognized as forming part of overall development.


1.6 The Committee recommended that the two organizations should study in detail not only the innovations described in the study but also those introduced elsewhere in the world under different sponsorships. Research should be continued on the effects of rural and community development on the health of the people and on the role that other sectors can play in the delivery of primary health care. The Committee also proposed the adaptation of health manpower planning and training methods to situations in developing countries.

1.7 In May 1975, following its approval by the UNICEF/WHO Joint Committee on Health Policy, the joint study was endorsed by the UNICEF Executive Board, which adopted its principles as UNICEF policy. In the same month the Twenty-eighth World Health Assembly considered the study, which was placed before it as a background document to serve as the basis for a major worldwide action programme for primary health care; the programme was approved by the Health Assembly in resolution WHA28.88 (see paragraphs 1.8 and 1.9 below) and in June the WHO Executive Board expressed support for the Joint Committee’s recommendations (resolution EB56.R6).

Primary health care

1.8 Previous efforts by the Organization to single out the elements necessary for the successful development of health care at the peripheral level and the constraints that have impeded such development in the past resulted, in the latter part of 1974, in the conceptualization of the primary health care approach. The essential elements of this approach were defined as measures: that are simple and effective in terms of cost, technique and organization; that are easily accessible; and that improve living conditions. As suggested in a report to the Twenty-eighth World Health Assembly, primary health care should be based on practicable, modern, scientific knowledge and health technology and also on accepted and effective traditional healing practices. It should be part of the national health services. Primary health care activities should reflect real problems and community concerns. Available local resources should be used, including manpower, materials and funds generated from within the community, augmented when necessary by resources emanating from governments. Primary health care should support and be a part of community development.

1.9 Endorsing the report in resolution WHA28.88, the Health Assembly urged Member States to take the necessary steps to develop primary health care programmes and requested the Director-General to support national efforts through promotional activities, the dissemination of information on appropriate technology, and operational assistance at the country level. In June, as a consequence, a consultation was held in Geneva during which a plan of action was worked out for the whole Organization and guidelines were fixed for regional plans of action and for preparatory activities during the remainder of the year at country, regional and headquarters levels. The activities already initiated include the dissemination of information on advances and experience in Member States, the preparation of manuals on the planning of primary health care programmes and for the training of primary health workers at the community level, screening and reporting on available reference material describing current primary health care activities, and the conduct of country and interregional programmes to implement the primary health care approach.

1.10 To implement resolution WHA 28.88, activities were also begun to encourage countries and organizations to adopt and support the primary health care approach. Meetings were held with other international bodies and agencies to find better ways of providing support for national primary health care programmes. For example, the Conference on Coordination and Cooperation for Health in Africa, held in Yaoundé in September, included, in addition to government representatives, participants from UNICEF, UNDP, UNEP, WFP, FAO, IBRD, and the Commission of the European Communities; and a meeting with UNICEF, UNDP and IBRD was held in New York in October. Nongovernmental organizations were encouraged to reorient and expand their activities in support of primary health care.

1.11 Various points have been identified as particularly appropriate for the initiation of national primary health care programmes. Country health programming invariably leads to identifying the needs of the underserved as a matter of high priority. In a number of countries, the primary health care approach has been selected to meet these needs. In others, primary health care activities have been made an integral part of community development programmes, especially those directed to rural populations. In still other instances, existing health service programmes have been reoriented in line with the primary health care approach.
1.12 In addition to the establishment of focal points and teams in regional offices, the subject of primary health care was discussed at the 1975 sessions of several regional committees. Plans of action have been prepared for the African, South-East Asia and Eastern Mediterranean Regions and some countries (e.g., Sudan and Thailand) have taken steps to initiate primary health care programmes.

1.13 The support and participation of other United Nations bodies and specialized agencies and of non-governmental organizations in primary health care activities have been particularly encouraging. For example, the Christian Medical Commission, at its 1975 meeting, devoted its entire discussion to primary health care. UNICEF staff have been asked to support this initiative strongly and to find improved ways of working together in support of national primary health care programmes. At a meeting between USAID and WHO in July, it was suggested that as experience developed it would be necessary to arrange for the exchange of information between primary health care workers at the technical level; USAID would be willing to explore with WHO the possibility of finding resources to organize these meetings, which would be required about once or twice a year.

1.14 WHO continued to support the interregional research project on community involvement in solving local health problems, which is located in the Nkoranza/ Techiman and Wenchi Districts of Ghana. The objective of the implementation component of the project (for which the Government is responsible) is to establish a system for the provision of health care and the promotion of social wellbeing by the encouragement of community projects decided on, organized and carried out by the communities themselves as an integral part of rural community development, and by strengthening the existing health care delivery system. The objective of the research component (in which WHO shares responsibility with the Government) is to assess the effectiveness of this approach.

1.15 The project, for which the plan of operation was signed late in 1974, is guided by a national coordination committee chaired by the Commissioner for Health and including representatives of the ministries responsible for agriculture, community development and social welfare, economic planning, and education, the Ghana Water and Sewerage Corporation, UNICEF, UNDP, and WHO. Regional and district coordinating committees have also been established. Inputs are being limited to those that can be replicated in other parts of the country, and the project is being implemented through normal government channels.

1.16 Activities in the project during the year included the collection of baseline information on communities, existing health services, and government activities at the district level in order to improve planning and evaluation. The information gathered so far in this assessment component of the project underlines the importance of a broad approach focused on development as a whole, since from the community’s viewpoint communications, agriculture, schools and better buildings clearly share priority with conventional health needs such as water, community sanitation and health facilities. Work has begun on technical guides and other material to be used in training for and implementation of self-help projects, and a training programme has started for those who will themselves train others, using informal methods of education. For this preliminary evaluation component, most of the local staff have been recruited and trained, WHO is providing staff and consultants, and government personnel have been seconded.

1.17 In the African Region as a whole, health services development is aimed particularly at providing primary health care for underserved populations, in which full use of community resources and strong links with community development are regarded as essential. Governments also attach importance to the use of community health workers and the integration of traditional birth attendants into the health care system.

A manual on ways of training and using these workers has been prepared for publication. With UNFPA assistance, a working group on the training and supervision of traditional birth attendants was convened in Brazzaville in December to examine available information on the practices, training and supervision of traditional birth attendants and to recommend possible improvements. Activities for the promotion of national health services have continued. In Burundi a project for integrated rural development has been established in the demonstration area of Gitega, with the collaboration of the ministries responsible for agriculture, health, national education, and social affairs. At the Kandara health centre, Kenya, an integrated system of health care delivery is under trial. In Togo, 85% of the population of Pagouda health district is now covered by primary health care services that are within reasonable reach.

1.18 A significant event in 1975 was the Conference on Coordination and Cooperation for Health in
Africa referred to earlier (paragraph 1.10). The Conference brought together the representatives of more than 40 countries or areas in the African and Eastern Mediterranean Regions and of some African national liberation movements as well as many bilateral agencies and international and national bodies collaborating in the development of socioeconomic and health programmes in these Regions. The Conference recommended the establishment of a regional mechanism for coordinating the collaboration between donor and recipient countries, together with the strengthening of the machinery for planning, managing and coordinating activities at country level.

1.19 In the Region of the Americas the Organization is providing assistance, in response to requests from countries, for the expansion of primary health care in rural areas. Twenty-three countries are involved in this improvement and expansion exercise. Efforts are aimed chiefly at improving and extending the use of auxiliaries and other nonprofessional personnel (see paragraph 3.33).

1.20 In the South-East Region, primary health care is given high priority by governments as a means of significantly improving the coverage provided by their health services. Most WHO-assisted projects during the year were concerned with strengthening the manpower component of the health care delivery system. In Bangladesh, where 12,000 multipurpose health workers were assigned to field posts in 1974, strengthening of supervisory activities began. In India, a WHO-assisted programme to instruct trainers of multipurpose workers is rapidly expanding to many states, and training manuals are being pretested. In the Maldives, the first batch of multipurpose health workers was assigned to the atolls. In Bhutan a UNDP/UNICEF/WHO-assisted project for the development of health services and training of auxiliaries started in January. In Indonesia a survey of health facilities was completed and a study on the programming of health centres was initiated. In Mongolia, assistance was provided for a symposium on rural health and for the development of a referral system. In Thailand, the Government's programme for the strengthening of rural health services received WHO assistance in the training of traditional health workers, the printing of manuals and the provision of teaching aids. In Nepal, a study was completed on existing community resources with regard to traditional healers and other indigenous health care practitioners.

1.21 In the European Region, fundamental changes in the delivery of medical care are taking place in virtually every country. The emphasis in many coun-
tries is increasingly away from institutions, partly as a result of consumer dissatisfaction and partly for professional reasons. The process has accelerated because of the rapid rise in the cost of health care delivery. Concern has grown for the appropriate distribution and optimal use of available resources, particularly manpower. The problem of population coverage is not peculiar to the developing world; there are underserved population groups even in highly developed industrial societies—migrant workers, immigrants and the elderly, for example. The Region’s programme gives priority to primary care, with special reference to promotion of the health of the elderly and the prevention of disability. An important activity in 1975 was the meeting of the working group to define parameters of efficiency in primary care, held in Reykjavik in July; this was conducted in parallel with the working group on the role of nursing in primary health care because it is realized that the efficiency and effectiveness of services depend largely on the proper use of manpower, in which a most important element is nursing staff. Rural health is given great emphasis in Turkey in a new UNDP-assisted project, the operational base of which will be two new regional training and research centres designed to explore how primary health care services can best be provided in rural areas within the country’s financial resources.

1.22 The Eastern Mediterranean Region is reorienting its assistance to countries with the goal of fuller health care coverage through greater participation of the community, within the framework of overall socioeconomic development. Primary health care, as exemplified by the health service development project in West Azerbaijan, Iran, formed the basis for the Technical Discussions at the session of Sub-Committee A of the Regional Committee held in Teheran in October; the Sub-Committee adopted a resolution in support of primary health care. In Pakistan and Southern Sudan, during the country health programming process, emphasis has been placed on primary health care in order to extend health service coverage to underserved populations.

1.23 In the Western Pacific Region, the Government of Laos has amended its health services development project to include the development of primary health care at the village level; WHO collaborated in the preparation of a draft manual for public health workers at health centres and subcentres. In the New Hebrides, WHO continued to assist in the development of health services; as part of this effort, the population has been stimulated to form village health committees. In the Philippines, the system of primary health care delivery utilizing retrained public health midwives, already
reported upon, is in general functioning satisfactorily throughout the demonstration province of Rizal, and is being developed on a national scale with assistance from IBRD. Attention is being paid to modifying the system for extremely isolated rural communities and highly congested urban areas that do not at present receive adequate services. In the Republic of Korea, WHO assistance is being focused on three districts in a pilot province where single-purpose auxiliaries retrained as multipurpose health workers are carrying out their duties in health subcentres and the community. The Organization continued to assist health services development in Western Samoa; members of the village women’s committees are being trained to take a larger part in the delivery of primary health care.

Project register

1.24 During the year two issues of the register of health services development projects, giving information on some 20 such projects, were distributed to governments and to other international organizations. Their reception has demonstrated that they are meeting a real need. As the main purpose of the register is to offer a range of alternative solutions to health problems, its success depends on the collaboration of countries, agencies and research workers, and their willingness to share their experience for the benefit of all. The register is open to all research and development projects that have an original component, are suitable for replication elsewhere, are representative of economic and social trends in a given Region, or embody significant elements, even on a very modest scale, that might offer workable solutions for other countries.

Rural development

1.25 The Administrative Committee on Coordination (ACC) has decided to assess the efforts and policies of the various bodies in the United Nations system in rural development, and to work out a set of policies and plans for the system as a whole. IBRD was entrusted with the preparation of a report showing what each organization and agency has done in rural development, what each hopes to do, and how the entire United Nations system intends to increase its effectiveness. This report was submitted in December. The objective is to assist countries in planning and executing programmes aimed specifically at alleviating rural poverty and improving the health conditions of the rural poor as part of an intersectoral package of programmes for economic and social development in rural areas.

Methods of financing health services

1.26 In July a meeting took place between IBRD and WHO in Geneva to work out terms of reference and procedures for the preparation of the Organization’s contribution to the ACC study. The review of WHO’s project experience that could contribute to rural development focused particularly on communicable disease control, environmental hygiene, the training of auxiliary health workers, nutrition, and family planning. The terms of reference include an analysis of the proportion of WHO’s past and present efforts that may affect specified rural population groups.

Many Member States seek advice on financing health services in order to make the best use of their limited resources, to find and mobilize new sources of funds, and to control escalating costs. The main problems include the lack or unequal distribution of resources and the poor coordination of health services. The World Health Assembly and Executive Board have stressed the need to strengthen the financial basis of health care activities, notably in resolutions EB51.R41 and WHA26.35. A programme to assist countries in this field has been prepared but its implementation has had to be postponed for lack of the necessary resources, and action will be limited for the time being to the financing aspects of existing programmes, such as those for primary health care.

1.27 In the Region of the Americas, a document dealing with studies on health sector financing, expenditure and costs was prepared for the regional programme on financing of the health sector. It outlines the principal problems facing countries in financing their health service systems and explains the contribution to the solution of those problems that specified studies on health sector financing, expenditure and costs can make. The document also includes a methodology for the installation of cost systems in health establishments that can easily be applied by national personnel after a short period of training. The first stage of the regional programme was completed in Honduras and the second stage initiated. Activities were initiated in Colombia and Ecuador and planned in Costa Rica.

1.28 With a view to coordinating the resources of the various institutions in the health sector to meet the growing community demand for care, the Organization is collaborating in the review of the various schemes in progress in the Americas and in the implementation of some of them. Costa Rica and Panama are turning to the social security institutions to finance their health services; Argentina, Chile and Colombia are organizing joint systems with the participation of the
Ministries of Public Health and Social Security and the private sector; Mexico's national health plan envisages a system of national hospitals, combining those belonging to the Ministry of Health and Welfare, the Mexican Social Security Institute and the Public Employees' Social Security Institute; and Cuba has concentrated the administration of all health services in the Ministry of Public Health.

**Disability prevention and rehabilitation**

1.30 The Organization has drawn up a new programme statement on disability prevention and rehabilitation, an outline of which was prepared for submission to the Executive Board in January 1976. Since at least 10% of the world's population is disabled because of physical or mental impairment, and as the present institution-oriented approach has not succeeded in achieving adequate population coverage, it is now proposed to develop a programme stressing extensive coverage rather than sophisticated quality, and prevention rather than the reversal of disability. The emphasis is therefore on high-frequency problems with a high rehabilitation potential and a favourable cost/effectiveness ratio, and the development of local facilities and community resources in preference to institutional care with its attendant expense. Demonstration projects are being established or planned in all Regions; in addition to their other functions, these will serve both for intercountry training and for evaluation.

1.31 The disability prevention and rehabilitation programme is being developed within the framework of WHO's primary health care programme, and is integrated into other activities in the educational, social, and vocational fields to make it comprehensive. An increase in the role played by nongovernmental organizations to include joint planning and programming of country activities was discussed at the meeting in Geneva in September of the Council of World Organizations interested in the Handicapped.

1.32 WHO took part in an interagency mission that visited Iran in May to evaluate a proposal to establish an international institute for rehabilitation in Teheran. This interregional project, which is planned to begin in 1976 with support from the Government of Iran and UNDP, will demonstrate the approach to disability prevention and rehabilitation embodied in the new programme.

1.33 The study on disability in the productive age ¹ begun in Belgrade in 1972 was finalized during the year. Supported jointly by the Federal Institute of Public Health of Yugoslavia, the Serbian Institute of Social Security and WHO, it involved interviews of over 4000 households in the Greater Belgrade area and extensive medical examinations of 1400 persons. A significant proportion of the population aged 35-54 was found to be disabled, and the economic consequences of their disability were studied. The next phase of the project involves the provision of community-based interventions, with continuous evaluation. Improvements in future services will include greater emphasis on preventing functional limitations and disability, since impairments themselves are less readily preventable. Rather than expanding specialized facilities, the local health services will improve their capacity in disability prevention. As family, social, and environmental conditions contribute to disability, means of increasing the health services' influence on these factors will be sought.

1.34 In the African Region, Uganda and Zaire agreed to act as host countries for two regional centres for training in rehabilitation, and detailed plans were prepared. The orthopaedic and prosthetic services were strengthened in Malawi with WHO assistance. In the South-East Asia Region, as part of an intercountry project, a team consisting of a physician, a prosthetist and a physiotherapist started a disability prevention unit in Semarang, Indonesia. The services of the unit were extended later in the year to a neighbouring rural community with the aim of developing community-operated preventive services. Support was provided for a training school for physiotherapists in India, and two national courses in management for the total care of the disabled were assisted in Burma. Advice was given to Mongolia and Sri Lanka on the planning of future services. In the European Region a rehabilitation therapy school was opened in Malta. Efforts continued in the Region to develop further activities in geriatrics, a field of major importance in most developed, industrialized countries. In the Eastern Mediterranean Region, the Organization continued to provide support for schools for rehabilitation therapists in Iran, Jordan, Lebanon and Pakistan. A project to train both community-based and hospital-based rehabilitation personnel was started in the Syrian Arab Republic. Of particular importance is the Regional Training Centre for Technical Orthopaedics in Teheran, which has trained over 100 orthotists/prosthetists from about 20 countries since its inception. Follow-up of trainees in their working environment after their return home showed that they are making a valuable contribution to the development of nationwide services. In the Western Pacific Region programmes for the rehabilit-

¹ WHO Official Records, No. 221, 1975, paragraph 1.35.
itation of the physically handicapped, especially war victims, continued in Cambodia and Laos.

**Medical care facilities**

1.35 The first in a series of five sets of guidelines resulting from a study on the planning, programming, design and architecture of hospitals and other medical care facilities in developing countries was prepared for publication. The guidelines in the first volume deal with a number of different topics, and are designed to be flexible enough to be applied in widely different contexts while being sufficiently explicit to be of practical value to countries at various levels of development and in different climates. Subsequent volumes will be amended in the light of users’ reactions to the first set.

1.36 The proceedings of an international seminar organized in 1974 by the International Union of Architects, the International Hospital Federation and WHO in Nairobi, which took as its subject the planning and building of health care facilities under conditions of limited resources, were published.\(^1\) The implications of the seminar were examined at the nineteenth International Hospital Congress held in June 1975 in Zagreb, Yugoslavia.

1.37 The above study and the Nairobi seminar have done much to draw attention to the problems peculiar to health care facilities in developing countries. In the Western Pacific Region, for example, the experience gained through these activities proved valuable in developing a project proposal on hospital management, design, and maintenance, which was submitted to UNDP. Fourteen countries or areas in the Region have expressed a wish for assistance from this proposed project, which aims at setting up regional training facilities, guidelines and advisory services in the disciplines concerned. Similarly, in the African Region, the structure and cost of hospitals and their place in an integrated system of health care delivery to the community continued to attract attention.

1.38 In the Region of the Americas, Brazil, Chile, Colombia, Peru, Uruguay and Venezuela were given assistance in organizing hospital management committees in teaching hospitals. Elsewhere in the Region, Ecuador, El Salvador, Honduras, and Trinidad and Tobago were helped with programmes for the construction of hospitals, with financing from the Inter-American Development Bank to cover both feasibility studies and project implementation. Many of these projects involve the construction of new health centres to serve rural populations and the city outskirts. In Colombia, the Organization is cooperating in both the architectural and the administrative management aspects of a broad investment plan for building hospitals, while Ecuador is being helped in the construction and equipment of eight hospitals, and the national authorities are being assisted in the organization of hospitals or the expansion of outpatient services in Brazil, Panama, and Venezuela.

1.39 Regional activities in hospital engineering and maintenance are being expanded with the collaboration of the Organization. The first international symposium on this subject, held in Mexico City in February and financed by the Mexican Social Security Institute, brought together 3000 participants, and some 180 papers were presented. Among projects supported by the Organization, a national centre was set up in Colombia to train personnel in repairing medical equipment, and the Government of Peru approved the construction of a centre for training engineers and technicians in all aspects of maintenance. The Hospital Maintenance and Engineering Centre in Venezuela trained 500 technicians, providing assistance in this field to the Bahamas, El Salvador, Jamaica and Nicaragua. Other countries and territories of the Region, notably Argentina, Costa Rica, Ecuador, Grenada, Guatemala, Guyana, Honduras, Panama, St Kitts/Nevis, and Trinidad and Tobago, took steps to organize activities for maintaining their physical resources and equipment, with the assistance of the Organization.

1.40 In the South-East Asia Region, the Organization conducted a national orientation course for hospital administrators in Colombo in March. At the request of the Government of Sri Lanka, a follow-up course was organized in October along the lines of the first one. An intercountry seminar on peripheral medical care services was conducted in Bangkok and Chiangmai, Thailand, in September, with participants from seven countries of the Region—Bangladesh, India, Indonesia, Mongolia, Nepal, Sri Lanka and Thailand. The purpose of the seminar was to identify the problems and develop guidelines for organization, administration, practice and techniques in the delivery of primary medical care in rural areas. Emphasis was placed on active participation of the rural community and the development of voluntary health care personnel. Assistance was given to Bangladesh to improve the logistics of the procurement, supply, storage and distribution of drugs and other medical supplies. Nepal received further assistance in medical stores management; training courses and seminars were organized for health workers connected with this field, and a formulary committee has been set up in the
The final report on a WHO comparative study of hospital equipment was prepared for publication by WHO. It is intended to reach a larger and less academically oriented audience, providing a briefer, practice-oriented report on the same study. Examples of such comparisons appear in the report. A small area within this study will be of value in comparing similar and contrasting systems of hospital service planning and administration, and that they are exemplified in national studies of direct practical use to health planners and administrators. The results of such comparisons will lead to further such inter-national studies.

Methods of survey and analysis developed in the study will be adapted to local conditions and the needs of communities and national populations as a whole. This orientation could be reflected in a common theoretical framework and guide for research in comprehensive health planning.

Utilization of hospitals and other health care facilities

The main report on the WHO /International Collaborative Study of Medical Care Utilization, in which the Organization has been formally involved since 1967, was completed for publication. The study has attempted to assess patterns of needs and use, alternative arrangements of resources, and the effects of different values and value systems on the use of resources; to illustrate patterns of health care in different societies; and to suggest ways of bringing greater precision to the decision-making process. The design of the study and interpretation of its results was worked out jointly by investigators from 11 study groups in Argentina, Canada, Finland, Poland, United Kingdom, USA and Yugoslavia, so that varying concerns could be reflected in a common theoretical orientation, with uniform study methods and a mutually satisfactory plan of analysis. It is hoped that the methods of survey and analysis developed and tested in the study will lead to further such international studies of direct practical use to health service planners and administrators, and that they will be of value in comparing similar and contrasting small areas within, as well as among countries; examples of such comparisons appear in the report. A briefer, practice-oriented report on the same study, intended to reach a larger and less academically inclined, public, was prepared for publication by WHO. The final report on a WHO comparative study of hospital utilization in eight countries (Belgium, Finland, France, Federal Republic of Germany, India, Sweden, United Kingdom and Yugoslavia) was also completed.

Health technology

Following a thorough revision of UNICEF's equipment lists, the Organization produced provisional reference lists of equipment and supplies for peripheral health services. These lists are designed to initiate a more comprehensive study on the use of standardized technological aids by health personnel in a way adapted to local conditions and the needs of communities and national populations as a whole. This study is planned as a continuous process in which the countries and WHO will exchange information on the adaptation of technological means to changes in levels of health.

Intervention and innovation studies

A study to investigate, through population-based multifactorial intervention trials, the feasibility of influencing the incidence of noncommunicable diseases by lowering risk factor levels, using cardiovascular diseases as the intervention vehicle, was carried out in Kaunus, USSR, and Rotterdam, Netherlands from August 1972 to the end of 1974.

Preliminary analysis indicates that it is feasible to standardize procedures and to carry out screening of the general population and treatment of those at risk in two centres having quite different health delivery systems. Participation and adherence rates were shown to be directly related to the amount of effort and number of contacts between health care delivery services and the population. Preliminary analysis of the changes in risk factor levels following intervention demonstrates the importance of screening and contact with the population in addition to medication in bringing about such changes. Data on the cost/effectiveness of this type of preventive action are also being analysed.

As part of the Colombian/WHO/PAHO project for research in comprehensive health planning, three studies are under way in Colombia: two innovation...
studies in collaboration with the Departmental Health Service, Valle del Cauca, and a diagnostic study on behalf of the Colombian Social Security Institute (Caja Valle del Cauca). One of the innovation studies, relating to immunization, entered the implementation phase in May; on completion of the design, the new immunization programme, planned by the programme team working with the Cali Health District staff and administrators, began in October. It covers promotional activities among the population, training and motivation of staff, an information system, evaluation and control mechanisms, and supplies and logistics. The programme was favourably received by the Ministry of Public Health, which has asked for advice on its possible application to other regional health services. The second innovation study, on maternal and child health, seeks to assist in planning for increased coverage of families at local health centres or hospitals, under a new financing scheme. Preliminary aspects, such as diagnosis of the situation, the study of objectives, and possible strategies, have been completed, and by the end of 1975 alternative new maternal and child health programmes had been proposed to the Departmental Health Service. Implementation will begin in the district of Palmira.

1.48 The diagnostic study, the object of which was the evaluation of the Valle del Cauca branch of the Colombian Social Security Institute, was completed towards the end of the year. The findings of the study, which focused on three main areas—characteristics and needs of the population, health services performance, and financial performance—were submitted to the Institute in December.

Health planning and management

1.49 Planning of national health activities continued to gain momentum in the Member States. In the Region of the Americas the Organization assisted in various ways in the implementation of the Ten-year Health Plan for the Americas. Twenty countries began the first stage of evaluation under the plan and established concrete goals to be attained by 1980, while five countries have embarked on their programmes. In the other five WHO Regions, country health programming as a comprehensive approach to national health planning has now been undertaken by eight countries; in six of these—Algeria, Congo, Laos, Pakistan, Sudan and Thailand—the main phases were undertaken in 1975. Several other countries have expressed their interest and have programmed or started introductory activities.

1.50 The WHO interregional team responsible for research and development in the application of systems analysis to health management concluded its operational activities in 1975 after five years of active collaboration with Member States. Late in 1974 a book was issued describing the procedures developed with a view to making the best use of scarce resources to achieve the maximum beneficial impact on the health status of populations. In 1975 the team was concerned with field applications of these procedures, with training, and with studying the articulation within health programmes of projects arising from the country health programming process. Management procedures were field tested in Kenya, Malaysia and Thailand in relation to large-scale development projects. A series of learning materials for use in training workshops was prepared after repeated testing in countries and within the Organization. The active support of the team at different stages of country health programming in Congo, Nepal, Pakistan and Thailand helped to clarify areas of strategic as opposed to operational planning. The five years of activities in project systems analysis were reviewed in December by a WHO Expert Committee on the Application of Systems Analysis to Health Management, which concluded that the work was suitable for widespread application and consolidation in Member countries and that it provided a basis for further development and experimentation both at the national level and through international collaboration.

1.51 The WHO-supported African Institute of Health Planning opened in Dakar early in 1975, and the first course began towards the end of the year. The Institute will enable Member States in the African Region to create the necessary technical capacity to undertake health planning processes, which is a national responsibility, but which WHO and other agencies can assist. Emphasis continued to be placed on country health programming, which can help considerably in the planning of individual projects. One such study was undertaken by the Government of Congo in order to identify the country’s health problems and determine the operational objectives in programme terms. The second WHO workshop on country health programming was held in Brazzaville in April for national staff responsible for the methodology of this process. The Organization assisted Mali in evaluating its 10-year health service development plan for the period 1966-76.

1.52 In the field of health management, the analysis of systems applied to the formulation and management of projects has been used in the training of auxiliary personnel in Kenya and the development of the health infrastructure in North Western State, Nigeria. The experience gained by the systems analysis team is being used to prepare a guide constituting a conceptual and methodological tool for national and international teams.

1.53 In the South-East Asia Region, the countries continued to show increasing proficiency in planning their health activities. This has been in all cases a national undertaking, which has been assisted by WHO, particularly from the methodological point of view. Thailand went through the country health programming process in 1975 as the basis for the health component of its fourth five-year plan—the third country in the Region to do so, after Nepal and Bangladesh. All three countries formulated programmes and projects issuing from country health programming during the year, and a workshop on the procedure was held in Burma. In Sri Lanka, WHO provided assistance for health planning following the comprehensive manpower studies completed during previous years, which are being considered as the basis for future health plans.

1.54 The United Nations Asian Institute for Economic Development and Planning, Bangkok, organized three activities in the health sector with WHO’s participation: a meeting of an expert group on health projects and programming, a workshop for trainers and planners on health planning, and a training seminar on health projects analysis. A UNDP/WHO inter-country project for strengthening health services administration in the Region through training in planning was launched in 1975. Two national courses in health planning were organized by the Organization, one in India and the other in Indonesia.

1.55 In the European Region, a WHO health planning team visited Algeria to support the country health programming exercise by clarifying and detailing methodology. The first phase of the studies on health planning in countries using different systems of health care was completed with visits to Scotland and Sweden. The studies have indicated where countries see the need for further and more specialized assistance. Work has begun on the preparation of a monograph that will describe health planning systems in Austria, the Federal Republic of Germany, Hungary, the United Kingdom (Scotland), Sweden and USSR.

1.56 In addition to the regional courses on health planning and on health planning and evaluation shown in Table 2, a seminar on the programming and management of health services was held in Copenhagen in October as a result of the interest shown by the United Kingdom and the Scandinavian countries in the project systems analysis approach in this field, which was successfully applied in 1973 to the development of a child health programme in Scotland. Participants from Denmark, Ireland, Norway, Sweden and the United Kingdom were briefed on the approach and indicated its possible applications in their own countries. In view of the countries’ growing interest in the evaluation of health programmes, services and medical procedures, regional activities focused on the use of epidemiological methods in evaluation and planning processes. A working group on screening activities in the Region, convened in Luxembourg in August, found that evaluation of present screening programmes is either generally inadequate or nonexistent. Assessments of the effects of health measures and of the relative values of screening and traditional strategies are especially deficient.

1.57 A working group which met in Heidelberg, Federal Republic of Germany, in April discussed the geographical factors that influence the health status of the population, the health consequences of man-made changes in the natural environment, the handling of health and environmental data from the points of view of spatial analysis, geographical and spatial health planning, and computerized mapping of mortality data. The group concluded that the spatial dimension of environmental factors likely to be involved in the planning of health care programmes and/or in the causation of disease has been seriously neglected.

1.58 In the Western Pacific Region, WHO provided technical support to the National Planning Committee of Laos in the first country health programming in the Region. Malaysia was assisted in the formulation of its third health plan, with particular reference to the assessment of the health manpower resources available and the estimation of requirements through the plan period; a complementary study related to education and training requirements for the nursing and midwifery categories.

1.59 In 1975 the regional course for health planning, held in Manila (see Table 2), was broadened in scope to incorporate the management aspects and the principles and application of country health programming. In the teaching of planning in the Region, the emphasis is moving from regional to country courses. While earlier courses stressed the preparation of senior national staff responsible for the direction and/or drafting of country health plans, attention is now being given to enabling middle-level and local staff to
understand and participate more effectively in the national health planning process. The regional courses will therefore be held at longer intervals, and it is envisaged that former participants may be invited back for refresher courses. The Institute of Public Health, University of the Philippines, which assumed the full technical responsibility for the 1975 course, will continue to be the site for regional training, with WHO's technical and material backing as required. A health planning manual, gradually developed and improved for use in health planning courses, was reviewed by a panel of experts consisting of a health planner, a development economist and a public health administrator, with a view to its later distribution to participants in the health planning courses and to countries of the Region.

Health service development institutes

1.60 Work continued on the development of these institutes, the concept of which has already been described. Activities in Indonesia and Iran, with which the Organization has entered into formal agreements, are described below.

1.61 In Indonesia the Health Service Development Institute in Surabaya has made considerable progress in its programme. The project to develop a maternal and child health care “package”, now at an advanced stage, has defined the technological subsystem on which primary health care for children depends and will provide an integrated set of readily usable components to assist in applying a particular group of interventions for the improvement of maternal and child health care. These components include a problem-oriented manual for the primary care worker, drug and equipment lists, a set of teaching aids, and methods and evaluation instruments for testing maternal and child health trainees and assessing the quality of the services provided. They are described in a manager’s guide now being developed for the teacher and administrator. The project represents an attempt by the Indonesian Ministry of Health, with WHO assistance, to plan what its health workers should do, and thus represents a national health plan on a small scale. The “package” for primary child health care developed by this project is being studied by WHO as the first of a series covering the entire technology of the health centre and district hospital, and which countries can use in planning their own standard technology. An experimental edition of the primary health workers’ manual has been produced in both English and Indonesian versions, and is now being tested in five regions of the country.

1.62 Another project in Indonesia, at present in its preparatory phase, is an in-depth study of selected health centres. The project, being carried out jointly with the Office of the Health Inspector of Central Java, is designed to support the Institute’s health centre programme and will focus on the analysis of both constraining and facilitating factors in a variety of settings; its results are expected to have national implications. In addition to individual tutoring of staff involved in the Institute’s projects, a series of five courses in operations research and systems analysis, and a few one-week workshops on the same subject, were started in 1974 and continued in 1975. These activities, including a theoretical and a field component, were intended mainly for staff engaged in research work; however, personnel responsible for health services were also included.

1.63 In Iran, the objective of the West Azerbaijan project under the Health Services Development Institute is to increase the health services’ coverage of the population by setting up an integrated health care network at the provincial level. This involves establishing a system of front-line health workers and defining the relationship between these workers, the health centres, and the hospitals. Output indicators will be based on both the coverage and the productivity of the health services and on changes in health status. The major project activities in the three districts now involved are concerned with the training of front-line health workers and their introduction into the health services system, care being taken to ensure that utilization and training are closely integrated. The first batches of these health workers are now working in rented or newly built “houses of health” in the villages surrounding the rural health centres; a physician serves as the first referral and supervisory point, while staff assigned to the project by the Ministry of Health are responsible for management and training in each district. The coverage of the rural population by health services is thus increasing as new village centres are established.

1.64 Great emphasis is being placed on the need to prepare a plan for the proposed health services network in West Azerbaijan, to cover both the integration of the front-line health workers into the system as a whole and the collaboration of the various agencies to support them. Schemes for evaluating different components of the project have been consolidated to

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1 WHO Official Records, No. 221, 1975, paragraph 1.3.
3 WHO Official Records, No. 221, 1975, paragraph 1.4.
form a complete plan of evaluation. It is intended to set up a complete system in West Azerbaijan before extending project activities to other provinces. This is one of the first WHO-assisted projects in which the emphasis has been placed on the development of health services through front-line health workers. For a 15-month period starting in July 1975, the WHO component of the project is being financed mainly by UNDP, and substantial support has come from the Government.

1.65 Since the inception of the first health service development institutes there has been a growing awareness in both WHO and some Member States of the need for a broader concept of health care delivery that includes health manpower development as a major component. WHO is therefore now developing a health service and manpower development approach, the object being to promote the coordinated development and implementation of the health services and manpower functions in the national setting in order to rationalize the management of the health services system (see also paragraphs 3.2-3.3). The combined approach will be applied to the formulation of policies bringing health services delivery and the training of health manpower into an efficient relationship; the form it takes and the related institutional structure will vary from country to country.

**Health service information**

1.66 A new programme area on health service information has been established, and a plan of action prepared, in response to the growing need felt by countries to review the underlying concepts and structure of their national health information services in order to make them more responsive to modern managerial requirements. The objectives are to identify or develop new and promising approaches by which country health service information systems can be reorganized and improved when necessary, to promote the adoption and adaptation of these approaches at country level, to encourage contacts and exchanges of ideas and experience, and to enhance the capacity of national staff in the development and improvement of health service information systems. One purpose is to promote closer collaboration at all levels between public health administrators and decision-makers on the one hand, and health statisticians and other information specialists on the other.

1.67 The main emphasis of the programme area is on developments at country level. Guidelines will be prepared to facilitate the establishment and functioning of information components of health service programmes and the training of the necessary personnel. Meanwhile, field projects are already in operation in several countries. For example, assistance was given to the Philippines for the completion of the second phase of an operational research study covering supervision, the supply system and the monitoring of information in peripheral health services; the study forms part of the country's health services development project (see paragraph 1.23). The manuals developed in the project have been approved by the Department of Health. A health information system component is also included in the health centre project being carried out in Indonesia by the Health Service Development Institute in Surabaya (see paragraph 1.62).
2. FAMILY HEALTH

2.1 The Organization in 1975 intensified its activities for family health, particularly with the aim of reducing the human wastage resulting from the interplay of malnutrition, infection, the consequences of unregulated fertility, and the scarcity of health and other social services. These conditions are associated with poverty and the low levels of socioeconomic development commonly found in the rural areas of non-industrialized countries; accordingly the family health programme should keep constantly under review the contributions it can make to total national developmental processes, particularly those geared to social improvements in remote communities and the benefits that it may derive therefrom for application elsewhere. This entails a move away from specialized, single-discipline projects to broader multidisciplinary and multisectoral programmes. Since family health care constitutes a link between the existing services concerned with the individual and those that provide for the community, it is fundamental in primary health care and rural development activities.

2.2 The programme focuses on four priority areas and their implications for services, training and research: namely, (1) the improved management of pregnancy, childbirth, and fertility regulation; (2) the promotion of the physical growth and psychosocial development of the young; (3) the prevention and management of prevalent diseases, particularly infections, during pregnancy, in infancy, and in childhood; and (4) the promotion of the health of the family as a whole. In relation to the latter it is significant that a number of governments and academic institutions have established departments of family health in order to focus upon the family as the basic social unit—an approach that the Organization has long recommended.

2.3 In all Regions maternal and infant morbidity and mortality remain inadmissibly high, and there is often dissatisfaction with the operational performance and impact of institutionalized health care delivery. In order to improve the planning and management of family health programmes within these, the Organization has increasingly promoted a more systematic approach to project formulation and management for maternal and child health, family planning, nutrition and immunization programmes, and the relevant health education. This approach was used during the year by Algeria, Nepal, and Thailand with encouraging results. In Pakistan the Organization assisted the Government in applying this approach to formulate the national population planning scheme for 1975-80. An interregional workshop on family health country project development was held in April for members of the WHO intercountry teams for family health to help them to adapt the project systems analysis method for use at the country level. As part of this managerial approach, the “risk” concept, described in paragraph 2.14, is useful for the development of local strategy for maternal and child health care, and it is also applicable to other aspects of family health in an attempt to ensure the provision of better services for all, with special attention for those who need them most. With a view to the extension of this and similar approaches, the Organization has been seeking to identify low-cost, effective and acceptable techniques for use at the periphery by simply but adequately trained workers as part of primary health care activities and to develop guidelines for the application of those techniques.

2.4 WHO’s approach to the integration of family planning into maternal and child health and other health services is now widely accepted. In collaboration with UNFPA and UNICEF, the Organization assisted in the planning and implementation of more than 70 integrated projects in 60 countries. This represents a considerable expansion of activity, which has highlighted the need for evaluation to be constantly developed from the planning stage onwards.

2.5 The WHO Expert Committee on Evaluation of Family Planning in Health Services, that met in 1974, annexed to its report a set of general evaluation guidelines. In accordance with the Committee’s recommendation, the Organization has started to develop more precise guidelines for the evaluation of family planning as part of the total health care system. Evaluation in this field was also the subject of seminars and workshops organized in the Regions of the Americas and the Western Pacific.

2.6 With a continuous increase both in the demand for family planning services and in awareness of prob-

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lems relating to human reproduction, public health administrators turn to the results of research for guidance, since there are no ready answers to many of the questions that face them. The Organization's large-scale programme of research in this field, as described below, encompasses the biomedical, epidemiological and operational aspects of family planning, sterility, pregnancy, lactation and other aspects of reproductive health and disease. By the very nature of these subjects, the psychosocial aspects are important. The main emphasis to date has been on the assessment in different populations of the safety, effectiveness, acceptability and service implications of methods of fertility regulation, on the improvement of current methods and the development of new ones, and on the development of research expertise, particularly in the developing countries.

2.7 As a better understanding is acquired of reproductive physiology, of the factors influencing fetal growth, and of the nutritional and psychosocial requirements for a child's growth and development, maternal and child health services are shouldering greater responsibilities, not only in the prevention and management of the problems of pregnancy and childbirth, but also in relation to the rapid social and behavioural changes that are having an important effect on the health of vulnerable groups. Of interest in this connexion are the activities in the Regions of the Americas and Europe for the study of childhood handicaps in children, in connexion with problems of school age and adolescence. A new set of problems is also arising—among them the effect of infant malnutrition on adult cardiovascular diseases; the long-term effects of oral contraceptives on young girls, especially in relation to their future reproductive potential; the psychosocial aspects of abortion; and the health implications of falling birth rates and the smaller family in some industrialized countries. All these highlight the need to give far more importance in public health to identifying early impairment to health through the establishment of indices of a positive nature rather than through reliance on retrospective indices based on mortality and obvious morbidity.

2.8 With respect to nutrition, it should be stressed that the acute episodes of mass hunger that have occurred in the last few years are unfortunately only exacerbations of a chronic condition of malnutrition still affecting large sections of the world's population. Close collaboration was maintained with UNICEF, FAO, IBRD, and governmental and nongovernmental organizations in order to ensure that the health aspects of this grave socioeconomic problem were fully appreciated. Food and nutritional surveillance is one of the priority considerations in WHO's nutrition programme and was a need stressed in 1974 at the World Food Conference. Jointly with UNICEF and FAO, the Organization convened an expert committee on this topic, which is considered in paragraph 2.54 below.

2.9 Many of the topics discussed above were explicit or implicit in the themes recently taken up in several international forums, such as the World Population Conference and the World Food Conference in 1974, and the World Conference of International Women's Year and the Seventh Special Session of the General Assembly of the United Nations in 1975, which were in their respective ways concerned with the correction of the causes of significant human loss and the promotion of the quality of life. The Organization played an active role in contributing to these conferences or following up the resolutions and recommendations adopted. Consultations were organized by the United Nations and UNFPA in 1975 at intergovernmental level in each of the United Nations economic and social regions, in order that countries with similar population conditions and problems could consider jointly the World Population Plan of Action. WHO prepared background papers for all these consultations, indicating the role of the Organization in implementing the Plan of Action, and actively participated in them, as well as in the interregional consultation of experts in which they culminated; this was convened to advise upon areas requiring priority action arising from the Plan of Action.

2.10 WHO contributed to the preparation of the draft Plan of Action for International Women's Year, particularly with respect to the chapters on health and nutrition, the family, and population, and participated in the World Conference of International Women's Year in Mexico in June-July, contributing documentation on the health needs of women. The Organization also took part in a number of international conferences and other meetings related to International Women's Year. A review of the status of women within WHO itself is in progress, and the attention of governments was drawn to the Organization's willingness to assist them to intensify activities relevant to the health of women, in accordance with resolution WHA28.40 adopted by the World Health Assembly in May.

2.11 All the above activities imply the closest coordination for the development of programmes. This is being achieved through both formal and informal channels with the various organizations of the United Nations system, particularly UNFPA, UNICEF, ILO,
FAO, UNESCO, and IBRD, as well as with non-governmental organizations and other agencies and institutions. Special mention should be made of WHO's participation in the work of the ACC Subcommittee on Population, the UNFPA Inter-Agency Consultative Committee, the Population Commission, the World Food Council, and the ad hoc Inter-Agency Committee on Women.

Maternal and child health

2.12 For some years now national authorities and international groups of experts have been stressing the need for particular emphasis on maternal and child health in the promotion of health care systems that will effectively reach the vast proportion of the population in developing countries that is at present underserved. Increasing recognition is being given to the importance of coordinating the various programmes concerning mothers and children (including those in sectors other than health, and particularly within rural development projects), and the Organization's integrated approach to maternal and child health and family planning care is meeting with wide acceptance. This was demonstrated during 1975 by views expressed, in particular, at the World Conference of International Women's Year and at the twentieth session of the UNICEF/WHO Joint Committee on Health Policy. From the UNICEF/WHO joint study on alternative approaches to meeting the basic health needs of populations in developing countries, which was discussed at this session of the Joint Committee, it was apparent that, where the delivery of health care has been successful, it has always been so with the active involvement of the community, and that maternal and child health programmes have received special attention in the development of health care, particularly at the primary level.

2.13 These points were also reiterated and strongly underlined by the WHO Expert Committee on New Trends and Approaches in the Delivery of Maternal and Child Care in Health Services, at its meeting in December. The Committee discussed, among other things, the provision of maternal and child care in the light of socioeconomic and environmental changes. It emphasized that maternal and child health services should not only have wider coverage than at present, but should also be better balanced as between primary, referral, and specialized services, as well as between urban and rural areas. To improve the coverage and effectiveness of maternal and child health services, the type of care provided needed redefinition, and strategies for its delivery suited to local circumstances would have to be devised; in this connexion the Committee drew attention to the importance of utilizing existing resources flexibly and to the maximum extent and to the value of methods such as assessment of biological and environmental risk factors in mothers and children and the delivery of appropriate care according to the skills and facilities needed for different levels of risk.

2.14 The concept of the "risk approach" as a managerial tool for the delivery of maternal and child health services including family planning was elaborated by a task force that met in September. In this approach, through a better distribution of resources, special attention is paid to those individuals and groups whose characteristics or circumstances are associated with an increased risk of having, developing, or being especially affected by a morbid process, while the goal of wider coverage to meet the essential needs of all mothers and children is retained. The task force emphasized that this approach can be applied with particular success to services for mothers and children, since supervision of their health necessitates frequent contact with the health care system, and the early identification of those at high risk is thereby facilitated. No developing country can afford the wastage of resources and skills that results from adhering to rigid patterns of maternal and child care. Instead, the content of the maternal and child health "package", the frequency, timing and other factors in the strategy of maternal and child care should be developed locally, assessing risk factors, their prevalence and amenability to intervention, and matching these to the distribution and allocation of the manpower, skills and other resources of the community. The task force developed a methodology and guidelines for drawing up protocols for use of the "risk approach" in WHO-assisted maternal and child health and family planning programmes in selected countries.

Activities related to specific health needs

2.15 With the cooperation of the Institute of Child Health, University of London, the Organization collected and analysed data from various parts of the world on fetal, childhood and adolescent growth. Information on growth trends in the world is valuable for assessing the health and nutrition status of children and the effects of environment and disease on growth and for planning appropriate measures for intervention and care. This work also contributes to the standardization of methods for the collection and analysis of growth data. Work was completed on the
evaluation of the results of testing in nine countries of
the growth chart developed by WHO for international
use at the primary health care level in supervising the
nutritional and health status of children under 5
years of age. The report prepared is encouraging in
that the results have shown the chart to be practical
and easy to use by auxiliaries for care and referral
and for the education of mothers.

2.16 The etiology, prevention and social implications
of low birth weight—excluding both “pre-term”
babies and those who are small or light for their
gestational age—were discussed in September by a
group of experts from both developing and industri-
alized countries. Some 20 million such babies are
born throughout the world each year (approximately
one-fifth of the total annual births in the world), and
low birth weight is one of the main factors contributing
to perinatal mortality and immediate and long-term
morbidity. The group concluded that the prevention
of low birth weight is one of the most important
challenges to public health in most countries; it is of
great importance for the development of children to
their full potential and the reduction of human wastage
and suffering, as well as for avoiding the high costs
involved in the immediate and long-term care of low-
birth-weight babies. Stress was laid on the need to
develop practical measures for timely intervention
and for the prevention of factors leading to low birth
weight; measures regarding nutritional and behavioural
factors should be started during adolescence and
continued into pregnancy. The development of simple
methods for care of the newborn, particularly at the
community level, was considered essential.

2.17 The Organization is undertaking a collaborative
study on breast-feeding in order to provide the factual
basis needed for appropriate maternal and child care
programmes, in developing countries in particular.
Following the meeting in May of a task force and the
principal investigators concerned, the first stage was
initiated in 10 countries (Chile, Ethiopia, Guatemala,
Hungary, India, Lebanon, Nigeria, Philippines, Swe-
den, Zaire). This stage, which is expected to be
concluded within a year, involves a cross-sectional
population study in urban and rural areas of the
frequency and duration of breast-feeding and the
factors influencing them. Protocols were also drafted
for the in-depth studies to be carried out in the second
stage. These include investigations into factors that
affect infant-feeding practices (e.g., social policy,
legislation on maternity and working mothers, organi-
zation of medical care for mothers and children,
availability of milk substitutes) and biological studies
(for instance, on the interrelationships between lacta-
tion, reproduction, nutrition, and the quality and
quantity of breast milk). The study is being carried
out in collaboration with the International Children’s
Centre in Paris and is supported by UNFPA and SIDA.

2.18 Two sets of guidelines that were prepared by
WHO during the year should be of assistance to
administrators and planners of maternal and child
care and family planning programmes in the selection
of programme priorities, bearing in mind the require-
ments as to staff training and operational costs, and
the load on ancillary services. One concerns the opera-
tional implications of various techniques of female
sterilization. The other provides guidance as to the
requirements for the development, within maternal
and child health and family planning programmes, of
vaginal cytology services for cancer detection in de-
veloping countries and as to the factors that have to
be taken into account before any such services are
started. These guidelines were based on the conclusions
of a group of experts that met in Geneva in April.

2.19 The problems of contraception in adolescence
were discussed by a group of advisers in September.
They reviewed current knowledge about physiolo-
gical maturation in the adolescent girl and the legal,
social, psychological and educational factors related
to the use of contraceptives by adolescents. They also
discussed the safety and efficacy of contraceptive
methods currently used in this age-group. The lack of
knowledge of the effects of hormonal contraception on
the growth and development of young girls and the
outcome of future pregnancies gives cause for particular
concern. The findings of the group, together with the
report on the meeting on pregnancy and abortion in
adolescence, held in 1974; will be included in the
material to be considered in 1976 by a WHO expert
committee on the health needs of adolescents.

2.20 Significant progress was made in WHO-
assisted research on the somatic sequelae of induced
abortion and the implications of illegal abortions,
both for health and the health services. In some
African countries WHO-assisted research on infertility
is being carried out as an integral part of the develop-
ment of maternal and child health services (see
paragraphs 2.126-2.127).

2.21 The prevention and management of infections
are of special importance for mothers and children, and
in this connexion the reader is referred particularly to
Chapter 4, where accounts are given of progress in
the expanded programme of immunization (paragraphs
4.2-4.9) and the treatment of diarrhoeal diseases
(paragraphs 4.152-4.154).

2.22 In the African Region the implementation of community development programmes in rural areas has allowed several countries—for example, Congo, Kenya, Mali, Nigeria, and Upper Volta—to make better use of meagre resources. Maternal and child health is accorded prominence in these programmes, which place special emphasis on the training and reorientation of staff such as rural educators and community nurse/midwives. Rural maternity clinics, staffed by trained birth attendants, are being established in Mali. In comprehensive programmes for the promotion of health care in Botswana, Nigeria, United Republic of Cameroon, and United Republic of Tanzania, particular emphasis is being laid on maternal and child health and family planning. In similar programmes in Kenya and Swaziland family planning is being integrated into maternal and child care at health clinics and appropriate training is being given to nurses, health educators, and other health workers.

2.23 By 1975 almost all the countries in the Region of the Americas had established a maternal and child health unit at the national health administration level. The Organization assisted in the development of maternal and child health and family planning projects in 15 countries; in five of them, mid-term project evaluation has already been carried out, and in Chile and Colombia the satisfactory results have led to the expansion of activities. It also assisted Bolivia, Ecuador, Guatemala and Panama with preparations for the formulation of maternal and child health and family planning programmes. A review of the maternal and child health situation and services in the Caribbean area led to the formulation of a plan for the strengthening of maternal and child health programmes in that area. A similar review was started in countries of Central America.

2.24 The need to reinforce the managerial capacity of health personnel responsible for the administration of maternal and child health and family planning programmes is very apparent in this Region. To facilitate study of the administrative problems involved, the Organization has developed a questionnaire, which has been used for collecting data in several Caribbean countries. With the collaboration of selected institutions, a regional programme is being developed for continuing education in the administration of maternal and child health and family planning programmes, for middle-level and top-level management personnel.

2.25 Young people 15-24 years of age form an average of 18% of the population in Latin America and the Caribbean area, and planning for the improvement of their health is urgently needed. Following a preliminary study of their health status in 1974, a task force met in 1975 to define the basic components of health programmes for this population group, suggest strategies for implementation and, in particular, review the opportunities for the active participation of youth in health programmes.

2.26 In the South-East Asia Region there is a general lack of the data necessary for the planning and evaluation of maternal and child health services. One activity undertaken during the year that should significantly help to overcome this problem was a feasibility survey for the planning of studies on perinatal mortality and morbidity, including the frequency of low birth weight, in Burma, India, Sri Lanka, and Thailand. India is organizing a rapidly growing programme for the medical termination of pregnancy, and WHO assisted towards the establishment or work of some 60 national training centres in this sphere. At a workshop held in New Delhi in July with support from WHO, central and state health authorities, members of the Indian Federation of Obstetric and Gynaecological Societies, the Indian Medical Association and the national task force on training in the medical termination of pregnancy discussed current problems and formulated recommendations for the development of the programme. Reference is made in paragraph 18.8 to the remodelled, community-orientated programme of undergraduate and postgraduate training in child care in Indian medical colleges. In Sri Lanka an integrated maternal and child health, family planning and immunization programme is under way, with emphasis on maternal and child care, improved obstetrical care, and nutrition education; the periodic evaluations made jointly by the Government, UNFPA and WHO have proved valuable in improving the quality and coverage of the care. Following country health programming, projects for the development of maternal and child health and family planning were formulated in Nepal and Thailand; in the latter, the project forms part of a programme for the development of provincial health care. In Bangladesh WHO assisted in strengthening the clinical aspects of family planning programmes. In the maternal and child health “package” in Indonesia, the training of health workers was further advanced and the child care component finalized and evaluated (see paragraph 1.61).

2.27 In the European Region, Algeria, Morocco and Turkey continued to receive assistance from WHO for
the development of maternal and child health projects. Reference is made in Chapter 3 to some of the numerous training activities, with participants from all WHO Regions; there is a trend towards decentralization of these activities and, increasingly, WHO is assisting courses at the national level.

2.28 A study on the problems of children of school age was started, and in November a working group met in Copenhagen to discuss the particular problems of children in the 5-9-year age-group. Data obtained during a study on school health statistics in Europe, carried out in 1974 and 1975, provided background information for the group, which discussed various aspects of health protection and promotion and proposed solutions involving the use of modern techniques and strategies. It considered, in particular, problems arising in rapidly urbanized areas; health hazards in the environment; psychosocial relations between the school, family and child; and children needing special attention (owing to psychological, social or economic factors, or to handicaps resulting from chronic diseases or mental retardation).

2.29 In the Eastern Mediterranean Region, WHO assisted Democratic Yemen, Sudan and Yemen in the development of comprehensive maternal and child health and family planning programmes. In this Region, too, the training of personnel forms a major component of all WHO's collaboration in matters of maternal and child health and family planning. An exchange of teachers of preventive and social medicine, paediatrics, and obstetrics and gynaecology was initiated between Egypt, Iran and Pakistan. With a view to strengthening the teaching of maternal and child health and family planning in medical schools, a regional seminar on the development of field training areas was held in Isfahan, Iran, in May.

2.30 Developments in countries of the Western Pacific Region reflect the aim of meeting the most urgent needs of a large number of people rather than developing optimal services for limited groups. In the Gilbert Islands and Tuvalu and in Tonga maternal and child health and family planning care have become part of the regular duties of district nurses. In Papua New Guinea, Philippines, Republic of Korea, and Tonga the curricula for the basic training of nurses have been revised to include family planning. In Malaysia a programme to intensify the integration of maternal and child health, family planning, nutrition, health education and school health is being developed in 20 districts with the aim of improving the quality and coverage of the maternal and child care provided by community nurses.

2.31 With the assistance of UNFPA, WHO and the Population Council, the Government of the Philippines has launched in Bohol Province a project to determine the effectiveness of family planning activities carried out as part of a well-organized maternal and child health programme in a large, predominantly rural area. A four-year phased programme for the establishment of family planning as part of postpartum or postabortion maternal and child care in 25 training hospitals was completed in the Philippines. It entailed the construction and adaptation of premises, the strengthening of staff, a comprehensive training programme for the maternity-centred family planning activities, and an upgrading of maternal and child care. All newborn babies were vaccinated with BCG and rooming-in was organized to promote breast-feeding; in departments other than the maternities particular efforts were made to vaccinate all nonimmunized children. The hospitals taking part in the project became referral units, by virtue of their staffing and equipment, for all smaller units providing maternal and child health and family planning care.

2.32 At the interregional level, training programmes for key paediatric teachers and maternal and child health care administrators continued with WHO and UNICEF support (see Chapter 3). Particular mention should be made of the review meeting of fellows and former fellows in the advanced training programme based on institutions in the United Kingdom, Africa and India that is referred to in paragraph 3.74.

Cooperation with other organizations

2.33 A measure of WHO's collaboration with UNFPA and UNICEF has already been given in paragraph 2.4. The Organization also participated in programmes for the training of UNICEF staff and collaborated in joint UNICEF/WHO courses for key administrators and teachers of maternal and child health in developing countries. It cooperated with the International Children's Centre, Paris, in a variety of research and training activities, and attended the Centre's biennial Technical Advisory Committee meeting. Reference is made in paragraph 2.10 to WHO's extensive cooperation with various United Nations agencies in connexion with International Women's Year.

Nutrition

2.34 There was scarcely any improvement during the year in the global food and nutrition situation, of which the gravest effects were felt in the countries of the Third World. Having reviewed the Organization's
participation in the 1974 United Nations World Food Conference and in the follow-up of its recommendations, the Twenty-eighth World Health Assembly adopted resolution WHA28.42, which reaffirmed the need for Member States to strengthen their programmes for the control of prevailing nutritional deficiencies, as well as to develop coordinated and multisectoral policies and plans designed to improve the food and nutrition situation and strategies for their implementation as an important immediate objective of socioeconomic development programmes. WHO is in consequence according high priority to assisting countries in programmes for the surveillance and early control of different forms of malnutrition and in the development of suitable manpower resources within and outside the health sector.

2.35 In pursuance of the recommendations of the World Food Conference, the United Nations established the World Food Council early in 1975. The Council’s first meeting—held in Rome in June—was preceded by a consultative meeting in New York, which was attended by representatives of various international bodies, including WHO. The specific responsibilities of each organization and the areas of collaboration were defined at that meeting. WHO was given the task of acting as the focus of all activities relating to the control of specific nutritional deficiency diseases and was assigned a major role in the development of global nutrition surveillance systems. These tasks are being actively pursued in collaboration with UNICEF, FAO, and other international organizations.

2.36 A general review of the nutrition activities of WHO in four of the five priority areas defined in 1974 is presented in the following paragraphs. (The fifth area—that of training—is dealt with in Chapter 3.)

Nutrition and local health services

2.37 The joint UNICEF/WHO strategy for strengthening nutrition activities at the local health service level is based on two important principles. First, nutrition promotion of vulnerable groups in peripheral areas is best delivered through simultaneous maternal and child care, nutrition activities, health education, and the control of communicable diseases. Secondly, in the most remote areas in many developing countries, such an integrated or “package” approach can be applied both by health auxiliaries and by volunteers with some health orientation training. Accordingly, WHO, in collaboration with a number of countries in different regions (Iraq, Nepal, Somalia, Thailand, and United Republic of Tanzania), is conducting feasibility trials based on an integrated approach with the above-mentioned components. It is apparent that the ultimate objectives of such an approach are to enhance the quality of life of the vast rural population whose health care is at present far from satisfactory and to improve family health as a whole, with emphasis on mothers and young children—biologically the most vulnerable sectors of the population.

2.38 During an interregional workshop on nutrition in family health, held in Morogoro, United Republic of Tanzania, in November, senior health administrators from 18 countries of Africa and Europe and representatives of FAO and the International Planned Parenthood Federation defined important nutritional and related activities that can be introduced by simple means in peripheral rural areas.

2.39 In most of the health service development projects in the African Region nutrition activities in the countries concerned were reviewed and measures formulated to improve them, particular emphasis being placed on their integration in the family health programme, in national health plans, and in broad socioeconomic development projects. Efforts to promote nutritional activities in local health services were made chiefly through these health service development projects. The particular activities to which attention was paid were: nutritional surveillance (Botswana, Congo, Kenya, Niger, Senegal, and Upper Volta), health education in nutrition (Botswana, Burundi, Congo, Niger, United Republic of Cameroon, Upper Volta, Zaire and Zambia), and nutritional rehabilitation (Ghana, Kenya, and Upper Volta). Nutrition surveys were carried out in Congo, Mali, Niger, Senegal and United Republic of Tanzania.

2.40 In the Region of the Americas, attention continued to be given to the strengthening of nutrition services at national and local levels, with particular respect to the planning, supervision, and evaluation of nutrition programmes. With UNDP/WHO cooperation, Ecuador initiated a project to develop a national mother and child nutrition programme, and Mexico introduced a comprehensive community development project with emphasis on nutrition. In collaboration with the World Bank, assistance was provided to the National Food and Nutrition Institute of Brazil and the Institute of Nutrition in Recife, Pernambuco, to strengthen their organization and programmes.

2.41 In the South-East Asia Region, development of the nutrition component in the maternal and child health services and the training of health personnel for the delivery of such integrated services at the
peripheral level were promoted in Sri Lanka through close collaboration with UNFPA, UNICEF, and the World Food Programme.

2.42 In the European Region, data were collected on the effects of undernutrition and overnutrition on health (especially with regard to the physical and mental development of vulnerable groups such as newborn babies, school-age children, adolescents, and pregnant women), in preparation for a meeting of a working group on the role of nutrition in public health.

2.43 In the Western Pacific Region, direct assistance was given to Laos, Malaysia, and Papua New Guinea in the development of nutrition services integrated with local health services and in the establishment of training facilities. Technical advice on integrated nutrition services was also provided to Australia, Fiji, New Hebrides, Solomon Islands, Western Samoa, and the South Pacific Commission. Emergency aid was made available to Cambodia and the Republic of South Viet-Nam.

**Measures against specific deficiency diseases**

2.44 Supplementary feeding programmes are perhaps the most commonly used measures for the control of malnutrition. However, they cannot provide a permanent answer to the problem of malnutrition, and few governments can afford indefinitely to subsidize such programmes on a large scale. In the ultimate analysis, therefore, the aim must be to attain a level of socioeconomic development and food production and a pattern of income distribution that will make supplementary feeding unnecessary. However, until these ends are achieved, it will be necessary to take short-term measures. It is in this context that large-scale feeding programmes for children and other vulnerable segments of the population—such as the economically weak—are of great importance.

2.45 In view of the recommendations of the World Food Conference regarding supplementary feeding programmes, it was considered necessary to undertake a critical review of such programmes implemented by international and nongovernmental organizations and to plan for the future. For this purpose, WHO convened an interorganizational meeting in Geneva in March, which was attended by representatives of all the international and nongovernmental bodies involved in the programmes. Past experience was subjected to critical analysis and important decisions were taken regarding future action. One such decision, strongly supported by WHO, was that in order to produce the maximum impact, supplementary feeding should be accompanied by other services, which should, as far as possible, include education, a safe water supply, local food production, communicable disease control, and other basic health measures, all interrelated one with another. It was agreed that, in future, similar meetings should be held on a regular basis to ensure better coordination and exchange of information among the various organizations concerned.

2.46 School and hospital feeding programmes as a measure for the control of malnutrition are being continued with WHO collaboration in Afghanistan, Somalia, Sudan and Yemen. Evaluations were made of supplementary feeding projects assisted by the World Food Programme in Botswana, Congo, Senegal, Uganda, and Upper Volta. It was emphasized that where possible local production of cereals and protein-rich foodstuffs should replace imported foods.

2.47 Nutritional anaemia, especially iron-deficiency anaemia, is probably the commonest deficiency condition today. In April, a consultation took place in Geneva during which the report of a meeting held in 1974 to review WHO-supported studies of nutritional anaemia was finalized for publication. Detailed recommendations were drawn up for the establishment of a scientific basis for the development of country programmes concerned with the prevention and control of iron-deficiency anaemia. Consultations were held with investigators in Burma, India, and Thailand on the planning and coordination of existing and future research projects to fit into this new protocol.

2.48 As the outcome of a meeting on vitamin A deficiency and xerophthalmia held in Jakarta in November 1974 in collaboration with USAID, a comprehensive report on the diagnosis, epidemiology, prevalence, treatment, and prevention of xerophthalmia was prepared for publication. It contains guidelines for programmes of action and indicates areas in which future research is needed.

2.49 In the international collaborative study on the interrelationships between nutritional status and immunological function, work carried out in 1975 showed a variety of defects in immunocompetence in infants with low birth weights but a normal gestational period, corresponding partly to immunological abnormalities found earlier in older infants. The defects, which included impaired cell-mediated immunity and antibody response to poliomyelitis vaccine, persisted for several months. Field studies in Australian aborigines indicated significant impairment of immune

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mechanisms even when malnutrition was not severe and in spite of short-term hospital treatment of malnutrition and infections.

2.50 Progress was made in strengthening coordination with international bodies and bilateral-aid agencies (USAID and CIDA) in the carrying-out of programmes in Latin America for the prevention and control of specific deficiencies—namely, protein-calorie malnutrition, iron anaemias, vitamin A deficiency, and endemic goitre.

2.51 The Colombian Institute for Family Welfare received assistance from UNDP, the World Food Programme, and WHO in designing a project for the industrial production of a nutritious vegetable mixture. Similar efforts were made in Bolivia, Ecuador, Haiti, Honduras, and Panama. Chile is already producing food mixtures for the national supplementary feeding programme. A protein-rich food is being developed in the United Republic of Cameroon. Production and marketing of low-cost protein-rich mixtures have been progressing satisfactorily in Egypt, Ethiopia, and Iran.

2.52 Sugar fortification with vitamin A was begun in Guatemala and El Salvador, and other Central American countries received assistance from the Institute of Nutrition of Central America and Panama for this purpose. Guidelines for the control of vitamin A deficiency prepared by the Organization were widely disseminated in Kenya, Mali, Niger, Nigeria, Rwanda, and Upper Volta and other countries with a high incidence of such deficiency. An assessment of the impact of the preventive programme, under which massive oral doses of vitamin A are given every six months, revealed a marked reduction of corneal xerosis in Bangladesh. WHO collaborated in formulating a project, for UNDP assistance, for the establishment of an Institute of Public Health Nutrition at Dacca. Colombia and Ecuador drew up plans for expanding the distribution of iron supplementation to pregnant women, the former country being assisted by WHO and USAID in studying the feasibility of iron fortification. Bolivia and Peru continued to carry out an effective salt iodization programme. At the same time, the Organization cooperated with the governments in trials of administration of iodized oil by injection in pilot areas of high endemic goitre prevalence in Bolivia, Ecuador, Indonesia, and Peru.

2.53 Technical support was also extended to rehabilitation programmes in drought- or flood-affected areas such as Bangladesh, Ethiopia, India, Pakistan, Somalia, Sri Lanka, Sudan, and the Sahelian countries.

Nutritional surveillance

2.54 In consonance with a World Food Conference resolution calling for a worldwide system of surveillance of the food and nutrition situation, a Joint FAO/UNICEF/WHO Expert Committee on the Methodology of Nutritional Surveillance met in Geneva in October to discuss the various components of surveillance systems, including the suitability and limitations of different indicators, the need for and use of data collection systems, and the processing and interpretation of information. Recommendations were made regarding the methodology of surveillance systems, the requirements for establishing such systems, and the future involvement of WHO and other international agencies in developing and establishing nutritional surveillance.

2.55 The collaborative studies on anthropometry that WHO has been sponsoring in various parts of the world in order to develop simple indicators of nutritional status continued in a number of countries. On the basis of the data collected in these studies in 12 countries, the possible use of anthropometry for nutritional surveillance was reviewed. Recommendations for further work in this field were made by the Joint FAO/UNICEF/WHO Expert Committee on the Methodology of Nutritional Surveillance.

2.56 With the collaboration of the Organization, several Latin American countries carried out nutrition surveys, using a simplified and reliable approach. Field studies were initiated in the north-western region of Argentina under the direction of the Nutrition Institute of Salta. In Brazil, prevalence studies of vitamin A deficiency and xerophthalmia in the north-eastern region were carried out by the Institute of Nutrition, Recife, Pernambuco. In Chile, data continued to be collected and analysed by the nutrition surveillance system of the National Health Service. Paraguay completed the design of a national nutrition survey to update information necessary for the formulation of a comprehensive food and nutrition policy. Peru completed a well-planned nutrition survey in a secondary sample of 2000 families selected by the National Food Consumption Survey, as a combined effort of the Ministry of Agriculture and the National Institute of Nutrition. The Institute of Nutrition of Central America and Panama and the Caribbean Food and Nutrition Institute assisted Central American and Caribbean countries respectively in designing nutrition surveillance systems for incorporation in local health services.
2.57 In South-East Asia, a baseline survey was conducted in Bhutan on the nutritional profile of children in primary schools, preschool children, and mothers, and the incidence of goitre was investigated.

National food and nutrition policy

2.58 WHO participated in an interagency meeting convened by FAO in Rome in February for the purpose of preparing national intersectoral food and nutrition plans, the eventual aim being to assist governments in formulating and implementing such policies and programmes. The Organization also took part in an interagency workshop on intersectoral food and nutrition planning convened by FAO in Rome in October, followed by an interagency meeting on applied nutrition research. The report of the Joint FAO/WHO Expert Committee on Nutrition, which met in 1974, was finalized after a consultative meeting held in Rome in April.

2.59 WHO, with the collaboration of FAO, convened a further meeting in Rome in April to review the recommendations made by the Joint FAO/WHO Ad Hoc Expert Committee on Energy and Protein Requirements in 1971.¹ No changes were made in these recommendations, but a number of points were clarified concerning their interpretation and application in the calculation of requirements on a national scale.

2.60 The Protein-Calorie Advisory Group of the United Nations System met in Geneva in June. Among the major topics discussed was that of food marketing policies for improving human nutrition, with case studies from China, India, Indonesia, Mexico, and the USA. The Group also established priorities for applied nutrition research and made an attempt at evaluating new nutrition intervention programmes. Finally, it was recommended that, in future, the Group's activities should be divided into three major areas—namely, policy and planning; identification, design and appraisal of projects and programmes; and scientific and technological issues in food, agriculture, and health. The Protein-Calorie Advisory Group's ad hoc group on single-cell protein met in January in Geneva to review available information and make recommendations on the levels of nucleic acid that are acceptable in foods consumed regularly.

2.61 Several countries made progress in the formulation and implementation of national food and nutrition plans. In the African Region, the Joint FAO/WHO/OAU Regional Food and Nutrition Commission for Africa participated in preliminary planning exercises in Ghana, Nigeria, Rwanda, and Uganda. Technical assistance in nutrition programmes was provided to Liberia, Mali, Mozambique, Niger, Rwanda, Sao Tome and Principe, Uganda, and United Republic of Tanzania.

2.62 Together with ECLA, UNICEF, FAO, and UNESCO, the Organization participated in an interagency project for food and nutrition planning in Chile, Colombia, Costa Rica, Honduras, and Jamaica. Both the Caribbean Food and Nutrition Institute and the Institute of Nutrition of Central America and Panama played a significant role in this endeavour. The Organization, in collaboration with UNICEF, sponsored the first meeting of the Permanent Advisory Group on Food and Nutrition of the Andean Region in Santiago, in May, with the participation of Bolivia, Chile, Colombia, Ecuador, Peru, and Venezuela. A seminar on food and nutrition policy was held in Jamaica in August, with representatives from several countries of the Caribbean.

2.63 In the South-East Asia Region, national councils or coordinating committees on nutrition came into existence in Bangladesh, India, Indonesia, and Sri Lanka. In September WHO participated in a World Bank mission to Indonesia concerned with the formulation of a comprehensive nutrition programme for that country to be supported by a loan from the Bank. In Nepal, national health planning included malnutrition and goitre as priority areas, and WHO collaborated in the formulation of nutrition programmes in the overall health plan of the country.

2.64 In the Western Pacific Region, interest in developing national food and nutrition policies has continued to grow. In most cases this question is still under study or at the stage of preliminary discussion, though in two countries—Malaysia and the Philippines—definitive policies have been formulated. Collaboration with FAO has continued, but progress in this complex field is gradual.

Health education

2.65 In line with present concepts, which demonstrate more and more clearly the interrelationship and interdependence of social, cultural, and economic factors in general development, health education activities both reflect and respond to an integrated,
community approach. Through community involvement in the development of health programmes, individuals can acquire an understanding of how to prevent disease and promote general wellbeing. When health facilities are inadequate, health education can play a vital role in helping people to learn how to protect themselves against harmful environmental factors and to make the best use of available services in case of need.

2.66 In the Region of the Americas, a project aided by the Organization was initiated in Mexico with the aim of raising the health level of the rural population by community participation in local development plans. In Brazil, the Organization continued to assist five field projects in rural communities by formulating a suitable approach and specific methodological guidelines for strengthening community participation in the development of health services in selected experimental areas of work. The Fourth National Workshop on Health Education, attended by 100 representatives of different national agencies involved in health, education, and community development, was held in Brasilia in October, its aim being to devise the best methods of introducing new health concepts into the local culture of the Brazilian population.

2.67 In the South-East Asia Region, WHO provided advisory services to Burma, India, Indonesia, Maldives, Nepal, Sri Lanka, and Thailand in connexion with programmes resulting from developments in the field of primary health care; special attention was given to community participation in the evolution, delivery, and assessment of health education services, as well as to endeavours to instil in the public the concept of self-help in disease prevention and health promotion.

2.68 A similar pattern was followed in the Western Pacific Region, where the main objective was to integrate health education in all health programmes, with particular emphasis on strengthening community involvement in WHO-assisted programmes. Attention was also given to establishing close cooperation among the national agencies concerned with community efforts for development, and to encouraging health workers actively to participate in health promotion and to make full use of available resources for strengthening health programmes. In Papua New Guinea, efforts were made to integrate health education with the general health services at the village level; a workshop on strengthening community involvement in family health was held in Goroka in August, with the aim of imparting the relevant techniques to village health and development personnel.

2.69 Activities of this kind cannot be carried out by any one service on its own, and the role of health education in the development of other health services and programmes continued to expand. A meeting was held in Geneva in March for the purpose of establishing better coordination of health education efforts with those of other services and programmes. This led to a number of specific activities—for example, collaboration in the preparation of manuals on such subjects as the control of diarrhoeal diseases and health literacy. Cooperation continued in the development of guides for the training of village health workers in maternal and child health care, family planning, and good nutrition.

2.70 In the promotion of maternal and child health and family planning, health education, as a stimulator of active community participation, plays an integral role, helping mothers to understand and improve child care and to appreciate the benefits to be gained from a proper spacing of births. Among activities at the country level, the following may be cited: in Kenya a large-scale family planning programme is being conducted with the participation of nearly 200 rural health education workers; a health education project integrated with a project for the strengthening of health services was carried out in Benin with UNDP assistance; and in Laos, Malaysia, and Tonga the health education component of family health projects continued to be developed and reinforced.

2.71 Health education is an essential feature of communicable disease control. Thus, at the Twenty-eighth World Health Assembly in May, the subject was included in the Technical Discussions on problems associated with the sexually transmitted diseases. In the African Region, the Organization aided attempts to utilize health education in the control of schistosomiasis in Ghana. In the Region of the Americas, a committee on leprosy education, composed of representatives of national agencies, was set up in the state of Pará, Brazil; advice was given in the preparation of a long-range plan whose object is to counteract negative attitudes towards leprosy patients. In Uruguay, the Organization collaborated in launching a health education project connected with hydatidosis control in an effort to gain the cooperation of schools and rural community institutions in helping to prevent dogs from having access to uncooked offal and in reducing the number of infected dogs in endemic areas.

2.72 In the environmental health field, health education has proved to be an effective means of stimulating the active participation of local populations in the construction, operation, and maintenance of community water supply and excreta disposal facilities.
Such education is generally provided by sanitarians as part of their routine duties, but the services of health education specialists are made available as needed—for instance, in the rural water supply programme in Iraq and the rural sanitation project in Pakistan, in both of which assistance was given in developing health education activities, training local personnel, and preparing audiovisual aids. In the Gilbert Islands and Tuvalu, health education was combined with environmental health activities in promoting basic sanitation in rural communities. A team approach involving health, community development, educational, and welfare workers was encouraged, as was the involvement of community leaders and village councils. A further step was taken in the development of case studies relating to community participation in the provision of basic sanitary facilities with the publication of a guide to the integration of health education in environmental health programmes.¹

2.73 At its twentieth session in Geneva in February, the UNICEF/WHO Joint Committee on Health Policy recommended that health education should be treated as a subject closely related to and supporting the new approach to primary health care, and that an investigation should be made of cases where health education activities have been wholly or partly responsible for behavioural changes, so that the knowledge thus obtained can be used in similar situations. A source of such information is case-study material collected from family planning and environmental health projects. Case studies were used in an intercountry workshop on the assessment of mass communication in family health education (see paragraph 2.78), and in an FAO/WHO interdisciplinary workshop on the health education aspects of family health and integrated rural development held in Morogoro, United Republic of Tanzania, in October. The latter workshop, funded by UNFPA, was attended by participants from eight African countries and observers from the Regions of the Americas and South-East Asia.

2.74 Although attention was largely concentrated on community health education, efforts continued to be directed towards developing health education as an integral part of the curriculum for primary and secondary schools. WHO also gave assistance to those governments interested in the development of health education and family life education within the general educational system. An important development in the training of schoolteachers in health education was WHO’s cooperation with other United Nations organizations. For example, the Organization collaborated in a UNESCO education project in Chad, in the course of which a manual for the teaching of health education was prepared. Health education continues to be a major component of the annual intercountry refresher course on school health organized by UNICEF, WHO, and the American University of Beirut, which took place in that city in February.

2.75 In Togo, advice was given on the conducting of a workshop for the production of audiovisual materials in connexion with school health education. In the Region of the Americas, aid was provided to a health education project launched by an environmental health agency in the state of São Paulo, Brazil, for the purpose of training about 120,000 primary and secondary schoolteachers in community health. In Ecuador, efforts were made to reinforce health education teaching at the primary level, and a training programme on drug abuse was prepared for teachers in secondary schools. A revised school health curriculum including health education at the secondary level was drafted for review by the School Health Education Committee in Guyana. Assistance was also given to Montserrat in the preparation of teachers for the promotion of nutrition in their respective school districts, while in St Kitts the Organization cooperated with the United States Peace Corps health education team in the implementation of a comprehensive health education curriculum for kindergartens and primary schools. During the year, WHO provided technical advice on curriculum development, teacher training, textbook preparation, and resources development as related to health education to India, Indonesia, Nepal, Sri Lanka, and Thailand. In the Western Pacific Region, the Organization helped the College of Education, University of the Philippines, Manila, to introduce preventive education on drug abuse in schools. A working group meeting on health education programmes for young people concerning drug abuse was held in Manila in November to formulate educational strategies to combat the problem.

2.76 The training of health education specialists received considerable impetus during the year, mainly as a result of WHO’s collaboration with various academic institutions in many parts of the world. The integration of health education in health programmes demands, in the long run, the introduction or strengthening of preservice training as part of the basic preparation of all professional health workers. In this connexion advisory services were provided to India, Nepal, and Sri Lanka. Attention was also paid to inservice training, and courses were arranged for physicians, nurses, medical auxiliaries, and other categories of health worker (see Chapter 3).

2.77 WHO collaborated in a number of research studies during the year, of which one has already been mentioned (hydatidosis control in Uruguay, paragraph 2.71). Support was also given, inter alia, for collaborative research on the impact of activities of primary health centres on community health practices, including family planning, and on the factors influencing the adoption by hospital patients and their relatives of family planning measures—both these studies being carried out by institutes in New Delhi. In an attempt to strengthen local capabilities, WHO provided advisory services and other support for a workshop in research methodology at the Central Health Education Bureau, New Delhi; a similar workshop was conducted for health education specialists and other personnel in Colombo. In the European Region, assistance was given to two research projects, one dealing with behavioural parameters associated with the shift from breast-feeding to bottle-feeding and with infant morbidity (in pursuance of resolution WHA27.43), carried out in association with the Institute of Health Education in Belgrade; and the other on the health education aspects of maternal and child health, carried out in association with the Experimental Centre for Health Education in Perugia, Italy.

2.78 Increasing emphasis was given to mass communication. At a UNESCO/WHO interregional consultation, held in Alexandria, Egypt, in November, with the participation of 13 African and Asian countries, discussion centred on priority needs for health education, communication, and information with respect to family health programmes, and on specific means for making more effective use of existing health education and communication facilities. In the Region of the Americas, an audiovisual aids library was established in Barbados to act as a resource centre for the English-speaking Caribbean countries or areas. Advice was given to the Caribbean Conference of Labor and the American Institute of Free Labor Development, meeting in Barbados, on the setting-up of a workshop on rural trade union development with the aim of persuading trade union participants to give active support to health programmes in their respective countries. Financial assistance was provided to the International Union of Health Education in the publication of a Spanish edition of its journal for distribution in the countries of the Region. The Organization also issued a series of technical publications on family planning (in Spanish) for health education specialists. In the South-East Asia Region, the present status of audiovisual and mass communication services was reviewed, with special reference to family planning, and an intercountry workshop on the assessment of mass communication in family health education—one of a series dealing with specific problems in the countries concerned—was conducted in New Delhi in October.

Human reproduction

2.79 Why do so many women give up using the “pill”? Should persons who are not physicians insert intrauterine devices? Cannot one develop birth control drugs for men? Is it safe to give hormonal contraceptives to women who breast-feed? Will induced abortion, carried out in a medical setting, have harmful effects on subsequent pregnancies? How can infertility be prevented or reduced? Member States have addressed a multitude of such questions to the Organization, especially during the past five years, when they have been making greater efforts to include family planning care in national health services. In some instances, WHO can draw upon its experience for the answers, but more frequently, the information simply does not exist, particularly when the questions relate to specific populations or programmes. Research is needed, and on an international scale. A large WHO collaborative research and development programme has been made possible through the generous contributions of Member States (Canada, Denmark, Finland, Mexico, Norway, Sweden, United Kingdom) to the Voluntary Fund for Health Promotion.

2.80 In 1975 the programme involved over 600 scientists from 63 countries and a wide variety of disciplines, including epidemiology, public health administration, obstetrics and gynaecology, biostatistics, pharmacology, social sciences, bioengineering, endocrinology, chemistry, molecular biology, comparative physiology, and toxicology. A fairly large proportion of the studies are at the clinical level. Here, unlike trials of therapeutic agents for the sick, the focus is on drugs, devices and procedures to be used prophylactically, principally by healthy persons. For these reasons, and because research on human reproduction is a very sensitive issue, particularly stringent procedures for review of research proposals have been established and the Organization has issued strict guidelines to be followed by investigators in the research programme for obtaining the informed participation of all who may be involved.

2.81 The aim of the research programme is to assist national authorities in assessing the effectiveness, safety and acceptability of currently available methods of fertility regulation and in devising the best ways of providing them on a continuing basis, and to develop improved and new methods that can be used where
health services are minimal. The strengthening of national resources to carry out such research forms an important part of the programme.

Hormonal contraception

2.82 The "pill". It is estimated that about 50 million women are at present taking one form or another of the many preparations of the "pill" now available. The major concerns of administrators in developing countries relate to its safety in their populations and to the large proportion of women who discontinue the use of the pill. Its metabolic and endocrinological effects have been thoroughly assessed in "Western" women, but authorities have questioned whether the results can be extrapolated to women in developing countries who differ in genetic, nutritional and other environmental characteristics, including exposure to endemic diseases. A comprehensive group of studies on the effects of combined oestrogen-progestogen and progestogen-only pills on liver function, carbohydrate and lipid metabolism, blood pressure, weight gain, and hormone levels in healthy women are in progress in Thailand and envisaged in Egypt, India, Republic of Korea, and Zambia, when the training of research workers and the equipping of centres there are completed. The preliminary results from Thailand do not show any striking differences from observations made in "Western" women.

2.83 Suggestions that hormonal contraceptives may exacerbate the effect of malnutrition on the metabolism of proteins, lipids, carbohydrates, vitamins and trace elements have led to other collaborative studies in India and Thailand. In 1974 work was devoted mainly to strengthening the facilities of these centres and standardizing clinical and laboratory methodology; the field work began in 1975. The important role played by the liver in the elimination of contraceptive steroids has raised concern about the safety of their administration in countries where parasitic infestation of the liver is common. Studies of this problem are under way in Egypt and Republic of Korea, in both cases in close collaboration with the national family planning programmes.

2.84 Data from developed countries on the rare but dramatic side-effect of the "pill" in causing thromboembolism have made many developing countries hesitate to include it in their family planning programmes. A collaborative study had shown that thromboembolism is less frequent as a postoperative complication in Thailand than in the United Kingdom; this study was extended in 1975 to India and Singapore, and also to an examination of changes in blood-clotting factors in women in these countries who take the "pill".

2.85 The establishment and maintenance of lactation are crucial in developing countries. Oestrogens are known to inhibit the establishment of lactation, but there is conflict of opinion as to exactly when the "pill" can be started post partum, which compounds will have the least effect, whether there is any transfer of the steroid or its metabolites into the milk, and what its effect is on infant growth and development. The scarcity of data on this issue may be due to the fact that these studies are difficult to carry out. A protocol was drawn up for a multicentre study on the effects of different preparations, at different times post partum, on the volume and composition of milk. Another WHO study, using a newly developed assay method, is investigating transfer to milk of the steroid from a progestogen-only "pill"; such preparations are commonly recommended, because of their lack of oestrogen, to lactating women who want an oral contraceptive.

2.86 The question repeatedly arises as to how many of the side-effects experienced by women in developing countries are related to the doses of the steroids which have been determined for the generally larger women of Europe and North America. Oral preparations have now become available containing less than the usual 50 μg of oestrogen, but there have been reports that they may be less effective and cause a higher incidence of intermenstrual bleeding than those containing the usual dose. Before they become widely adopted in national family planning programmes, therefore, the Organization started a collaborative study of them in 12 countries in all WHO Regions.

2.87 So far, only synthetic oestrogens have been used in contraceptive pills. Recent research, however, suggests that naturally occurring oestrogens may be associated with fewer metabolic side-effects. Studies on efficacy, side-effects and continuation rates with combined preparations containing natural oestrogens began in 1975 in WHO collaborating centres in Belgium, Hungary, India, Singapore and Thailand. A detailed study of up to 50 metabolic parameters is being carried out on selected groups of patients.

2.88 "Pills" that could be taken at weekly or monthly intervals or only after intercourse would be valuable additions to family planning programmes. An extensive programme of work has been initiated on different approaches to these forms of birth control through acceleration of egg transport in the fallopian tubes, thereby leading to degeneration of the ovum, or interference with the lining of the uterus to prevent...
implantation. This is long-term research involving the study of the various mechanisms that control the motility of the tubes and thereby the rate of egg transport. It includes the screening of compounds that affect these processes, and the establishment of animal models for acute and chronic toxicity testing. Catecholamines appear ineffective, but promising results were obtained in 1975 with prostaglandin analogues, ergot derivatives and oxytocin.

2.89 *Long-acting injectable contraceptives.* There is a great demand from health administrators for a trouble-free, long-acting, injectable contraceptive. Only one preparation, depomedroxyprogesterone acetate (DMPA), given three-monthly, has been widely available commercially. It is the subject of controversy because of its effects on menstrual patterns, and because of the lack of data on its metabolism in women in developing countries and on return of fertility after discontinuation of its use. WHO research has been conducted on its effect on sugar and lipid metabolism, endocrine parameters, liver function, blood pressure and lactation. The absence of abnormalities found in metabolic studies in Thailand was one of the factors that led to the inclusion of the drug in that country's national family planning programme. In collaboration with the Thai Ministry of Public Health, WHO has begun a study of this drug in areas where liver fluke infestation is common. There is reluctance to prescribe DMPA to younger, low-parity women because of concern about permanent infertility after use. Results from a small sample of women in a WHO study showed in 1975 that ovulation returned in all women within five months of their discontinuing the use of DMPA. An in-depth retrospective and prospective study of return of fertility was started in relation to age, parity and duration of use of DMPA, in comparison with "pills", intrauterine devices and no contraception. It will also record the outcome of subsequent pregnancies and investigate the causes of any infertility.

2.90 A trial with another preparation (norethisterone enanthate), designed to be injected at three-month intervals, was discontinued during the year owing to an unacceptably high pregnancy rate. Most pregnancies occurred in the third month after the injection, and endocrinological studies showed that ovulation was resumed in a substantial proportion of women in the third month. A second trial was begun with this compound, at the same dosage, injected every two months. On the other hand, considerable progress was made in the development of entirely new chemical systems for the constant release of injected norethisterone to provide a contraceptive effect over three or more months. Toxicological studies have started preparatory to clinical trials.

2.91 Because of the lack of interest of industry in developing new injectable preparations, a limited programme to synthesize new compounds was started, involving scientists from Brazil, Bulgaria, Egypt, German Democratic Republic, Iran, Israel, Mexico, Poland, Singapore and Sri Lanka.

*Intrauterine devices*

2.92 Intrauterine devices (IUDs) can be used as carriers for contraceptive compounds; this means that they can be made smaller, thereby reducing pain and bleeding. Progesterone has been used on the assumption that direct release of the hormone to the endometrium would exert an antifertility effect similar to that of orally administered progestogens, but at much lower doses and without systemic side-effects. A WHO-coordinated clinical trial of one such device conducted in centres in Africa, Asia and Europe showed it to be as effective as a copper-bearing device, but to be associated with a higher incidence of intermenstrual bleeding.

2.93 Several antifibrinolytic agents have been studied for the control of excessive bleeding associated with IUDs; one was selected for clinical trial. Of the prostaglandin-synthetase inhibitors investigated as agents to reduce pain and expulsion of the IUD, two were found to reduce uterine contractions and one unexpectedly to stop menstrual blood flow. Dose-finding studies will be conducted, and sustained release systems developed for intrauterine administration.

2.94 Ultrasonic measurements of the uterine cavity size in the immediate post-partum state yielded information on the dynamics of the post-partum return of the uterine cavity to normal size, thus assisting in the design of a device with a configuration that would be adapted to the involuting uterus.

*Rhythm methods*

2.95 Rhythm methods of fertility regulation are practised in both developed and developing countries, and in some areas are one of the major contraceptive methods. To date, the main focus of WHO's research in this area has been to improve the reliability and simplify the practice of periodic abstinence as a method of fertility control. Research is being pursued along three lines and involves investigators in 16 countries.
2.96 One line relates to more precise timing of the fertile period by determining accurately the occurrence of ovulation and its relation to measurable physiological factors. A first step is to obtain an accurate indicator of the occurrence of ovulation; this could then be used as a reference point to judge the reliability of other parameters of ovulation in body fluids that are easily measured, such as urine, and therefore suitable for "do-it-yourself" kits. The results of a pilot study in 1974 on the extent of variation in women between the occurrence of follicular rupture and measurable hormonal parameters having proved encouraging, a multinational extension began in 1975.

2.97 Another line is to examine changes in various body constituents or processes (hormones, enzymes, heat conductivity, penetrability of mucus) in relation to the fertile period and to develop simple methods for their determination. A number of oestrogen and progesterone metabolites in urine have been identified which offer promise as indicators of the occurrence of ovulation. Projects were started in 1975 to develop radioimmunoassay methods for their detection and for the measurement of their changes during the menstrual cycle. If the profiles of the metabolites display distinct patterns which could be used for determining the time of ovulation, the next step would be to develop assay methods that do not require the use of radioactive markers, with a view to eventually making them as simple to use as, say, litmus paper.

2.98 The validation and improvement of currently used techniques for determining the fertile period, e.g., the cervical mucus (Billings) method and the basal body-temperature method, constitute the third line of approach. Two studies have been started. In one, an attempt is being made in centres in El Salvador, India, Italy, and the Philippines to assess the effectiveness of the cervical mucus method, which involves recognition by the woman herself of changes in mucus secretion and consistency associated with the fertile period. The other study, in Colombia, compares the effectiveness of this method with that of the symptothermal method, in which changes in mucus are related to the basal body temperature and the calendar. If the cervical mucus method is found to be as effective as the more complicated method, there would be a case for abandoning the latter.

2.99 In response to requests from groups favouring natural family planning methods, WHO began during the year to seek ways of improving and standardizing the educational techniques that are perhaps even more necessary with this approach to fertility control than with other methods.

Sterilization

2.100 In many countries greater emphasis has recently been placed on sterilization in family planning programmes. Although there has been much demand for sophisticated endoscopic sterilization equipment, its cost/effectiveness for large-scale programmes has been questioned: special facilities are needed, the equipment is expensive and must be carefully maintained, and the techniques require special skills. Moreover, patient demand for sterilization is greatest immediately after delivery, when some of the methods cannot be used. The clinical view is being increasingly voiced that the classical methods of abdominal tubal ligation may be more suited to the needs of developing countries. WHO has been asked for advice on this problem, and an objective appraisal through clinical trials in the WHO network of collaborating centres began during the year.

2.101 Chemical methods of sterilization that would not involve intrusion into the abdominal cavity would prove an advance over the endoscopic and traditional surgical methods of sterilization since they would do away with the need for highly skilled operators, anaesthesiology and other facilities and would lend themselves to an outpatient setting. Studies on sterilization with chemical sclerosing agents have not lived up to the promise they showed in the first two years of the research programme, however. Some work is continuing nevertheless in the hope of identifying suitable compounds for tubal occlusion.

Termination of pregnancy

2.102 The Organization has been asked by administrators of national family planning programmes that use the termination of pregnancy as a method of fertility control about the relative merits of different procedures and equipment, the training of personnel, and the suitability of different settings for performing the procedures. The main emphasis in research has been on ascertaining the safety of different procedures as carried out in different settings and on developing safe and simple methods.

2.103 One current investigation is concerned with determining whether an induced abortion entails an increased risk of premature delivery or fetal wastage in subsequent pregnancies. It started in 1974 and is being undertaken in centres in eight countries where abortion has been legal for several years, where women use it to space births, and where an adequate information system exists linking the medical records of pregnancy outcome and the previous legally induced abortion. Data from nearly 19 000 antenatal patients...
have been collected so far, and the outcomes of some 1500 pregnancies recorded. A preliminary analysis of these data suggests that women who had an induced abortion in their previous pregnancy differ significantly in several respects from women who had a liveborn child, a spontaneous abortion or a stillbirth, or had never been pregnant. *Inter alia*, there was a statistical association between those who had had an induced abortion and a tendency to smoke, not to recall with certainty the date of the last menstrual period, to arrive late for the first contact with antenatal services, and (at some centres) to vary the pattern of previous contraceptive use; these factors in themselves may affect adversely the outcome of pregnancy.

2.104 Research on the improvement of methods has been directed towards those that require less highly trained personnel and that do not involve mechanical or surgical intervention in the cervix or uterus. The research includes study of the use of prostaglandins for the termination of pregnancy. Clinical trials were continued during the year in centres in 10 countries to define the most suitable prostaglandin analogues, routes and schedules of administration, and doses for the termination of different stages of pregnancy. It was shown by the WHO Research and Training Centre in Human Reproduction in Stockholm that prostaglandins could be successfully administered in vaginal suppositories for termination of first-trimester pregnancy. These permitted the continuous screening of new analogues was carried out to identify compounds with greater specificity and less frequent side-effects.

**Vaginal rings and intracervical devices**

2.105 **Vaginal rings.** Studies were carried out in 1975 to compare vaginal rings that released different steroids at different rates. These permitted the selection of three steroids for further assessment, particularly to determine whether and how they affect sperm penetration of cervical mucus.

2.106 **Intracervical devices.** Closely related research is concerned with medicated devices that can be retained in the cervix for a long time to inhibit the passage of sperm into the uterus. The vaginal ring can readily be inserted and removed by the user herself, as was shown by WHO studies in 1975, but an IUD must be inserted by trained personnel and entails risks of uterine perforation. An intracervical device, on the other hand, although it is unlikely to be inserted by the user, will not be as difficult to insert as an IUD and should cause less pain and bleeding. Therefore it may be more suitable than an IUD in developing countries if side-effects of its medication and use can be rendered minimal.

2.107 A prototype, nonmedicated, intracervical device developed during the year is being assessed for retention and acceptability in a multicentre trial in 11 countries. Miniaturized devices were also manufactured for studies in monkeys of the toxicity of substances with spermicidal activity that have passed through a comprehensive *in vitro* screening programme.

2.108 **Related studies.** Studies were also conducted on ways of inhibiting the movement of sperm through cervical mucus by altering the normal biophysical and biochemical properties of the mucus and affecting its biosynthesis. The effects of various agents on the molecular weight of cervical mucin were examined and the most efficient found to be surfactants, which disrupt the hydrophobic bond. Clear differences were observed in the composition of mucus in different phases of the menstrual cycle. Some metals (especially copper) immersed in mucus were found to alter its biophysical properties but copper released from an IUD did not do so.

2.109 To seek an alternative to topical medication, work is proceeding on ways of modifying mucin biosynthesis by various agents which act at the level of enzymes and hormonal receptors. Preliminary work was started on orally administered drugs which might be secreted in cervical mucus and either alter its physical properties or act spermicidally.

2.110 Collaborative research was also directed to the inhibition of an enzyme, acrosin, present in the sperm head and essential for penetration of the ovum. Progress was made in purifying and characterizing acrosin from human and animal sources. A naturally occurring inhibitor and one of several synthetic inhibitors of the purified enzyme studied were found to penetrate the acrosomal membranes and to inactivate acrosin irreversibly.

2.111 A study of the metabolism of sperm in the uterus was stopped after three years as a review of the results to date indicated that there was little reasonable promise of developing a new contraceptive based on altering sperm metabolism at this site. This study has, however, yielded methods and findings of importance for other areas of research.

Methods for the regulation of male fertility

2.112 The research programme accords a high degree of priority to fertility control in men and some achieve-
ments have been recorded. Progress has been slow, however, owing to a scarcity of investigators, particularly clinicians; the difficulty of obtaining approval by drug regulatory agencies for the few compounds available for testing; less desire on the part of men than of women to participate in clinical trials; relatively little interest by industry; a lack of knowledge of male reproductive biology; and the smaller number in the male of points of intervention for fertility control. The research has involved several approaches, including clinical testing of available hormonal drugs to bring them rapidly to the stage at which they can be widely used, synthesis of improved analogues to avoid side-effects, and a search for new methods.

2.113 Various combinations of progestogens and androgens that decrease spermatogenesis while maintaining libido are being tested at different dosages in centres in five countries; the duration of these trials is 12 to 18 months. Meanwhile, synthesis of more active and longer-acting injectable androgens was undertaken.

2.114 Dose-finding studies in two countries on another compound, the anti-androgen cyproterone acetate, were completed during the year. They showed a moderate to severe decrease in sperm production, but also indicated that the sperm was unable to penetrate the cervical mucus obtained from normal fertile women at mid-cycle. There was no hepatotoxicity or other systemic adverse reaction and the subjective side-effects were minimal. A complete reversal of the effects of the drug was noted after cessation of treatment.

2.115 WHO-supported studies led to the isolation, purification and partial characterization of a testicular substance naturally present in seminal fluid, inhibin, which selectively inhibits the secretion of follicle-stimulating hormone, thus interfering with spermatogenesis, without significantly altering lutetizing hormone secretion and hence testosterone production. A bioassay of inhibin is now being undertaken. How useful inhibin may prove to be for fertility control will depend in part upon an adequate supply of it. Sources of the natural substance will be limited and synthesis of a molecule as large and as complex as that of inhibin appears to be will be difficult. A programme was therefore started to test the biological activity of various fragments of inhibin obtained by selective enzymatic cleavage, so as to identify an active fragment of low molecular weight which may be readily synthesized.

2.116 Work in collaborating institutions contributed valuable information on the role of an androgen-binding protein in spermatogenesis and sperm maturation; both of these might be suppressed by interference with the production of this protein and the means of doing so are currently being examined. Another compound, α-chlorhydrin, has been shown to be a potent, reversible antifertility agent in some animals. Though too toxic for human use, it has been extensively studied in the programme because an understanding of its mechanism of action could lead to the development of nontoxic analogues and because it serves as a model system for investigating factors that affect sperm maturation. Toxicity studies have been supported of an analogue of α-chlorhydrin in rhesus monkeys because preliminary data suggested this compound was not toxic, but the results in 1975 showed that it was in fact neurotoxic.

2.117 Maturation of sperm produced in the testis continues in the epididymis, which provides another point of intervention for fertility control. The epididymis receives large amounts of fluid from the testes, and its ionic, protein and steroid composition have not been studied in detail. Since there is good reason to expect that advances in the understanding of epididymal function may follow from the use of the same micropuncture techniques for obtaining intratubular fluid for analyses as were used to advance our understanding of kidney function, a project to try these techniques was started in 1975.

Immunological methods

2.118 Another method of fertility regulation would be the prevention of conception by immunizing agents. The problems involved in their development, however, are great, and the programme for the inevitably long research involved provides for clear “cut-off” points at which research is stopped should evidence be obtained of, for instance, teratogenicity or probably significant side-effects or of the unlikelihood of further progress. During the year, several research projects on sperm-specific antigens were indeed discontinued at an early stage because they showed little promise of success.

2.119 Better progress was made in research on immunization against human chorionic gonadotrophin, a hormone occurring only during pregnancy and necessary to its maintenance. To avoid cross-reaction with other hormones, only a fragment of the molecule of this hormone is considered safe for use. Six institutions collaborated in preparing different fragments, determining their amino-acid sequences, studying their immunogenicity and working out methods for synthesis; and antifertility testing in baboons was started. Guidelines for the toxicity testing required were prepared.
Acceptability and programme implications of methods of fertility regulation

2.120 Research on the user acceptability and programme implications of different methods of fertility regulation is utilized to help guide the development of new and improved methods and to design more effective service and delivery systems. Acceptability and programme implications vary between and within sociocultural groups, and are studied through multinational investigations of adoption and continuation by actual and potential users.

2.121 Acceptability of fertility regulating methods. Research focuses on the acceptability of selected “attributes” of fertility-regulating methods, and is undertaken largely in conjunction with clinical trials of new methods developed in the programme. The attributes being studied include routes of administration, sex of user, frequency of administration, reversibility of sterilization, and side-effects. With women’s contraceptives one side-effect known to influence their adoption and the continuation rate is changes in menstrual bleeding. A project is under way in 12 countries to investigate the importance of this influence; preliminary results suggest that it is the unexpectedness of bleeding caused by contraceptives rather than the amount or duration that is of primary concern to women using new methods. Early findings from another study—of the potential acceptability of existing and hypothetical methods—indicate that in Iran, Fiji, and the Republic of Korea, men appear to prefer the prospect of a monthly injectable contraceptive to that of a daily contraceptive pill, whereas in Mexico, the daily pill would be more acceptable. Other acceptability studies were begun in 1975 in connexion with prostaglandin vaginal suppositories for the first-trimester abortion, medicated vaginal rings, injectable contraceptives, and several other new fertility-regulating methods.

2.122 Programme implications of methods of fertility regulation. In keeping with the general trend towards giving health workers who are not physicians a more central role in the provision of health care, research has been conducted into their role in the application of methods of fertility regulation. This is needed because there is so far only limited experience with the use of such persons to insert IUDs or to prescribe oral contraceptives, for instance, and much of this has been acquired under unrepresentative circumstances. In order to define clearly the role of such personnel, multicentre studies were therefore initiated in the Republic of Korea and Turkey under realistic field conditions. Variations in the study design permit the evaluation of such variables as the degree of physician supervision, clinic-based services as against domiciliary services, and differences in the packaging and presentation of drugs and devices.

The health rationale for family planning

2.123 The health rationale for family planning arises primarily from the dangers to the health and life of mothers and offspring from high parity, pregnancy at the extremes of reproductive life and too short an interval between pregnancies, and from the unwanted pregnancies that lead to illegal abortion.

2.124 During the year, reports from the centres in India, Iran, Lebanon, Philippines and Turkey 1 that are collaborating in a nine-country study on the effects on family health of different patterns of family formation were prepared for publication, and analysis of the data from Colombia, Egypt, Pakistan and the Syrian Arab Republic continued. A two-year follow-up of the study population was completed by the centre in India and is also under analysis.

2.125 Requests have been received from several countries for assistance in studying the extent of the immediate mortality and morbidity associated with illegal abortion and of the complications in later pregnancies or the consequent infertility, as well as in determining the costs to health services. The first of such studies began during the year, in Turkey.

Infertility

2.126 Several countries in sub-Saharan Africa have expressed their concern with the high levels of infertility, reported in some of their populations to affect 30% or more of couples. WHO’s assistance in research on this problem was provided in 1975 to Sudan and the United Republic of Cameroon.

2.127 In June-July, a scientific group was convened to review data on the magnitude and geographical distribution of infertility and the etiology of the different conditions that are loosely grouped under this general term. The group concluded that tubal occlusion in women and obstructive azoospermia in men appeared to be mainly responsible for the infertility in sub-Saharan Africa. Although infertile women seek treatment in large numbers and thus place a heavy burden on the curative health services, the prospects for restoring fertility are unfortunately very poor. This emphasizes the importance of adopting a preventive approach. Similarly, pregnancy wastage

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1 WHO Official Records, No. 221, 1975, paragraph 2.94.
due to abortions and stillbirths must be controlled by appropriate maternity care activities. However, preventive measures can only be effective if they are specifically oriented to causative factors whose local importance had been identified by field studies. A group of investigators from Gabon, Nigeria, Sudan and the United Republic of Cameroon was subsequently brought together to plan appropriate epidemiological studies, which have started in these countries.

**Development of national research capabilities**

2.128 The relatively large funds available to WHO from extrabudgetary sources for research in human reproduction have provided an opportunity to strengthen resources for research in developing countries on a considerable scale. Over a four-year period, more than US $10 million have been expended specifically for the strengthening of institutions through assistance with staff, equipment and supplies, research training and consultant advice. A further US $3 million were granted for specific research projects in developing countries, most of which had an institution-strengthening component.

2.129 In several cases WHO has been asked by Member States to assist in developing a research component within their national family planning programmes. In Egypt, after four years of close collaboration with the Scientific Committee of the Supreme Council for Family Planning in developing research projects in institutions, mainly in Alexandria, Asyut and Cairo, the Organization took part in 1975 in the overall evaluation of accomplishments and in the formulation of a national plan for biomedical and epidemiological research in human reproduction for the next five years. This plan addressed itself not only to the priorities for research but also to strengthening the mechanisms for research administration. Assistance was given once more in the formulation of specific projects within the national priorities and through provision of equipment and supplies, and research training. The WHO Collaborating Centre for Clinical Research in Human Reproduction, in Alexandria, participated in multinational studies of problems of national and international importance.

2.130 In response to a request from the Government of the Republic of Korea, primarily for assistance in building up the research capabilities in human reproduction and family planning at the Seoul National University, a comprehensive programme of research was formulated, which includes clinical studies of methods of fertility control, service research on family planning care and laboratory studies in reproductive biology. This has begun to be implemented, with UNFPA support, within the framework of the national family planning programme.

2.131 A project in Turkey to develop a radioimmunoassay laboratory for endocrinological studies of fertility-regulating methods was successfully completed during the year, and a continuing relationship for exchange of scientific workers and research training has been established by WHO between the national institution and an institution in the United Kingdom which has provided much of the consultancy and research training in the project.

2.132 A research team for the evaluation of fertility-control methods, located in Bangkok and staffed by Thai and WHO scientists, has been in operation since 1972 to meet certain of the research needs of the national family planning programme and to provide postgraduate training. With a view to converting this activity from an interregional to a country project, a comprehensive assessment of progress, current research and future plans was made in 1975 by outside experts, representatives of the Thai ministries responsible for public health and for the state universities, the Thai Medical Research Council, medical and other professional associations, UNFPA and WHO. It was concluded that the research carried out on the safety, effectiveness, and acceptability of methods of fertility regulation and their provision through health services has been of both national and international value. The results of some of the studies pursued jointly by the team and the Ministry of Public Health have been of use in formulating family planning policy and service plans. The responsibility for running the radioimmunoassay and clinical chemistry laboratories and the electronic workshop that have been set up was taken over during the year by national staff. An Institute of Health Research was established at Chulalongkorn University, the team providing the nucleus of its Division of Reproductive Biomedicine. The expertise and facilities of the team were also used to develop or assist projects in other national research institutions and in centres in other countries of the South-East Asia and Western Pacific Regions as well as to provide training there.

2.133 Through its network of collaborating institutions for research in human reproduction the Organization contributes to strengthening research resources in developing countries by stable support over a number of years and by ensuring continuity of collaboration with institutions with similar interests in developed countries. A new WHO Collaborating Centre for Clinical Research in Human Reproduction
was designated in 1975 in Lusaka. The network, which now comprises 21 centres in 19 countries, was involved in multicentre studies of the effectiveness, safety and acceptability, and service implications of methods of fertility regulation. This not only permitted assessment of the methods in populations of very different constitution and environment but also made for more rapid assessment through access to large numbers of users. It also provided another link between the WHO research programme and assistance by the Organization to national family planning programmes.

2.134 Capabilities exist in the network for all phases of clinical testing, but the expertise and facilities for the in-depth pharmacological and metabolic studies have been greater in centres in the more developed countries. A programme to extend such capability to the centres in Egypt, India, Republic of Korea, and Zambia was initiated during the year.

2.135 As noted earlier, the assessment of methods of fertility regulation in the male poses problems of recruitment of the subjects: at present only two of the centres are able to undertake the necessary studies. Visits to several other university centres in 1975 indicated that considerable strengthening of the institutions may be needed to build up an adequate network of clinical centres for the study of methods for use in men.

2.136 The support provided to the four WHO Research and Training Centres in Human Reproduction is directed both at institution-strengthening and at focusing their existing research in fertility regulation on specific targets, using a multidisciplinary approach. An assessment was carried out in 1975, after three years of support, through visits by teams of outside experts to each of the centres in Delhi, Moscow and Stockholm and the joint centre in Buenos Aires and Santiago. As a result, for each centre several research areas were selected, in which its performance was found to be outstanding, for concentrated effort during the next three years. It was concluded that progress had been made in breaking through the traditional academic division between departments and that WHO’s designation of these centres had deeply influenced the orientation of their collaboration with other institutions.

2.137 To ensure the comparability of the results obtained in multicentre trials and other studies undertaken in the Collaborating Centres for Clinical Research in Human Reproduction and the Research and Training Centres, various approaches to standardization and quality control were adopted during the year. These include the preparation of laboratory manuals for clinical chemistry analyses, the establishment of external quality control schemes for both clinical chemistry and radioimmunoassay, the supply of matched reagents for radioimmunoassay of hormones, and training courses in laboratory methods.

2.138 On numerous occasions research projects, especially in developing countries, have come to a halt for lack of a spare part, a minor piece of equipment, or a single chemical. This is usually due to lack of foreign currency or the absence of local representatives of supply firms. In 1975 the “small supplies” programme established to fill this need assisted 66 scientists in 24 countries conducting research in human reproduction relevant to WHO’s programme. Airmail subscriptions to selected journals were also provided to accelerate the dissemination of scientific information.

2.139 As part of an integrated approach to institution-strengthening, priority in awarding research training grants was given to candidates from WHO collaborating institutions. Some 50 such grants were awarded to scientists from more than 20 countries. Since even training facilities are scarce in some of the disciplines most needed for research into and the development of methods of fertility regulation, an agreement was concluded with the London School of Hygiene and Tropical Medicine to set up a training programme on the application of epidemiology to research in this area, and a programme in the United Kingdom for the training of behavioural scientists received support.
3. HEALTH MANPOWER DEVELOPMENT

3.1 The new trend towards an integrated development of health services and health manpower was intensified in 1975. Teacher-training activities are now carried out at the country level and have been extended beyond the field of medicine to the allied health sciences. Three main features were notable during the year. The first was the promotion of training for primary health care to ensure a minimum health coverage for the total population and, more particularly, for those in areas lacking organized health services; the second concerned the development of joint training for future health team workers; and the third was the launching of activities in the field of evaluation. Further efforts were made towards achieving the integration of planning, implementation and evaluation in health manpower development discussed in the Annual Report for 1974.1

Action was taken to apply the HSMD process in Iran, following the suggestion of a WHO mission that visited the country in 1974, and similar exploratory missions visited Sri Lanka, Thailand and the United Republic of Cameroon.

3.4 The Organization assisted many countries in developing health manpower planning programmes—particularly in the Regions of Africa, the Americas, and the Eastern Mediterranean. A modelling technique for manpower research is being developed in the Region of the Americas and has been tested in two countries of the Region. Twelve countries in the Americas have established health manpower units in their ministries of health. As part of a long-term programme for pollution control in the European Region, a study is being made of requirements regarding environmental health manpower. The results of the pilot surveys of manpower requirements in this field carried out so far are being evaluated, and a further survey has been started in Oran, Algeria.

Health manpower systems

3.2 The Organization has laid greater stress on encouraging Member States to create or strengthen permanent mechanisms to link together all the processes related to the development of health manpower. It collaborated with Member States in designing national health manpower systems that are more responsive to their needs and fully coordinated with the entire health delivery system, and promoted the concept of the integration of health manpower development with health services development (see paragraph 1.65).

3.3 This "health services and manpower development" (HSMD) approach is based on the premise that the delivery of health services to the whole population and the provision of the necessary manpower are interlinked parts of the mechanism of health care. If that mechanism is constructed as one whole, rather than being made up of disparate parts, health manpower planning, production and management and the various aspects of health services delivery can be incorporated as integral elements, even though the mechanism may vary according to the country.

Production of health manpower

3.5 WHO continued to provide teaching staff to numerous training institutions, and to advise on the establishment of new centres for the training of health manpower. Table 1 shows the countries to which teachers were assigned in 1975; it should be noted that the training programmes increasingly benefit not only the nationals of the countries mentioned but also individuals from other countries or Regions studying there.

Educational processes development

3.6 Two research projects were initiated to stimulate improvements in educational programmes for health personnel. The first is a study of the application of the concepts of multiprofessional training, and its community orientation and integration. The second is investigating, by means of case studies of innovative educational programmes for physicians, nurses, dentists, pharmacists, sanitary engineers and primary health care workers, the extent to which certain training institutions are applying sound systems of educational planning and are making effective use of resources and evaluation to prepare personnel to meet the requirements of the local health services.

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1 The examples of WHO activities in the development of health manpower given below are arranged as far as possible in accordance with the level of training provided; some overlapping, however, is inevitable between the activities described under the different subheadings.

3.7 Educational planning. The three WHO collaborating centres in Shiraz (Iran), Beersheba (Israel), and Berne cooperated in the Organization's programme for the development of research in educational planning. WHO is making particular efforts to promote educational planning in all the Regions, since many medical and other schools for health professionals are being established without adequate prior planning or consideration of the problems of recruitment and preparation of the teaching staff.

3.8 Measures were taken to develop medical education in line with the needs of individual countries. They include the revision of curricula, teacher-training, the formulation of procedures for objective testing and evaluation, and the progressive introduction of modern educational technologies, including self-instruction systems. Similarly, in schools of nursing and midwifery, guidelines were developed on the use of modular curricula in teacher-training.

3.9 On the basis of experience in different countries of the Region of the Americas in attempts to adapt health manpower production to future needs, the Organization adopted a little-used approach in educational planning, arising from the concept of the integration of teaching and service. Applied to the different levels of health care (individual, family and collective) in urban and rural areas by professional, technical and auxiliary staff, this approach enables the student to be part of the community health service from the beginning of his professional training. Thus the Organization provided assistance in connexion with a regional workshop on the health services and the integration of teaching and service; the development of an appropriate programme of strategic training of health manpower in Brazil; the introduction of a new curriculum for physicians, nurses and technical personnel at the University of Costa Rica; the integration of the work of the teaching hospital in Tegucigalpa into the general health services in Honduras; and the integration of the work of the National University of Nicaragua regarding the training of health manpower into the activities of the health services of the region of Léon. The Organization also collaborated in the introduction of curriculum changes

Table 1. Assignments of teaching staff, 1975

<table>
<thead>
<tr>
<th>1(a). For training professional personnel * (by subject)</th>
<th>Teachers</th>
<th>Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational planning and practice</td>
<td>13</td>
<td>95</td>
</tr>
<tr>
<td>Basic medical sciences</td>
<td>37</td>
<td>255</td>
</tr>
<tr>
<td>Clinical and related fields</td>
<td>36</td>
<td>283</td>
</tr>
<tr>
<td>Public health and preventive medicine (including hospital administration and statistics)</td>
<td>32</td>
<td>252</td>
</tr>
<tr>
<td>Paediatrics, maternal and child health</td>
<td>9</td>
<td>68</td>
</tr>
<tr>
<td>Dentistry</td>
<td>4</td>
<td>43</td>
</tr>
<tr>
<td>Nursing</td>
<td>83</td>
<td>709</td>
</tr>
<tr>
<td>Environmental health</td>
<td>19</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>233</td>
<td>1 833</td>
</tr>
</tbody>
</table>

| 1(b). For training auxiliary personnel                   | 55       | 561    |

| Total                                                   | 288      | 2 444  |


<table>
<thead>
<tr>
<th>2. Countries to which assigned (continued)</th>
</tr>
</thead>
</table>

| Ethiopia                                | 1       |
| Philippines                             | 2       |
| Fiji                                    | 2       |
| Qatar                                   | 2       |
| Gabon                                   | 3       |
| Republic of Korea                       | 1       |
| Guatemala                               | 1       |
| Rwanda                                  | 2       |
| Iceland                                 | 1       |
| Saudi Arabia                            | 7       |
| India                                   | 7       |
| Senegal                                 | 7       |
| Indonesia                               | 3       |
| Sierra Leone                            | 3       |
| Iran                                    | 10      |
| Singapore                               | 1       |
| Iraq                                    | 8       |
| Sri Lanka                               | 8       |
| Israel                                  | 1       |
| Sudan                                   | 12      |
| Jamaica                                 | 3       |
| Syrian Arab Republic                    | 2       |
| Jordan                                  | 4       |
| Thailand                                | 3       |
| Kenya                                   | 6       |
| Togo                                    | 5       |
| Laos                                    | 2       |
| Tunisia                                 | 3       |
| Lebanon                                 | 2       |
| Turkey                                  | 4       |
| Liberia                                 | 1       |
| Uganda                                  | 1       |
| Libyan Arab Republic                    | 6       |
| United Republic of                      |         |
| Malaysia                                | 2       |
| Cameroon                                | 6       |
| Mali                                    | 2       |
| United Republic of                      |         |
| Mauritania                              | 1       |
| Tanzania                                | 6       |
| Mauritius                               | 1       |
| United States of                       |         |
| Mexico                                  | 4       |
| America                                 | 1       |
| Mongolia                                | 12      |
| Upper Volta                             | 3       |
| Morocco                                 | 4       |
| Venezuela                               | 2       |
| Nepal                                   | 1       |
| Yemen                                   | 12      |
| Niger                                   | 4       |
| Zaire                                   | 15      |
| Nigeria                                 | 8       |
| Zambia                                  | 3       |
| Pakistan                                | 2       |
| Papua New Guinea                        | 1       |
| Total                                   | 288     |

* Some instructors were engaged in the training of both professional and auxiliary personnel.
in 30 schools of medicine in seven countries of the Region, in order to achieve the integration of basic with clinical disciplines, clinical with preventive and social disciplines, undergraduate training with internship and compulsory social service, and postgraduate training in a hospital with training while serving the community.

3.10 In the South-East Asia Region WHO assisted a number of countries in the progressive application of modern educational concepts. Bangladesh, Burma, India, Indonesia and Sri Lanka were assisted in restructuring medical education to give future physicians a better preparation for community-oriented work; curricula based on actual needs are being developed, and training in field practice areas has been introduced.

3.11 In the European Region the relevance of educational planning to health problems was discussed by senior administrators of health services and educational systems at a working group held in June in Kuopio, Finland. They defined the nature and scope of educational planning in relation to health service needs, indicated the respective responsibilities of health administrations and educational systems regarding the educational planning process, and made suggestions concerning the organization of an educational planning service, particularly at governmental level. They recommended that a systems approach should be applied to educational planning (which itself should be an integral part of the planning and evaluation of health services), and that studies be made of national educational planning practices.

3.12 In the Eastern Mediterranean Region, the Ministry of Health and medical schools in Egypt and WHO collaborated in plans to redesign the objectives of medical education in accordance with the needs foreseen by the Government. In Yemen, where WHO support had been provided for several years to the Institute of Health Manpower Development, there was increased acceptance of the importance of examining the overall health manpower situation with a view to predicting needs more accurately and to ensuring that the Institute's training programmes are more closely related to the country's requirements.

3.13 A review of training for nursing and midwifery personnel was completed during the year, as part of an assessment of UNICEF/WHO-assisted training programmes. In the African Region educational plans for the development of nursing and midwifery resources were directed towards the progressive integration of the training of all nursing and midwifery personnel with that of other health personnel. The Organization collaborated with 19 countries or areas in Latin America and the Caribbean in the revision of curricula and the evaluation of nursing school programmes at technical school and university levels; emphasis was placed on the teaching and practice of community health nursing, the integration of training and service, the delivery of primary health care, and the introduction of compulsory service in peripheral and rural areas. In Mexico, where a study of nursing activities served as a basis for the development of different levels of educational programmes, guidelines are being prepared with the Organization's support for the planning of curricula integrated with nursing services. The Organization also collaborated with Costa Rica, Dominican Republic, Ecuador, Honduras, and Nicaragua in revising and restructuring their systems of nursing education. In the Eastern Mediterranean Region WHO's activities in educational planning for nursing and midwifery have underlined the need for a better linkage of the development of nursing and midwifery manpower with the development of health services.

3.14 In mental health, efforts were directed towards training a wide range of health workers to carry out clearly defined tasks, rather than relying on specialized training and psychiatric services. A new method of task analysis was initiated by WHO in 1975 through a study of the community care of psychotic patients, and steps were taken to establish realistic educational objectives for general health workers to enable them to cope with priority mental disorders.

3.15 Educational communication systems. The demand for health personnel attuned to the requirements of health care and the recognition of the need to train staff for community-based primary health care systems have led to a change in the direction and emphasis of the Organization's efforts in educational technology and communications. The two main trends were, first, the development or adaptation of existing educational processes and the production, testing and distribution of learning materials for all health disciplines; and, second, the development of new cost/effective techniques for education and communication. At a meeting in March in Geneva, a study group reviewed the WHO programme in educational technology and communications, and made recommendations for future action; it stressed the need to apply a systems approach for the solution of educational problems.

3.16 The interagency Educational Technology Working Group, established by ACC, met in December in Geneva. It considered interagency action in two main areas: the identification of priorities for concerted
effort at country level, and the development at headquarters level of better mechanisms and procedures for coordinated action.

3.17 Collaboration between WHO and intergovernmental and nongovernmental agencies in the production and evaluation of family health teaching/learning materials was discussed at a meeting in May; a mechanism for the coordination of activities was agreed upon to avoid duplication of efforts and expenses, and also to develop a uniform system of evaluation.

3.18 Numerous WHO activities were carried out with the aim of improving educational materials and methods. There was wide dissemination of an experimental manual for the training of laboratory personnel in developing countries (a multimedia “package”) and of reference materials for health auxiliaries and their teachers (a health team library "package" given the acronym REMARA). The interest shown in these educational “packages” by training institutions and users in the field, especially in developing countries, as well as the demand for them, have clearly demonstrated their usefulness in health manpower production; part of the REMARA “package” has been translated into Farsi, and the laboratory manual is being translated into Arabic (in both cases on the initiative of national authorities). At the regional level, the educational technology centres in the health sciences in Cairo, Mexico City and Rio de Janeiro, in addition to producing educational materials, organized courses for teachers on the objectives, methodology and evaluation of the learning process, and on the selection and use of audiovisual aids in education (see also paragraphs 3.24 and 3.63).

3.19 WHO supported regional teacher-training centres in developing teaching and research in educational technology (see paragraph 3.55). A long-term aim is to encourage the gradual conversion of educational technology centres, regional teacher-training centres, and other single-function educational units, into multi-purpose health manpower centres. Each such centre should have available facilities for teacher-training, for the design and production of materials, and for evaluation and educational research, and should provide advice and information to institutions and individuals on programme planning and curriculum development. First steps were taken to develop educational technology facilities at the regional teacher-training centre in Shiraz, Iran.

3.20 Another coordinated regional activity is the learning materials programme. In accordance with resolution WHA25.26, which requested the Director-General to investigate the need for a feasibility study on whether the Organization should prepare and publish medical textbooks, a study is being made of the needs of training institutions and of health services for materials in different languages. It is already evident from the response from field users of WHO-sponsored learning “packages” that there should be flexibility in the choice or manner of presentation of the materials, which should not be limited to conventional textbooks; and that the programme should be directed towards the needs of the health team rather than being restricted to the medical profession. As part of the general study, a protocol was developed in December for a survey of the needs in health learning materials and resources for their production for application in the African, South-East Asia and Eastern Mediterranean Regions.

3.21 The Organization collaborated with the Pan American Health and Education Foundation in the medical textbook programme, which is already functioning in some 250 schools in 18 countries of Latin America. The programme includes the provision of basic diagnostic instruments at a low price. The nursing textbook programme was continued, and more schools of nursing have signed agreements to participate in it.

3.22 A trilingual annotated bibliography of teaching/learning materials for schools of nursing and midwifery was published in English, French and Spanish.1 Other manuals, teaching guides and other educational materials for nursing and midwifery personnel were produced in the South-East Asia Region. In the Western Pacific Region the development of educational aids in nursing and midwifery training included the preparation of programmed instructional materials.

3.23 As part of its assistance for postgraduate training programmes in abortion care, WHO collaborated with the University of Newcastle-upon-Tyne, United Kingdom, in the production of an 18-minute film and accompanying slide set for teaching the technique of vacuum aspiration for termination of pregnancy. This film is intended for use in the training of physicians and nurses in procedures for abortion care.

3.24 A collection of audiovisual materials on radiographic techniques and radiation protection, for use

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in teaching radiological technicians, is being translated into Portuguese and Spanish, with the collaboration of the Latin American Centres of Educational Technology for Health.

3.25 The new technologies have also received due attention. Thus, the possibilities of using microfiches and related equipment for teaching, reference and exchange of information for all health disciplines are being explored by WHO in collaboration with the Health Sciences Learning Resources Center, University of Washington, Seattle, WA, USA, and the Royal Tropical Institute, Amsterdam, Netherlands. There is an urgent need for high quality and inexpensive visual material, especially for new institutes in developing countries; the use of microfiches may make it possible to meet this need at a fraction of the cost of conventional visual materials.

3.26 Regarding applied research into educational and communication techniques, a variety of methods of solving specific problems have been devised and are in the process of being field-tested. Many of these studies are directly related to the development of primary health care. In one project an investigation is being made of factors affecting the communication of health messages without the use of words to persons at different educational levels and in different cultures. The aim is to produce a short, nonverbal, animated film, with accompanying printed material (e.g., cartoon strip, calendar, posters) to support the Organization's expanded programme on immunization.

3.27 Educational evaluation. Activities were initiated in the new programme area of educational evaluation; they are aimed at promoting the development, adaptation and application of evaluation processes in all educational activities, including the performance of students and teachers and the effectiveness of programmes. WHO assisted the regional teacher-training centres in developing methods for assessing attitudes and evaluating students, and a design for evaluation in nursing education programmes was developed and tested, in preparation for publication.

3.28 In the Region of the Americas the Organization developed a methodology to be applied in a review of medical education in Ecuador during the period 1968-73. It also developed a methodology for use in the permanent evaluation of the work of the school of medicine at the University of Costa Rica and in the utilization of the results for the programming of courses under the new curriculum mentioned in paragraph 3.9. At the University of San Carlos, in Guatemala, where 1975 was the year of graduation of the first group of medical students who had followed a new curriculum started in 1969, the Organization collaborated in designing a procedure to evaluate the educational programme in relation to medical practice and the demands of the health services. In the Western Pacific Region, regional workshops on evaluation were held at the regional teacher-training centre, Sydney, Australia, and at the national teacher-training centre in the Philippines.

3.29 The Organization assisted 19 countries in the Region of the Americas in evaluating and restructuring basic nursing educational programmes so that their content might be more in keeping with the national situation. For the same purpose, midwifery school curricula in four countries and the maternal and child health aspects of basic and advanced nursing programmes of another four countries were assessed and revised. In the European Region a new evaluation protocol was used to assess the quality of the educational programme for nurses at the international school of advanced nursing education at Lyons, France. In the Eastern Mediterranean Region increased emphasis was placed on the evaluation of nursing education programmes and on finding more effective ways of using nursing services for educational purposes. A detailed review was made of midwifery training in this Region.

Health team development

3.30 As a means of improving primary health care and more effectively meeting the needs of the community, especially in developing countries, the development of joint training programmes to prepare the various members of the health team for the functions that they will later perform was supported by WHO in an increasing number of health sciences training institutions. A review was made of the basic concepts, purposes, composition and forms of common education programmes for members of the health team, and of the ways in which WHO can promote the health team approach.

3.31 In the African Region the importance of joint training for members of the health team was emphasized at workshops on teaching methodology held in Congo (before the Higher Institute of Health Sciences received its first group of students), and in Gabon (before clinical instruction was started at the University Centre for Health Sciences). Study tours were arranged for the personnel of training institutions in the Central African Republic to visit centres for health sciences prior to the establishment of such a centre in that country. To help promote the health team concept in
the Region of the Americas, the Organization collaborated in the development of schools of health sciences attached to universities in Bolivia, Colombia, the Dominican Republic, Honduras, Nicaragua, and Peru. In the European Region the joint training of nursing and medical students was discussed by representatives of the medical and nursing professions in the Nordic countries at a meeting organized by WHO. In Algeria a WHO-supported seminar on the role of the health team in the health services brought together representatives of the institutes of health technology and of the various health programmes in that country; the projects relating to the Institute of Health Technology at Constantine were revised so as to make it possible to offer common training programmes for physicians, nurses, sanitarians, medical assistants, midwives and social workers.

Auxiliary health personnel

3.32 Health auxiliaries. As a continuation of the Organization’s activities for the promotion of the use of medical assistants as middle-level health personnel at rural health centres and supervisors of primary health workers, a fourth interregional travelling seminar on the training and utilization of feldshers was organized in the USSR for participants from 14 countries.

3.33 Efforts were made in the African Region to integrate the training of auxiliary health personnel into projects for the training of other health workers. In this connexion WHO collaborated with institutions other than those usually training auxiliaries (for example, the Faculty of Medicine in Dar es Salaam) in the organization of workshops and the exchange of teaching staff and material. Studies were carried out to improve the planning for the training of health auxiliaries in countries of East Africa. In West Africa, as part of a project on community involvement in solving local health problems in Ghana, surveys were made of the needs in health training of auxiliary workers and of workers in agriculture, community development and education; guides were prepared for use in their training, and work was started on the definition of educational goals, methods and evaluation techniques. In the Region of the Americas the training of auxiliary and middle-level technical health personnel, forming an integral part of the health team, has been given high priority by the Organization. Among the activities assisted by the Organization during the year were a review of programmes for the training of middle-level technical personnel in Cuba, the development of centres for the training of auxiliary personnel for the Caribbean English-speaking countries and areas, and a study of the situation regarding middle-level technical health personnel in the Andean countries. In the Eastern Mediterranean Region a review was made of the role of health auxiliaries in relation to overall health manpower needs in Democratic Yemen, Libyan Arab Republic, Somalia, and Yemen.

3.34 There was an expansion of the training programmes for nursing and midwifery auxiliaries, and a restatement of their duties and responsibilities in the Region of the Americas, where the Organization provided assistance for courses in 16 countries for the training of nursing and rural health auxiliaries, with emphasis on maternal and child care, family planning and communicable diseases.

3.35 In the field of dental health, WHO gave advice on the adaptation of a course for the training of dental auxiliaries in the Gambia, assisted with the training of operating dental auxiliaries in Senegal, and with the revision of the training programme for dental technicians in the Syrian Arab Republic.

3.36 The training of auxiliary health personnel in nutrition continued to receive priority attention in the African Region, with emphasis on the training of polyvalent auxiliary workers with competence not only in nutrition but in maternal and child health, family planning and health education as well. The nutrition curricula for schools for nurses and other health personnel in several countries were revised, and consideration was given to the tasks that can be performed by lay village workers and the training they would require. Several courses for the training of health auxiliaries in nursing and nutrition were held in the Region of the Americas; and in the South-East Asia Region special emphasis was placed on nutrition in training programmes for health auxiliaries in Bangladesh, Burma, Mongolia and Sri Lanka.

3.37 Particular stress was laid on the preparation of auxiliary health workers for their future health education functions in training programmes in Guyana, Papua New Guinea, the Republic of South Viet-Nam, Togo, and Zambia.

3.38 The Organization collaborated in the establishment of training programmes in leprosy for auxiliary personnel in Brazil, Dominican Republic and Haiti.

3.39 Primary health workers. A working document on the training and utilization of village health workers prepared in 1974 in English, French and

WHO Official Records, No. 221, 1975, paragraph 3.29.
Spanish was revised, with emphasis on the preparation of their instructors. It should help Member States to develop their own manuals on the training of personnel to provide primary health care at the peripheral level, and has already been adapted and translated into the national languages for use in Iran, Laos and Lebanon.

3.40 In the Region of the Americas a multinational comparative study was prepared on health manpower for rural areas; the aim was to identify the different types of rural communities, the categories and levels of human resources that these communities could develop, and the amount and kind of support they should receive from the health services. In a UNDP-supported project in Turkey WHO is assisting the Government to increase the effectiveness of all categories of health personnel, including auxiliaries, in rural health care. In the Eastern Mediterranean Region efforts were made in several parts of Iran, as well as in Pakistan, to create cadres of health auxiliaries specifically equipped to meet the needs of the rural population. In West Azerbaijan, Iran, WHO is assisting a project for the training of primary health workers, and training centres have been established for front-line workers. In the Western Pacific Region, Fiji and Papua New Guinea followed up a regional seminar in 1974 by developing special programmes for the training of personnel who will be in charge of rural health centres and supervise primary health workers.

3.41 Traditional healers and birth attendants. To facilitate the promotion of primary health care in accordance with resolution WHA28.88 adopted by the World Health Assembly in May, an exploratory meeting was held during the year to formulate plans for the training and effective utilization of traditional healers in the health services.

3.42 A guide on the training and utilization of traditional birth attendants published during the year was used as background material at a meeting of a study group on this subject held in December in Brazzaville. In the Region of the Americas the Organization assisted eight countries in the preparation of guidelines for the training and supervision of traditional birth attendants, and a study was carried out in one country to determine their role in the maternal and child health and family planning programmes of the public health services. WHO assistance to Bangladesh, India, Indonesia and Thailand in developing programmes for the training and utilization of primary health workers also included emphasis on the training of traditional birth attendants.

**Professional health personnel**

3.43 A global study was initiated in 1975 on integrated, multiprofessional and community-oriented training for health personnel, with a view to determining more effective methods of preparing health workers to solve the health problems of the populations they will serve.

3.44 A basic principle in the Organization's activities regarding the training of professional health personnel in the Region of the Americas was the integration of teaching and service and the achievement of closer cooperation between the health delivery agencies and training institutions. In Bolivia, Chile, Dominican Republic, Mexico and Paraguay an analysis was made of the theoretical and methodological aspects and the duration of medical education; the results will serve as a basis for the introduction of changes in the curricula of 16 medical schools in these countries. In Nicaragua a review was made of the plan for the training of physicians, dentists, pharmacists and middle-level technicians during the period 1976-80; and a study on the cost of medical education in Peru was completed.

3.45 With regard to the training of nurses and midwives, activities in the Region of the Americas (including studies, seminars, workshops and the revision of curricula) were aimed at redefining professional duties and responsibilities and bringing study programmes into line with recent changes in the role of nurses. In addition, an analysis was made of a project in the Caribbean for the training of health personnel, in which nursing is a major component, with a view to introducing improvements. Guidelines for the teaching of health education in basic nursing courses were drawn up at a meeting held at the University of Ibadan, in Nigeria, and the subject was introduced for the first time in the nursing curriculum in Gabon. In Thailand emphasis was laid on the preparation of nurses and midwives to fulfill their role in family and community health. In most countries of the Eastern Mediterranean Region the basic professional training of nurses is now carried out with only short-term assistance from WHO. In the Western Pacific Region WHO assisted the basic professional training of nurses in Cambodia, Fiji, Laos, New Hebrides and the Philippines. In the last-named country a study of the nursing education system is being followed by a revision of curricula to bring them more into line with national needs.

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3.46 The Organization continued to collect and disseminate information on the teaching of human sexuality as an integral part of medical education programmes, and the report of a meeting held in 1974 to discuss the training of health professionals in this field was published.\(^1\)

3.47 A remodelled community-oriented curriculum in paediatrics has been finalized in India (see paragraph 18.8). With regard to nutrition, work was started on the preparation of a world inventory of training centres in nutrition and dietetics. In India WHO collaborated in the development of training at the National Institute of Nutrition in Hyderabad.

3.48 Examples of WHO-assisted activities in professional training in dental health included the planning of a set of integrated multilevel curricula for dental therapists, dental teachers and undergraduate dentists in Hungary; the planning of curricula in India; and the establishment of a dental school at the University of Benghazi, Libyan Arab Republic.

3.49 Collection of information on mental health training facilities was carried out in the African Region, and started in the Eastern Mediterranean Region (this survey covering Egypt, Ethiopia, Libyan Arab Republic, Somalia and Sudan in the first instance). In the South-East Asia Region WHO assisted with training in psychiatry in Mongolia and Thailand, and with the teaching of behavioural sciences in psychotherapy in the Peradeniya Faculty of Medicine, in Sri Lanka.

3.50 A survey of schools for radiological technicians in Latin America is under way. The Organization provided these schools with recommended curricula and certain teaching materials.

3.51 In Togo the training of level B laboratory technicians, previously supported by WHO, was continued by the national authorities. In the Eastern Mediterranean Region an intercountry course for the improvement of vaccine and sera control was held at the Razi State Institute and the Pasteur Institute, in Teheran.

3.52 In the European Region WHO again organized courses in English, French and Russian, for environmental health engineers, the Russian-language course being remodelled. In addition, the annual meeting of leaders of training courses in human ecology was held in Copenhagen. WHO continued to collaborate with the Sanitary Engineering Centre in Rabat (which is assisted by the Swiss Government) in the revision of the curriculum, and the provision of teaching and support personnel and fellowships for trainees from 10 French-speaking developing countries; a summer training programme was again organized in Switzerland for students specializing in sanitary engineering. The overall programme of the Rabat centre is being reviewed to include the broader field of environmental engineering and research relevant to countries' needs.

3.53 An interregional travelling seminar for French-speaking public health administrators, health statisticians and medical records personnel was organized in the Netherlands and Poland on the assessment of needs for statistical information for selected decision-areas of health management, and on the appropriate use of this information in planning and evaluating health services. In cooperation with the International Federation of Medical Records Organizations, a comprehensive study was made of training schemes and practice regarding medical records, in order to determine needs and formulate a plan for further activities to help relieve the severe shortage of staff in this field. In the Eastern Mediterranean Region the first one-year training course on medical records for health service personnel was organized.

3.54 WHO continued to collaborate in the organization of a one-year course to train anaesthetists at the Western Pacific regional centre in Manila.

**Teacher-training**

3.55 The second phase of the Organization's comprehensive long-term programme for the training of teachers of medicine and other health sciences consisted of the establishment of regional teacher-training centres, whose work is coordinated by WHO. By the end of 1975 eight such centres were in operation, in five of the six WHO Regions; at Yaoundé and Kampala in the African Region; Rio de Janeiro, Brazil, and Mexico City in the Region of the Americas; Peradeniya, Sri Lanka, and Bangkok in South-East Asia; Shiraz, Iran, in the Eastern Mediterranean; and Sydney, Australia, in the Western Pacific. The third phase in the programme is the establishment of teacher-training centres at the national level, and a number of these have already been set up in various parts of the world. With the collaboration of WHO both the regional and national teacher-training centres organized during the year a series of workshops on educational planning, technology, methodology and evaluation.

\(^1\) WHO Technical Report Series, No. 572, 1975; see also WHO Official Records, No. 221, 1975, paragraph 2.33.
3.56 With a view to helping teachers in the health sciences to fulfil their educational responsibilities more effectively, a number of pedagogical workshops of three days' to two weeks' duration were also organized by WHO during the year.

3.57 A revised edition of an educational handbook was issued in French as a working document for testing by some 250 readers. Intended to assist teachers, administrators and students in the health sciences to improve their competence in the planning, implementation and evaluation of educational programmes, it uses semi-programmed learning techniques for individual learning.

3.58 The Center for Educational Development, University of Illinois College of Medicine, Chicago, USA (a WHO collaborating centre) continued to prepare reports on teacher-training, and one of these was issued by WHO early in the year.1

3.59 Health personnel of all categories, including auxiliaries, took part in the regional and national workshops organized by the two regional teacher-training centres in the African Region, where WHO also assisted in the planning of national training institutions and in acquainting their future teaching staff with modern educational methodology; workshops on this subject were held for teachers of training institutes in the health sciences.

3.60 In the context of the programmes of educational reform in the Region of the Americas, courses and seminars were held to acquaint new teaching staff with the latest educational principles and practices. In this connexion, particular mention should be made of the work performed by the two Latin American Centres of Educational Technology for Health (in Rio de Janeiro and Mexico City): during the year these centres organized courses on didactic principles as applied to higher education, and on the design and organization of educational seminars and workshops, in addition to those mentioned in paragraph 3.18. They also provided training in problem-formulation, model-building, and the use of simulation.

3.61 In the European Region, following advice provided by WHO the Ministry of Public Health of Algeria initiated a programme for the training of medical teachers and the development of a specialized educational service for institutes of medical sciences. WHO also collaborated in the training of teachers in the health services in UNDP-assisted projects in Greece and Turkey.

3.62 In the Eastern Mediterranean Region, where priority attention is being given to the promotion of educational planning and technology, particular emphasis is being laid on the training of teachers of medicine and other health sciences. The activities of the regional teacher-training centre at Shiraz, which have been considerably expanded, included workshops and specially designed courses for selected individuals; the development of a national teacher-training centre for Iran; the promotion of activities for training teachers in the health sciences other than medicine; and the establishment of two centres, one on learning resources and one on evaluation. Thanks to the activities of the regional centre, there are now a number of faculty members in medical schools in Egypt, Ethiopia, Iran and Sudan who have undergone training in educational planning; special attention was paid during the year to the needs of Pakistan in this field. In Egypt a medical education unit has been established, with WHO assistance, at the University of Alexandria, and it has been decided to create such units in all medical schools in the country. Since the demand, especially from medical schools, greatly exceeds the capacity of the regional training programme, as a provisional measure an agreement was reached with the University of Dundee, United Kingdom, in accordance with which it is developing a programme of training activities for medical educators—including courses, seminars and workshops to be held both in Dundee and in the Region. In the Western Pacific Region a review made during the year by UNDP, WHO, and the Australian Government indicated that the regional teacher-training centre in Sydney is fulfilling its aims; a one-and-a-half years' Master's course in health personnel education began in July 1975 with participants from Australia, and participants from other countries will be accepted in 1976. National teacher-training centres established during the year in the Philippines and the Republic of Korea conducted workshops with WHO collaboration.

3.63 To help improve the planning, organization, implementation and evaluation of nursing education programmes in Member States, a second course on modern methods of teaching in nursing was organized jointly by WHO and DANIDA. Teacher-training programmes for nurses and midwives in Africa were mainly developed through the two regional teacher-training centres at Kampala and Yaoundé. In the Region of the Americas the educational technology centres in Mexico City and Rio de Janeiro established

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Health manpower management

3.65 Health manpower management (or administration) is concerned with the utilization of health workers to the best advantage of the health services; it includes the promotion of a system of postgraduate training and continuing education that enables health workers to maintain or improve their performance in relation to the population’s needs, as well as monitoring of the utilization of trained health manpower, in order that the processes of health manpower planning and production may be adjusted where necessary.

Postgraduate education and training; public health training

3.66 Table 2 gives examples of the numerous WHO training activities carried out during the year (seminars, workshops and courses) in a variety of disciplines and for all levels of health manpower. The great majority of these activities are conducted as part of the programmes described in other chapters of this report in order to help Member States to carry out their health functions effectively.

3.67 Specialization and continuing education. A variety of approaches are being used to develop continuing education for those who are already engaged in the health services. A special programme is being started in several countries with the aim of generating a climate receptive to a primary health care system, clarifying the roles and functions of different health professions, and developing the local technologies required for the implementation of these programmes.

3.68 Implementing a resolution on continuing education of the Nineteenth Pan American Sanitary Conference in 1974, the Organization conducted a survey of continuing education programmes in the Region of the Americas; the results of this survey were discussed at a regional seminar on continuing education programmes in the Region, held in Washington, DC, in December 1975, prior to the proposal of an overall plan of action for the years 1976-79. In the South-East Asia Region, refresher courses for general practitioners on the care of the mentally ill in the community and of children with acute respiratory infections were held in Burma and Mongolia. In the European Region a study was undertaken on the nature, problems and needs regarding continuing education of health personnel, for the preparation of guidelines to be utilized at a planned meeting of a working group on the subject. The postgraduate and continuing education of physicians in the Eastern Mediterranean Region was reviewed at a meeting in July; a lack of organized continuing education programmes in the Region was noted, and the further development of activities in this field was recommended.

3.69 A study undertaken by the Organization on continuing education for nurses and for multidisciplinary teams included a report on critical issues, an annotated bibliography and a protocol for the implementation of continuing education programmes. In addition, a study was published on research in nursing, intended for the use of advanced nurse students.

3.70 In Africa the centres for postbasic nursing education in Ibadan (now managed without WHO staff) and in Nairobi, Dakar, and Yaoundé continued their activities; a total of 241 students from 11 countries graduated from the two last-named. In the Region of the Americas the Organization assisted Chile, Colombia, Mexico and Venezuela in the establishment or revision of postbasic programmes in community nursing, maternal and child health, paediatric nursing and medical-surgical nursing. A programme for the training of nursing practitioners was developed in

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Trinidad and Tobago. Continuing education programmes were conducted in 13 countries for about 760 nurses and midwives working in health teams. In the South-East Asia Region WHO assisted with training in planning and programming for nurses in administrative and leadership positions. Countries in this Region showed interest in the improvement of orthopaedic, psychiatric, neurological, paediatric and other specialized nursing services, and courses in these fields were held, including some dealing with aspects of ward management. In the European Region WHO continued to assist with the development of postbasic nursing courses in clinical specialties, such as the training programme for nursing leaders at the Catholic University of Louvain, Belgium, offering a Master's degree to qualified nurses in selected clinical specialties and, concurrently, preparing them either for teaching or administration. It also assisted Italy with regard to postbasic and continuing education programmes for nurses in the region of Lombardy and in the establishment of a postbasic school of nursing in Milan. In the Western Pacific Region WHO continued to assist postbasic training for nurses, midwives and nurse administrators in Fiji, Malaysia, Papua New Guinea and Western Samoa.

3.71 WHO provided assistance for a programme of continuing education in public health in Madagascar.

3.72 Workers in maternal and child health holding key service positions in developing countries were trained under an interregional programme. Assistance continued to be provided for the introduction of broad aspects of family planning into courses on social obstetrics and paediatrics for physicians, nurses and other health professionals at the International Children's Centre (ICC), in Paris. Courses in maternal and child health and family planning, which had been organized at ICC in previous years, were evaluated. At the School of Public Health at Rennes, France, WHO-supported courses were held on maternal and child health and family planning for French-speaking participants from Africa.

3.73 Two study tours on the organization of training and services for the medical termination of pregnancy were conducted from March to July, at centres in Europe and Asia, for senior Indian obstetricians and gynaecologists (see also paragraph 2.26). A further tour was arranged in September for 10 Indian state and federal health administrators, to study various systems for the organization and administration of abortion services.

3.74 During the past few years WHO and UNICEF have jointly sponsored an interregional programme for the training of senior teachers of paediatrics from developing countries. So far, 100 such persons have attended these courses, held in institutions in the United Kingdom, East Africa and India. A meeting was held in October in New Delhi of former participants and those in the 1975 course to review the content and results of this programme. This showed that many former participants now play a leading role in the development of maternal and child care in their own countries, using innovative approaches in planning, teaching and service. Several are heads of curriculum committees in medical faculties and have helped to bring medical education more into line with the countries' actual needs, and to develop community field practice areas. Others are members of national planning committees and some have inaugurated model national projects, working closely with the training programmes for auxiliaries for the expansion of maternal and child health coverage in rural areas.

3.75 Recommendations regarding the future development of postgraduate paediatric education programmes in the South-East Asia Region were made during a WHO conference on the subject in Bangkok in March.

3.76 The content of the international course on food science and nutrition, organized in Belgium and the Netherlands with the collaboration of FAO, was revised to give more emphasis to public health nutrition, and the course is being increasingly used for the training of public health administrators. With the cooperation of UNICEF, FAO and UNESCO, a review was made of the nutrition training programme in Beirut; it was recommended that greater emphasis be placed on the operation of a nutrition surveillance system, the integration of nutrition activities with the basic health services, and the promotion of sound national food and nutrition policies.

3.77 With regard to health education, an important development in the African Region was the opening of a regional centre for the university training of health educators at Ibadan, in Nigeria. In addition, WHO collaborated in the organization of three training courses of three weeks' duration for staff of the health services in Congo. In the Region of the Americas participants from Brazil and Paraguay attended a five-week refresher course, held at the School of Public Health, University of São Paulo, Brazil, on the programming and evaluation of the health education component of maternal and child health programmes. The Organization also provided assistance for a basic course in health education for staff of the Ministry
of Public Health in Nicaragua; an experimental course on health education for physicians in Cuba; the first 18-month course for the training of health education specialists from English-speaking countries in the Caribbean, held at the University of the West Indies; in-service training in health education for family life education officers in Jamaica; and a new 12-month course for the training of health education specialists in Peru. In the South-East Asia Region WHO collaborated in the development of training programmes for health education specialists in India, Indonesia, and Thailand; it also sponsored a meeting for the revision of the curricula of three institutions in India granting a postgraduate diploma in health education. In the European Region the appointment of the first full-time professor of health education at the National School of Public Health, Rennes, France, will help promote both in-service and postgraduate training courses for French-speaking trainees, including WHO fellows from all the Regions; the Organization assisted in drawing up the postgraduate curriculum. In collaboration with the Department of Community Medicine of the University of Manchester Medical School in the United Kingdom, an intensive in-service training course in the theory and practice of health education has been developed for WHO fellows. In the Western Pacific Region WHO collaborated in the establishment of a postgraduate diploma course in health education at the Public Health Institute, Kuala Lumpur.

3.78 WHO was also closely involved with international courses on health promotion being conducted with bilateral assistance from Belgium and the Netherlands, and with the cooperation of the Royal Tropical Institute in Amsterdam and the Institute of Tropical Medicine in Antwerp.

3.79 As is shown in Table 2, three interregional basic training courses were held on epidemiological surveillance and control of communicable diseases. The first part of each course, held in a European country, provided a general and theoretical review of epidemiological surveillance and methods of communicable disease control, supplemented by instruction in particular disciplines; the second part, which took place in a tropical or subtropical country, consisted of practical field training in the control of communicable diseases.

3.80 The Organization collaborated in the establishment of an international training centre in Ganta, Liberia, where physicians can attend short orientation courses in leprosy control.

3.81 In addition to holding courses and seminars in dentistry, WHO provided assistance in establishing a postgraduate dental training centre at the University of Cairo.

3.82 Following a review of the training facilities in psychiatry and of the mental health services in Mongolia, advice was given regarding the in-service training of physicians in that country. Assistance was also given to Burma in this field.

3.83 Following the evaluation of WHO-sponsored courses in epidemiology and health statistics held in 1974 in the European Region, the programmes were modified to place more emphasis on the application of statistics and epidemiology to the planning and evaluation of health services, including operational research methods and the organization of health statistical services.

3.84 The first interregional course on acupuncture treatment was organized in Peking, with the assistance of UNDP and WHO acting as executing agency. The three-month course, in English and Chinese, was attended by medically qualified persons from developing countries in the South-East Asia, Eastern Mediterranean and Western Pacific Regions. Its purpose was to enable participants to study the background of traditional Chinese medicine, more especially acupuncture and moxibustion, with a view to the practical application of these techniques of treatment in their own countries. The use of acupuncture in anaesthesia was also demonstrated.

3.85 Public health training. At the sixth meeting of directors and representatives of schools of public health in the African, South-East Asia, Eastern Mediterranean and Western Pacific Regions, held in March, in Manila, stress was laid on the need for close cooperation between those responsible for the delivery of health services and those who are concerned with the development of health manpower. Recommendations were made on the role of public health schools in primary health care and in the training of health workers at all levels.

3.86 Between 1968 and 1975 altogether 244 participants from 33 countries in Africa attended the courses in public health for senior nurses and midwives at the regional training centres in Lagos and Lomé; many countries of the Region have now started their own national training programmes.

3.87 The Organization collaborated with the Latin American Association of Schools of Public Health in drawing up a plan of activities for the Region of the Americas and in preparing for a conference to define
3.88 In conjunction with the fourth general assembly of the Association of Schools of Public Health of the European Region, a working group was convened in Brussels in September to consider the specific problems of schools of public health. It reviewed the role of the school of public health in relation to the health administration, identified several new educational requirements for health administrators, considered how public health education systems were responding to needs, and advised on methods by which health administrations and public health systems can discharge their responsibilities in the planning, implementation and evaluation of programmes for the training of health manpower.

3.89 WHO collaborated closely with the School of Public Health, University of Teheran, in designing and organizing a Master of Public Health course, in English, to prepare malarologists and parasitologists for programmes of epidemiological study and control of parasitic diseases in tropical areas. Intensive training was provided at the regional teacher-training centre, in Shiraz, for Teheran medical faculty members who will teach at the School. WHO fellows from six countries in the Eastern Mediterranean Region and from five countries outside the Region were admitted to the first course, which started in September. WHO collaborated with the Institute of Public Health, Kabul, and with the Ministry of Health, Yemen, to develop nutrition training programmes in the respective countries; in 1975 the programme in Yemen became independent of WHO support.

3.90 In the Western Pacific Region WHO provided assistance to the Faculty of Medicine of the University of Malaya regarding the teaching of public health and pathology; to the Institute of Public Health of the University of the Philippines, with regard to postgraduate training; to the School of Public Health of Seoul National University, Republic of Korea, in connexion with public health nursing courses within the certificate programme, as well as the Master of Public Health degree programme; and to Singapore with regard to occupational health in the postgraduate programme for a Master's degree in public health.

Fellowships

3.91 Since 1948 some 50 000 WHO fellowships have been awarded; and currently some 5000 health workers benefit every year from WHO financial assistance for fellowships or other study. In selecting candidates, governments are attaching increasing importance to the ultimate employment of the fellow on his return, in order to ensure that the new skills are properly used and contribute to strengthening the health services; as a result, the range of subjects for which fellowships are requested is constantly expanding. As new centres of study become available placements can often be made nearer home, with the double benefit that the environment in which the student works is more similar to his own, and that the costs of travel can be reduced, thus making more funds available for other fellowships. The active involvement of the ministries of health of Member States has enabled WHO to decentralize many aspects of the programme—an important factor for ensuring that it is adapted to countries' needs and that the fellowships are efficiently and economically administered. All the forms and procedures used in the programme have now been revised. A review and evaluation of the programme was started, in order to assess the extent to which fellowships achieve their purpose of strengthening the health services of Member States.

3.92 In Africa there was a marked increase in the training of fellows within the Region. To facilitate the exchange of staff and students, the preparation of a directory of the training institutions in the Region was undertaken. In the Region of the Americas the fellowships programme reflected the recent trend towards diversification regarding the types of professional trained, fields of study, and training institutions—a logical result of the broad-based approach to health manpower development recommended in the Ten-year Health Plan for the Americas. Advance programming

mechanisms were therefore established in collaboration with national authorities, to ensure that the selection of fellows was in accordance with national priorities. A review was carried out to evaluate the fellowships that have been awarded to trainees from the South-East Asia Region for study in the United Kingdom at the London School of Hygiene and Tropical Medicine; it was concluded that the success rate according to WHO's criteria was at the 80-90% level. Owing to budgetary restrictions, a considerable reduction had to be made in 1975 in the number of fellowships awarded to persons from the European Region; however, the number of requests for placement in Europe of fellows from other Regions increased, and some 50% of all WHO fellowships are still awarded for study in this Region. A study was undertaken of the training facilities for WHO fellows in European Member States, and it has been possible to improve placement on the basis of fellowships reports.

3.93 In the Western Pacific Region financial constraints made it more difficult for fellowships to be granted for study outside the Region, and about 65% of the awards were therefore made in accordance with the preferred policy of placement within the Region. The second edition of the registry of training courses available for health personnel in the Region was issued.

3.94 From 1 December 1974 to 30 November 1975 WHO provided assistance to enable 5230 individuals to study abroad. The Organization awarded 3326 fellowships for study, including 105 for undergraduate study, and 1904 fellowships for participation in meetings or other educational activities (courses, seminars or workshops) organized by WHO. Annex 7 summarizes the number of fellowships by subject of study and by Region.

Mutual recognition of health diplomas and degrees

3.95 In accordance with resolution WHA24.59, activities continued in connexion with the comparability, for purposes of international recognition, of health degrees and diplomas, not least with a view to facilitating the integration in their own countries of students, teachers and professional workers trained abroad. In the past, recognition in one country of qualifications acquired in another was based on the reputation of the training institution, on the length of studies, and on the type of degree. It is now realized that these are not valid as a basis for international recognition, and it would appear to be more practicable to direct efforts towards the mutual recognition of comparable competencies. Initially, an approach of this kind seems most likely to be successful if applied on a limited scale, and in June 1975 an agreement was reached, under the aegis of UNESCO, for the mutual recognition of all higher education degrees and diplomas between 18 countries in Latin America and the Caribbean area. Efforts are at present being directed towards reaching similar agreements among countries bordering on the Mediterranean on the one hand, and among African, Arab and European countries on the other hand. The two organizations held a meeting of experts in Helsinki in October to consider the question of recognition of higher education studies; it was recommended that a convention be held to consider the mutual recognition of degrees and diplomas in Europe, and perhaps also Canada and USA.

Monitoring of the utilization of health manpower

3.96 In pursuance of resolution WHA25.42, the first phase of a multinational study of the international migration of physicians and nurses began in 1975. An analytical review was made of all relevant documentation; country-specific and global data were collected and analysed; and a representative sample of countries was selected for in-depth analyses. It is already apparent from the preliminary findings in the first phase that there has been a significant increase in the migration of physicians and nurses from developing countries to developed countries with a free-market economy and that this trend is likely to increase. The funds for the first phase of the study were provided partly by WHO and partly by the Ministry of Youth, Family Affairs, and Health, of the Federal Republic of Germany; the Health Resources Administration, USA; and the Educational Commission for Foreign Medical Graduates, USA.
**Table 2. Examples of training activities arranged or assisted by the Organization, 1975**

*Figures in parentheses indicate the approximate numbers of participants.*

<table>
<thead>
<tr>
<th>STRENGTHENING OF HEALTH SERVICES</th>
<th>Health personnel training—regional courses:</th>
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<tbody>
<tr>
<td></td>
<td>in English: in teaching methodology, for laboratory technicians Lagos, Aug. (13)</td>
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<tr>
<td></td>
<td>in French: in laboratory techniques, for assistant laboratory technicians (refresher course); in health education (refresher course); and in public health for physicians (advanced course) Lomé: Jan.-Feb. (24); Jan.-April (25); March-April (19)</td>
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<tr>
<td></td>
<td>in Spanish, in collaboration with UNDP Sydney, Australia, June (15)</td>
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<tr>
<td><em>Health planning</em>—regional course, in English, for senior health administrators Moscow and Helsinki; Feb.-March (9)</td>
<td>_ Educational planning—fourth regional workshop, in English Shiraz, Iran, Oct. (21)</td>
</tr>
<tr>
<td><em>Health planning and evaluation</em>—regional course, in French, for senior public health administrators Bucharest, Sept. (10)</td>
<td>_ Educational planning and evaluation—4 workshops, in English Cairo, Oct.-Nov. (36) and Nov.-Dec. (36) Alexandria, Nov. (18) Khartoum, Dec. (18)</td>
</tr>
<tr>
<td>National health planning—seventh regional training course, in English Manila, Sept.-Nov. (8)</td>
<td>_ Medical education suitable for developing countries—regional seminar, in English Kathmandu, Nov. (22)</td>
</tr>
<tr>
<td><strong>Training and utilization of medical assistants (feldshers) in the USSR</strong>—interregional travelling seminar, in English and Russian, for public health physicians and administrators Moscow, Ordzonikidze, and Gomel, USSR, June-July (17)</td>
<td>_ Medical education—4 seminars, in Spanish:</td>
</tr>
<tr>
<td>Techniques for administering medical care services—refresher course, in Spanish, for health professionals, in collaboration with the Latin American Centre for Medical Administration Buenos Aires, July (57)</td>
<td>for university instructors Santiago, May (50) for physicians and nurses Santiago, May (60) for health sciences professors and teaching staff La Paz, Dec. (60) for students and teaching staff Asunción, April (20)</td>
</tr>
<tr>
<td>Health information systems—postgraduate course, in Spanish, for health professionals, in collaboration with the Latin American Centre for Medical Administration Buenos Aires, April-Nov. (10)</td>
<td>_ Educational technology—2 workshops, in Spanish, for university personnel in charge of planning or coordinating medical education programmes, at the Latin American Centre of Educational Technology for Health Mexico City, May (24 and 30)</td>
</tr>
<tr>
<td>Hospital administration—course, in Spanish, for health administrators, in collaboration with the Latin American Centre for Medical Administration Buenos Aires, June-Sept. (30)</td>
<td>_ Use of simulation in medical education—course, in Portuguese, for university personnel in charge of planning or coordinating medical education programmes, at the Latin American Centre of Educational Technology for Health Rio de Janeiro, Brazil, June (30)</td>
</tr>
<tr>
<td>Hospital maintenance and engineering—courses, in Spanish, for secondary school level trainees on steam systems and plants; laundry; X-rays; dental equipment; supervision techniques; and electricity Caracas: March-May, Aug.-Oct. (69); March-April, July-Aug. (20); April-June, Sept.-Nov. (40); March-May (15); Feb.-Nov. (101); Ciudad Bolívar, Venezuela: June-Sept. (20)</td>
<td>_ Educational planning—third regional workshop, in English and French Caracas, Oct.-Nov. (26) and Nov.-Dec. (26) Alexandria, Nov. (18) Khartoum, Dec. (18)</td>
</tr>
</tbody>
</table>

Table 2 (continued)

Teaching-service integration—regional workshop, in Spanish, on education in the health sciences for professors and teaching staff of medical schools, and public health officials
Washington, DC, Oct.-Nov. (10)

Continuing education—regional workshop, in Spanish, for medical personnel in charge of continuing education programmes
Washington, DC, Dec. (6)

Preparation and use of course objectives in course planning—regional workshop, in English, for nurses and midwives teaching in nursing and midwifery schools, in collaboration with Department for International Development Cooperation, Finland
Ile-Ife, Nigeria, Nov. (20)

Planning and administration of health education—2 workshops, in Spanish, for teaching staff, at the Latin American Centre of Educational Technology for Health
Mexico City, July (15) and Dec. (15)

Rural health—seminar, in Spanish, for university teaching personnel
Mexico City, August (30)

Educational science—regional course, in English, for teachers of health professionals
Colombo, Sept. (24)

Educational technology—regional seminar, in English, on instructional methods

Teacher-training centres for the medical and health professions—regional seminar, in English, in collaboration with UNDP
Sydney, Australia, Feb. (22)

Modern methods of teaching nursing—interregional course, in English, for nurse educators with prior basic preparation in teaching, in collaboration with DANIDA
Holte, Denmark, Aug.-Sept. (15)

Educational technology in nursing—seminars for nurses, in collaboration with the Latin American Centre of Educational Technology for Health in Rio de Janeiro:
in Spanish or Portuguese, to prepare teachers
Rio de Janeiro, Brazil, June-July (49); Quito, July (30); Santiago, Oct. (55)
in Spanish, on the preparation of teaching materials
Rio de Janeiro, Brazil, Oct. (49)

Planning of educational programmes in nursing—4 work groups, in Spanish or Portuguese, for nurses:
Regional level
Washington, DC, Jan.-Feb. (24)
Zone level
Tegucigalpa, Oct. (23); Lima, Nov. (25); Brazil, Oct. (25)

Hospital nursing care standards—workshop, in French, for nurses and student nurses
Port-au-Prince, May (37)

Rural area auxiliaries—17 courses, in Spanish, for health auxiliaries
Peru (459)

Teaching personnel in programmes for nursing auxiliaries—second international course for nurses, in Spanish
San Salvador, June-July (29)

Nursing and midwifery—refresher course, in English, for senior nurses and midwives
Lagos, March-May (21)

Public health—postbasic course in French for State-registered nurses and midwives
Lomé, April-July (24)

Teaching methods for nurse educators—course, in Russian, for physicians and nurses
Lublin, Poland, Jan.-Feb. (12)

Nursing services administration—workshop, in English and French
Manila, Sept. (24)

FAMILY HEALTH

Family health and population dynamics—regional refresher courses, in English, for doctors and nurses, in collaboration with UNICEF and the American University of Beirut
Beirut, March (15)

Child health—regional refresher course, in English, for doctors and nurses, in collaboration with UNICEF and the American University of Beirut
Beirut, May (15)

Midwifery—postbasic course for midwife tutors and administrators, in collaboration with UNICEF and the American University of Beirut

Development of field training areas—regional seminar to strengthen the teaching of maternal and child health and family planning in medical schools, in collaboration with UNFPA
Isfahan, Iran, May (17)

Social obstetrics—postgraduate course for obstetricians, paediatricians, and midwives, in collaboration with ICC and UNICEF
Paris, Feb.-March (7)

Paediatrics—course, in English, for senior teachers of child health, in collaboration with UNICEF
London, Newcastle-upon-Tyne, United Kingdom; Dar es Salaam; Nairobi; New Delhi, Bangalore, Hyderabad, and Bombay, India; March-Dec. (10)

Maternal and child health—advanced training, in English, in maternal and child health for public health administrators, in collaboration with UNICEF
Warsaw, Sept.-Oct. (11)
### Table 2 (continued)

<table>
<thead>
<tr>
<th>Family health statistics—national training course, in English, in collaboration with UNFPA</th>
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<tr>
<td>Manila, Oct. (30)</td>
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<tr>
<th>Paediatricians and family health—regional seminar</th>
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<tr>
<td>Dacca, Nov. (20)</td>
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<tr>
<th>Training and supervision of traditional birth attendants—study group, in English and French, in collaboration with UNFPA</th>
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<tr>
<td>Brazzaville, Dec. (12)</td>
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<tr>
<th>Training and utilization of traditional birth attendants—national seminar, in Urdu, for Pakistani nationals</th>
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<tr>
<td>Pakistan, Nov.-Dec. (36)</td>
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<tr>
<th>Evaluation of family planning programmes—regional seminar, in English</th>
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<td>Manila, Oct. (21)</td>
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<tr>
<th>Nursing,midwifery care in maternal and infant health programmes—course, in Spanish, for midwives and nurse-midwives, in collaboration with UNFPA</th>
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<tr>
<td>Cali, Colombia; Santiago; Montevideo; Aug.-Sept. (15)</td>
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<tr>
<th>Role of nursing,midwifery in maternal and child health care—work group, in Spanish, for nurse-midwives, nurses, midwives, and physicians, in collaboration with UNFPA</th>
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<tr>
<td>Washington, DC, July (24)</td>
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<tr>
<th>Maternal and child health and family planning for midwives—second intercountry course, in English, for nurse-midwives, in collaboration with UNFPA</th>
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<tr>
<td>Bridgetown, July-Aug. (18)</td>
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<tr>
<th>Supervision and management of patient care: focus on maternity nursing—annual education programme for graduate nurses, in English</th>
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### COMMUNICABLE DISEASES

<table>
<thead>
<tr>
<th>Epidemiological surveillance and control of communicable diseases—interregional courses:</th>
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<tbody>
<tr>
<td>in English:</td>
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<tr>
<td>in French:</td>
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<tr>
<td>Paris and Rennes, France; Geneva; and Bobo-Dioulasso, Oct. 1974-Feb. 1975 (12)</td>
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<thead>
<tr>
<th>Coordination of communicable disease control—interregional seminar, in English and French</th>
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<tr>
<td>Khartoum, Nov. (13)</td>
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<tr>
<th>Methods of epidemiological surveillance (immunization programme)—regional seminar</th>
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<tr>
<td>New Delhi, Nov. (15)</td>
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<tr>
<th>Immunization programmes—regional seminar, in English</th>
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<tr>
<td>Damascus, Aug.-Sept. (24)</td>
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<tr>
<th>Immunization in the control of communicable diseases—regional seminar, in English</th>
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<tr>
<td>Manila, Oct. (20)</td>
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<tr>
<th>Virology—regional course for laboratory technicians, in English</th>
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<tr>
<th>Advanced laboratory techniques for influenza diagnosis—workshop for Directors of National Influenza Centres, in English, in collaboration with the Center for Disease Control, Atlanta, GA, USA, British Medical Research Council, and Institute for Medical Research, Kuala Lumpur</th>
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<tr>
<td>Kuala Lumpur, Nov. (12)</td>
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<tr>
<th>Venereal diseases—regional seminar, in English</th>
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<tr>
<td>Trinidad and Tobago, May (23)</td>
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<thead>
<tr>
<th>Epidemiology and control of venereal diseases—sixth international course, in Spanish</th>
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<tr>
<td>Santiago, Oct. (3)</td>
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<tr>
<th>Leprosy control—fourth regional seminar, in English</th>
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<tr>
<td>Caracas, Sept. (23)</td>
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<tr>
<th>Advanced techniques for programming in tuberculosis—seminar, in English, for officers engaged at high level in planning and organizing national tuberculosis programmes</th>
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<tr>
<td>Oslo, Oct. (3)</td>
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<tr>
<th>Production of lyophilized BCG vaccine—three-month courses, in English, organized by the Statens Seruminstitut, in collaboration with DANIDA</th>
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<tr>
<td>Copenhagen (6)</td>
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<tr>
<th>Epidemiology and control of tuberculosis—sixth regional course, in Spanish, for personnel responsible for tuberculosis programmes in Latin America</th>
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<tr>
<td>Caracas, July-Sept. (22)</td>
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<tr>
<th>Bacteriology of tuberculosis—ninth regional course, in Spanish, for laboratory personnel</th>
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<tr>
<td>Caracas, July-Sept. (12)</td>
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<tr>
<th>BCG vaccination programmes—study group, in Spanish</th>
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<tr>
<td>Mexico, Sept. (20)</td>
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<tr>
<th>Tuberculosis—national seminar, in collaboration with the International Union against Tuberculosis</th>
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<tr>
<td>Guatemala City, Nov. (40)</td>
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<tr>
<th>Recent trends in tuberculosis control—regional seminar, in English, for representatives of ministries of health, in collaboration with the International Union against Tuberculosis</th>
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<tr>
<td>Karachi, Pakistan, Oct. (36)</td>
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<tr>
<th>Tuberculosis—interregional course, in English, for personnel responsible for tuberculosis control programmes, in collaboration with the Japan Anti-tuberculosis Association</th>
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<tr>
<td>Tokyo, June-Oct. (16)</td>
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Table 2 (continued)

<table>
<thead>
<tr>
<th>Event</th>
<th>Location/s, dates</th>
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<tbody>
<tr>
<td><strong>PLAGUE CONTROL</strong></td>
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<tr>
<td>Plague control—interregional travelling seminar, in English and French</td>
<td>Moscow, Stavropol and Ashkhabad, USSR, Sept. (17)</td>
</tr>
<tr>
<td><strong>EPIDEMIOLOGICAL ASPECTS OF CHOLERA AND OTHER ACUTE DIARRHEAL DISEASES</strong></td>
<td>Dacca, Nov. (15)</td>
</tr>
<tr>
<td>New trends in diagnosing and treating the diarrhoeal syndrome—regional seminar, in Spanish</td>
<td>Guatemala City, Nov. (26)</td>
</tr>
<tr>
<td><strong>PRODUCTION AND CONTROL OF VETERINARY VACCINES AND BILOGICS FOR MEXICO, CENTRAL AMERICA AND PANAMA</strong></td>
<td>Mexico, Aug. (42)</td>
</tr>
<tr>
<td>Diagnosis and control of hydatid disease—regional seminar, in Spanish and English</td>
<td>Buenos Aires, Nov. (60)</td>
</tr>
<tr>
<td>Teaching of physiology in schools of veterinary medicine in Mexico—seminar, in Spanish, for professors from veterinary schools</td>
<td>Mexico, May (75)</td>
</tr>
<tr>
<td><strong>MALARIA AND OTHER PARASITIC DISEASES</strong></td>
<td></td>
</tr>
<tr>
<td>Antilarval operations—seminar for participants from French-speaking countries of Africa</td>
<td>Lomé, March (17)</td>
</tr>
<tr>
<td>Epidemiology and control of schistosomiasis—international course, in English, in collaboration with DANIDA</td>
<td>Mwanza, United Republic of Tanzania, July-Aug. (13)</td>
</tr>
<tr>
<td>Antimosquito measures directed against malaria—workshop, in English</td>
<td>Kuala Lumpur, Aug. (9)</td>
</tr>
<tr>
<td>Malaria control techniques—2 regional courses, in English, for general practitioners</td>
<td>Lagos, Jan.-April (24)</td>
</tr>
<tr>
<td>Entomology, parasitology, and epidemiology—regional course for senior technical staff, in English</td>
<td>Manila, Sept.-Oct. (33)</td>
</tr>
<tr>
<td>Tropical skin diseases—first regional seminar, in English</td>
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<tr>
<td><strong>NONCOMMUNICABLE DISEASES</strong></td>
<td></td>
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<tr>
<td>International classification of tumours—training seminar, in English, for pathologists, in collaboration with the Pakistan Medical Research Council</td>
<td>Karachi, Pakistan, Oct. (28)</td>
</tr>
<tr>
<td>Cytotopathology—regional training course, in English, for pathologists</td>
<td>Teheran, Aug. (8)</td>
</tr>
<tr>
<td>Cytotechnology—regional training course, in English, for laboratory technologists</td>
<td>Teheran, Aug. 1975-Feb. 1976 (8)</td>
</tr>
<tr>
<td>Cervical cytology—course, in English, for physicians, in collaboration with DANIDA</td>
<td>Copenhagen, Sept.-Dec. (8)</td>
</tr>
<tr>
<td>Cardiovascular epidemiology—international teaching seminar, in English, in collaboration with the International Society of Cardiology</td>
<td>Mexico City, Sept.-Oct. (30)</td>
</tr>
<tr>
<td>Prevention and control of cardiovascular diseases—second regional seminar, in English and French</td>
<td>Manila, March-April (11)</td>
</tr>
<tr>
<td>Development of cardioresuscitation and rehabilitation services—regional seminar</td>
<td>New Delhi, Dec. (23)</td>
</tr>
<tr>
<td>Diabetes mellitus control in the English-speaking Caribbean countries—workshop, in English, for physicians and nutritionists</td>
<td>Port-of-Spain, May (8)</td>
</tr>
<tr>
<td>Social paedodontics—regional course, in Spanish</td>
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<tr>
<td>Fluoridation of drinking-water—4 courses:</td>
<td>Chicago and Washington, DC, USA, June-Aug. (18)</td>
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<tr>
<td>in Spanish:</td>
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<tr>
<td>Quito, May (15); Guayaquil, Ecuador, May (23)</td>
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<tr>
<td>in Spanish and Portuguese:</td>
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<tr>
<td>Rio de Janeiro, Oct. (25) and Belo Horizonte, Brazil, Oct. (25)</td>
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<tr>
<td>Public health dentistry—first regional course, in English, for dentists involved in public health dentistry</td>
<td>Singapore and Kuala Lumpur, May-June (20)</td>
</tr>
<tr>
<td>Public health dentistry—national seminar, in English, for public health dentists</td>
<td>Lucknow, India, Nov. (28)</td>
</tr>
<tr>
<td>Dental public health—interregional course, in English, for dentists involved in the organization of dental services, or in research or the teaching of dental public health, in collaboration with DANIDA</td>
<td>Copenhagen, Aug.-Oct. (16)</td>
</tr>
<tr>
<td>Teaching of mental health in schools of public health—study group, in English and Spanish</td>
<td>Caracas, June (25)</td>
</tr>
<tr>
<td>Community psychiatric nursing—national seminar, in English, for nurses</td>
<td>Kingston, May (33)</td>
</tr>
<tr>
<td>Family therapy—2 national workshops, in Spanish, for mental health workers</td>
<td>Havana and Camaguey, Cuba, April (100)</td>
</tr>
</tbody>
</table>
| Mental health epidemiology and statistics—regional course, in English, for psychiatrists and statisticians  
   | Nottingham, United Kingdom, April (10) |
| Application of psychiatric epidemiology—regional seminar, in English  
   | Khartoum, Feb. (9) |
| Epidemiology of mental illness—regional seminar, in English  
   | New Delhi, Feb.-March (17) |
| Organization of alcohol control programmes—workshop, in Spanish, for Panamanian psychologists, nurses, and social workers  
   | San José, Costa Rica, Feb. (33) |
| Health education programmes for young people concerning drug abuse—working group, in English  
   | Manila, Nov. (7) |
| Mental health aspects of juvenile justice systems—interregional workshop, in English, in collaboration with the United Nations Social Defence Research Institute (Rome) and the National Institute of Mental Health (USA)  
   | Geneva, Jan. (14) |
| Human genetics—interregional refresher course, in English, for teachers in medical schools, in collaboration with DANIDA  
   | Copenhagen and Odense, Denmark, Nov. (13) |
| Radiation protection, supervision, and inspection—interregional training course, in English, for radiologists, radiotherapists, medical and health physicists, and health engineers, in collaboration with IAEA and DANIDA  
   | Holte, Denmark, July-Aug. (17) |
| Medical physics—first regional training course, in English, for postgraduate medical physicists  
   | Brisbane, Australia, June-July (11) |

### IMMUNOLOGY

| Immunology—postgraduate course, in English  
   | Nairobi, May-July (8) |
| Basic immunology—course for junior immunologists, in English  
   | São Paulo, Brazil, Aug.-Nov. (15) |
| Basic immunology—second national course for junior immunologists, in English  
   | Asyut, Egypt, March (28) |
| Immunological aspects of parasitic diseases—interregional course, in English, for experienced immunologists, in collaboration with Swiss Technical Aid  
   | Lausanne, Switzerland, Sept. (14) |
| Molecular and cellular aspects of antigenicity—international course, in English, for research workers in chemistry, biology and medicine, in collaboration with the International Cell Research Organization  
   | Rehovot, Israel, Oct. (22) |

| Immunology and immunopathology of schistosomiasis and trypanosomiasis—refresher seminar, in English, for African immunologists, in collaboration with the Norwegian Agency for International Development, the Wellcome Trust, and the International Laboratory for Research on Animal Diseases (Nairobi)  
   | Nairobi, Oct. (80) |
| Humoral and cellular immunity with special reference to parasitic diseases—interregional course, in English, for junior immunologists, in collaboration with DANIDA  
   | New Delhi, Nov.-Dec. (12) |

### PROPHYLACTIC, DIAGNOSTIC, AND THERAPEUTIC SUBSTANCES

| Quality control of drugs—regional course, in English, for medical officers and pharmacists  
   | Stockholm, April (17) |
| Quality control in clinical chemistry—training course, in English, for senior professional staff, in collaboration with Center for Disease Control, Atlanta, and DANIDA  
   | Atlanta, GA, USA, June-July (15) |

### PROMOTION OF ENVIRONMENTAL HEALTH

| Collection, analysis and evaluation of data on community water supply and wastes disposal services—interregional course, in English, for senior officers concerned with the planning of community water supply and wastes disposal programmes  
   | Voorburg, Netherlands, Oct. (19) |
| Water pipe laying—national course  
   | Guyana, Feb. (15) |
| Public health aspects of environmental pollutants of international significance—interregional course, in English, for members of the medical and engineering professions, and middle and senior level public health administrators  
   | Sofia, Nov. (15) |
| Animal wastes—seminar, in English, for engineers, scientists, public health officials, planners, research workers and production farm managers  
   | Bratislava, Czechoslovakia, Sept.-Oct. (143) |
| Regional planning in environmental pollution control—seminar, in English, for regional planners, research workers, engineers and economists  
   | Katowice, Poland, Oct. (83) |
| Water pollution—second regional seminar, in English and French, on environmental pollution  
   | Manila, March (21) |
| Water quality control—national seminar, in Spanish  
   | Lima, Oct. (45) |
### Table 2 (continued)

<table>
<thead>
<tr>
<th>Systems analysis in water quality management—seminar, in English, for scientists, research workers, engineers, systems analysts and planners</th>
<th>Vital and health statistics—course, in English, for medical and nonmedical postgraduates</th>
</tr>
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</table>

**Occupational health**—second regional course, in English, for occupational health specialists and planners, in collaboration with ILO

- Sydney, Australia, Nov.-Dec. (35)

**Occupational health**—national course, in Spanish

- Montevideo, Oct. (30)

**Epidemiology of industrial intoxications**—regional postgraduate course, in English

- Helsinki, Oct.-Nov. (30)

**HEALTH STATISTICS**

**Collection and use of statistics in the planning and evaluation of health services at the intermediate and local levels**—traveling seminar, in French, for public health administrators, health statisticians, and medical records officers

- Netherlands and Poland, June (9)

**Vital and health statistics**—course, in English, for medical and nonmedical postgraduates


**Methods of medical statistics and epidemiology**—course, in French, for medical and nonmedical postgraduates

- Brussels, Feb.-May (5)

**Application of statistical and epidemiological methods to medicine and public health**—course, in Russian, for medical and nonmedical postgraduates

- Bratislava, Czechoslovakia, Sept.-Dec. (10)

**International classification of diseases**—course, in Spanish, for auxiliaries

- Mexico, May (26)

**Medical records**—2 national courses for auxiliaries

- La Paz, April-June (18)
- Port-of-Spain, Nov.-Dec. (9)

**Sampling methods in health**—regional seminar, in Spanish

- Bogotá, Dec. (20)
4. COMMUNICABLE DISEASES

4.1 The communicable diseases that constitute the principal public health problems in the world can be roughly grouped into those which can be fully controlled by well-tried methods, e.g., those against which effective vaccines are available, and those for which control measures are more difficult to apply or for which more knowledge is required, such as the complex of respiratory diseases, the diarrhoeal diseases, sexually transmitted infections, hepatitis, and nosocomial infections. For many of the communicable diseases, however, the tools exist; the problem is to apply them. The WHO emphasis must therefore be still more towards practical application of known measures and this means strengthening the health staff at the country level and ensuring the participation of the community through health education, more acceptable treatment methods, and so on. However, research and development are also important, and here the greatest effort should be on the diseases in the second group. Information on individual diseases or disease groups is given in subsequent sections; the following paragraphs describe developments in a programme that encompasses many of them.

Expanded programme on immunization

4.2 The expanded programme on immunization, which concentrates on seven diseases—diphtheria, measles, pertussis, poliomyelitis, tetanus, tuberculosis and smallpox—was described in the previous annual report and a report on progress was made to the Twenty-eighth World Health Assembly in May 1975. The programme is based on a resolution (WHA27.57) of the Twenty-seventh World Health Assembly, and it is convenient to consider progress in 1975 under headings related to operative clauses of that resolution.

4.3 Provision of advice on the development of programmes and the use of vaccines. Guidelines to assist countries to assess their current immunization activities and to expand them rationally and practicably have been prepared, together with an outline of how a national inventory of resources and needs can be drawn up. A manual on purchasing, storing, distributing and administering vaccines and on other practical steps to ensure the efficiency of programmes and the effective use of the vaccines has been drafted and is being reviewed by a panel of advisers. There are now 12 countries with which WHO is collaborating in the development of immunization programmes.

4.4 Checking the quality of vaccines. The World Health Assembly stressed the great importance of WHO's collaborating with countries to ensure that the products they use are of consistently good quality. The Organization will never be able to test all batches of vaccines used in countries which do not have satisfactory national control laboratories; a national control laboratory can begin by doing a limited number of simple tests and expand its activities as personnel are given the necessary training, and WHO can assist countries, through its collaborating centres, in the testing of yellow fever, smallpox, DPT, BCG, poliomyelitis, measles, and rabies vaccines. As a further step a register of vaccines and of producers is being compiled; over the years it will be possible, by bringing together data from producers and controllers, to build up sound information on the consistency of the quality and keeping properties of many vaccines. WHO can purchase vaccines on behalf of governments economically, and it has made arrangements so that, within certain limits, vaccines and other supplies can be paid for in local currencies.

4.5 Provision of assistance from extranational sources. When a country embarks upon a national immunization programme it is committed to maintaining it at an effective level without any foreseeable time limit, otherwise the diseases will rapidly regain their former incidence. (Smallpox is a special, and probably unique, case.) Because external aid is always time-limited, national authorities have to plan to take over into their own budgets the total costs of the programme within a defined period of years. There may be exceptions to the general rule, but they should be few. The Organization has kept these considerations in mind when seeking extranational assistance, and at this still early stage of development of the programme the success is encouraging.

4.6 UNICEF already contributes directly to national immunization programmes by providing vaccines free of charge; by procuring vaccines and other necessities

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1 WHO Official Records, No. 221, 1975, paragraphs 4.3-4.7.
2 Obtainable upon request to Division of Communicable Diseases, World Health Organization, 1211 Geneva 27, Switzerland.
4. COMMUNICABLE DISEASES

on behalf of governments; by assisting in the provision of transport and refrigerators; by training personnel; and by assisting in the establishment of production laboratories. As an example of the scale of operations, 50-60 million doses of BCG are supplied annually. WHO and UNICEF work closely together on these programmes and at its twentieth session, in February 1975, the UNICEF/WHO Joint Committee on Health Policy, when discussing the expanded programme on immunization, agreed "that it was high time that both WHO and UNICEF renewed their interest and doubled their efforts in assisting countries in extending immunization to their children". It was recognized that immunization is an effective tool that can give immediate results and has a very favourable cost/benefit ratio. Since that meeting cooperation between the two agencies has been intensified at both the decision-making and the operational levels.

4.7 Of no less importance are the donations, in cash and in kind, by governments of Member States and the funds made available by bilateral-aid agencies. Valuable contributions were made in 1975 to the special account established in the Voluntary Fund for Health Promotion; the total for these is shown in paragraph 14.22, and the details are given in the Financial Report.2

4.8 Research. Operational research under the expanded programme has begun. In Ghana the improvement of vaccine delivery in a rural and an urban area is being studied, and in Sweden some success has already been achieved in the development of cold boxes for vaccine transport and storage. Work on vaccine delivery is being undertaken in Kenya as well, where there is also an important investigation into measles (see paragraph 4.56). Other research on vaccines is described elsewhere in this chapter.

4.9 Seminars. The first of a series of seminars on immunization programmes in developing countries was held in 1974 in Ghana,3 and three more were held in 1975—in the South-East Asia, Eastern Mediterranean and Western Pacific Regions. Participants from some 55 countries have attended the four seminars held so far, and the exchange of views and experience has been very useful to them and to the Organization alike. The difficulties and needs vary from country to country and from Region to Region, but these seminars have shown that the following observations are true of most:

1 WHO Official Records, No. 228, 1975, p. 22.

— Most countries can greatly expand their present programmes by rationalization of effort and better use of available resources.
— There is great interest in purchasing concentrated vaccine for dilution, ampouling and labelling locally, and several countries are negotiating with producers to this end.
— Guidelines on the establishing and running of programmes and simple technical manuals are considered essential.
— The main hindrances are inadequate management of programmes and insufficient transport and refrigeration space, and, to a lesser extent, the difficulty of obtaining sufficient vaccine.

Epidemiological surveillance of communicable diseases

4.10 Epidemiological surveillance is an essential part of the study, prevention, and control of all communicable diseases and many activities in this field will be found described in later sections of this chapter; this section deals with some general aspects. Training, which is one of the main features of the Organization's programme to help Member States in strengthening their epidemiological services, has been discussed in Chapter 3.

4.11 In view of the worldwide extent of poliomyelitis, the Twenty-second World Health Assembly (in resolution WHA22.47) in 1969 requested Member States to inform the Organization promptly of the occurrence of any outbreak of the disease in any areas of their territory, and to supplement reports on such outbreaks, as soon as possible, by information on the source and type of the virus and the number of cases and deaths. The Organization was requested to disseminate the information received to Member States, when necessary by means appropriate to the urgency of the situation. In order to ensure uniform procedures for reporting information and the comparability of the data collected a "Technical Guide for a System of Poliomyelitis Surveillance" was prepared. This was tested out by a number of Member States in 1973 and the first half of 1974 and evaluated at a WHO meeting in November 1974. A revised guide was published in 1975, taking into account the field experience gained and the recommendations made at this meeting.4

4.12 International poliomyelitis surveillance must be based on adequate national surveillance. It is therefore important that health administrations should develop national surveillance guides, taking into account local conditions such as the epidemiological situation and

the availability of laboratory and other resources. In preparing a national technical guide attention should be paid whenever possible, not only to the surveillance of cases, but also to the vaccination coverage, surveillance of the immunity status of the population, and circulation of virus in the environment. Such national guidelines may usefully be based on the principles contained in this revised WHO technical guide.

4.13 Another programme is concerned with the surveillance of Salmonella infections and outbreaks of foodborne disease due to other biological causes. Its links with the joint FAO/WHO food contamination monitoring programme (a UNEP-associated programme; see paragraph 10.64) were strengthened in accordance with recommendations made at the time of a joint FAO/WHO expert consultation held in Geneva in March 1975.

4.14 The WHO Salmonella surveillance component of the programme, in which more than 30 national reference centres on all continents are participating, has recently been extended to several countries in Asia and Africa which now possess reliable laboratories for Salmonella diagnosis. Current information and yearly summaries are prepared and distributed regularly. A register of the serotypes isolated in various countries and the materials from which they were obtained has been established with a view to facilitating national and international investigations. This work has stimulated the development of a number of national Salmonella surveillance programmes. It has also helped to elucidate the spread of certain serotypes and the causes of such spread, making it possible to single out priority problems and to take appropriate control measures. The continuing spread of drug-resistant strains of Salmonella typhi and other serotypes associated with the ill-considered use of antibiotics in man and animals still causes concern.

4.15 As regards the surveillance of outbreaks of foodborne disease due to other causes, the six countries participating in this component of the programme, which began in 1974, have agreed on an uniform manner of reporting the relevant epidemiological data (characterization of causative agent, size of outbreak, food involved, source and place of contamination, place of consumption, factors contributing to spread). Health administrations in some of these countries made arrangements for implementing an improved national surveillance system dealing with foodborne disease outbreaks of biological etiology.

4.16 The Weekly Epidemiological Record continued to serve as one of the principal means by which the Organization fulfils its responsibility to transmit information related to the administration of the International Health Regulations. Equally important, notes and review articles on a wide range of communicable diseases are published to help health administrations to improve their national surveillance programmes. Every encouragement is given to national health administrations to make available for publication narrative material that would be of interest internationally. In this connexion use is being made of an increasing number of weekly or monthly national communicable disease reports.

4.17 The Organization has been operating a daily automatic telex reply service from Geneva since 1973 in order to make immediately available the urgent communicable disease information at its disposal. From some 60 regular users of the service an average of 10 to 12 requests for information are received daily. This number increases in the event of such developments of epidemiological concern as the introduction of cholera or smallpox into a country. Many of the users are travel agencies, airlines and pharmaceutical companies; however, utilization by health administrations has far from reached its full potential—for instance, only 16 health ministries used the service weekly in 1975. It is unlikely that the utilization of this service will expand greatly until the information that is made available to the Organization is sent in more promptly and is more complete.

4.18 In addition to collaborating in national surveillance programmes or projects in all Regions, the Organization provided assistance through a number of intercountry projects or teams and through regional epidemiological centres. There are three of these in Africa, for instance (at Abidjan, Brazzaville and Nairobi), and a new centre in the Americas began operation in January—the Caribbean Epidemiology Centre, in Port-of-Spain.

Smallpox

4.19 During 1975, the ninth year of the intensified global eradication programme, smallpox incidence fell sharply as the tempo of activity steadily increased in the limited areas in which the disease was still being transmitted. By December, smallpox appeared to have been eliminated from all but a single country—Ethiopia, where at the end of the year there remained only 58 infected villages in four foci covering less than 2% of the area of the country.

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1 The information can be obtained by calling telex No. 28150 in Geneva, exchanging identification codes, and composing ZCZC followed by ENGL for a reply in English or by FRAN for a reply in French.

2 For monitoring purposes in this eradication programme, a village is considered infected until six weeks have elapsed since the outset of rash in the last case and until a special search has been made to confirm that no further case has occurred.
4.20 In the countries of Asia, the last known case in Pakistan occurred in October 1974; in Nepal, in April 1975; in India, in May 1975; and in Bangladesh, on 16 October 1975. In all four countries, health workers continued to search for any hidden foci of the disease and a substantial reward was offered to anyone discovering a case, but no active case could be found. The apparent elimination of smallpox from Asia in 1975 represents by far the most notable achievement in the global programme to date; it is of special significance because in recent years Asia has been the only reservoir of variola major, the most severe form of smallpox, which kills 20% or more of its victims and leaves many blinded. By contrast, in Ethiopia, where less virulent smallpox strains are found, death occurs in only 1% of those afflicted and blindness due to smallpox is uncommon.

4.21 In only one other country were any smallpox cases detected in 1975. These were in Somalia, which reported 14 cases, the last in August. They occurred among nomads from infected areas in Ethiopia and were all rapidly detected and isolated, so that there was no further transmission.

4.22 The achievements during the year were made possible by the markedly increased efforts of the national governments concerned, which gave the programme the highest priority, and by the increased resources that the Organization could make available as a result of special contributions from Member States. In all, some US $10.5 million in cash and in kind were donated for the programme by 23 governments and other sources in 1975.

4.23 At the beginning of the year the most heavily infected country was India. New methods to facilitate the early detection of smallpox cases had been introduced in northern India late in 1973, health staff conducting each month a week-long village-by-village, and later house-by-house, search. This approach was subsequently adopted throughout India and then in Pakistan and Bangladesh. At the same time, special surveillance teams continued to search for cases through visits to markets and schools. In this way outbreaks could be detected sooner and the spread of smallpox could be more quickly stopped by rigorous containment measures. The epidemics which occurred throughout the northern states of India in 1974, when more than 188,000 cases were recorded, were far more completely documented than previously. They reached their peak in May, at which time more than 8400 villages were known to be infected. By January 1975, the number of infected villages had decreased to 330 and it continued to fall steadily thereafter. On 17 May 1975, the last known indigenous smallpox case in India occurred—in Katihar District, Bihar State—and the whole country was declared free of smallpox in July. The reward offered to anyone reporting a case that could be proved to be smallpox was increased to 1000 rupees (approximately US $115), but it has so far gone unpaid. Routine house-by-house searches of the 576,000 villages and 2600 cities and towns in India, involving some 100,000 Indian health workers, continued each month in states bordering on Bangladesh and every two months elsewhere in India. Independent teams regularly checked the quality of the work so as to identify and correct any deficiencies. At every hospital and primary health centre, a special book called a “Smallpox Rumour Register” was established by the national health staff so that all suspected cases could be checked. To detect possible importations from Bangladesh, monitoring stations were established on and near the border to vaccinate new arrivals and special teams were constituted to conduct rigorous smallpox surveillance among the colonies of Bangladesh citizens in India. These efforts are continuing, with assistance provided by the Organization, the governments of many Member States, and a number of other agencies and private organizations.

4.24 In Bangladesh smallpox had appeared to be rapidly coming under control in the latter part of 1974. The number of infected villages had been reduced from 940 in May 1974 to 91 in early November, and these were almost entirely confined to two northern districts. These two districts, however, had been devastated by floods during the summer of 1974 and, as food stocks diminished, hundreds of thousands of persons, some infected with smallpox, moved elsewhere in search of food and employment. Smallpox spread rapidly across the country, eventually infecting all of the country’s 19 districts. Some 1280 villages were infected by April 1975. Early in February, an emergency programme established by presidential directive was begun; increased national and WHO staff were mobilized; additional transport and financial support were provided through special contributions from Sweden and several other Member States. Systematic active searches, similar to those conducted in India, were initiated and more rigorous containment procedures were implemented. The number of infected villages fell to 500 by the end of June, and to 38 by the end of August. The last known case of smallpox occurred on 16 October in Barisal District. As in India, monthly house-by-house searches continued; special teams constantly checked markets and schools; and the reward for reporting a case was increased to 500 takas (about US $35). The probability
of there being a hidden focus of smallpox left in Bangladesh grew constantly less and the country was declared free of the disease in November.

4.25 The other Asian country to interrupt smallpox transmission during the year was Nepal. Sharing a long border with the most recently and heavily afflicted states of India, Nepal experienced 120 importations in 1974 and two in 1975. Most of these importations were quickly detected and the outbreaks contained, but some did give rise to further spread. In all, 95 cases of smallpox were discovered in 1975, the last of these on 6 April. National smallpox and malaria staff continued their search for cases throughout the rest of the year but found none.

4.26 In Ethiopia, now the only country known to be infected, the smallpox incidence decreased by more than 10% during 1975 and transmission is believed to have been interrupted in all but four of the 19 administrative regions. Activities were steadily intensified throughout the year. Transport in the rugged, mountainous, north-central areas was greatly facilitated by the use of helicopters, made possible in part by funds from the USA. Two of these commenced flying in November 1974, a third was added in August 1975, and a fourth in November. Substantial additional assistance and support were provided by the Ethiopian Government and the number of Ethiopian personnel increased from less than 100 at the beginning of the year to more than 500 by December. Additional international staff, formerly engaged in the India and Bangladesh programmes, joined the campaign and, through donations from a number of governments, additional supplies and equipment were provided and local costs met. However, many problems still hamper progress. Most of the outbreaks are situated in some of the most geographically difficult and inaccessible areas on the African continent; there is considerable resistance among rural populations to accepting vaccination, mainly because it is so unfamiliar to them; there have been frequent shortages of petrol for vehicles; and civil disorders have periodically prevented work in and near some of the endemic areas. However, with the addition of staff, assistance from regional and local officials, the provision of medicines of various types and other inducements in villages where there is a reluctance to be vaccinated, together with patience and persistence, many of the difficulties have been surmounted. The number of infected villages reached a peak of 144 at the end of June, and then decreased irregularly to 58 at the end of the year. Throughout all the administrative regions believed to be free of smallpox, except Eritrea, surveillance teams continued to conduct a systematic search for possible hidden foci and assisted with BCG and yellow fever vaccination programmes in the course of their activities. Although activities had to be temporarily suspended in Eritrea, it became smallpox-free in 1973 and active search and vaccination activities in adjacent areas have revealed no cases within 400 km of Eritrea. Vaccination campaigns were continued throughout the country. More than 2 million vaccinations were administered in 1975 alone and a total of almost 12 million since the programme began in 1971; this represents the vaccination coverage of not far short of half the total population. Although smallpox incidence in Ethiopia is at a very low level, the difficulties to be overcome before eradication can be ensured in that country are still considerable.

4.27 The Organization continued to assist all countries in Africa by the provision of vaccine, supplies and equipment, and diagnostic laboratory services. Apart from the 14 cases in Somalia noted above, there were a number of rumours of suspect cases in several other countries; these were carefully verified by joint national-WHO teams, and none proved to be smallpox.

4.28 Extensive studies were initiated in the summer in the 15 countries of western Africa where smallpox was last experienced in 1970, in preparation for an international commission that will appraise the situation there in 1976. In August 1973 a similar commission officially declared that the eradication of smallpox had been achieved in the Americas, where the last case was detected in April 1971, and another declared the eradication of smallpox from Indonesia in April 1974, after 28 months without a case. Similar appraisals are being planned for other areas of Africa and for the previously endemic countries of Asia.

4.29 The importance of establishing beyond any doubt the cause of any smallpox-like illness that occurs in a country becomes the greater as the ultimate goal of eradication is neared. During the year 670 specimens from suspected patients in 21 countries were processed by the WHO collaborating centres concerned with smallpox and other poxvirus infections in Moscow and in Atlanta, GA, USA. In Utrecht, Netherlands, and Toronto, Canada, the WHO Collaborating Centres for Smallpox Vaccine tested 169 randomly selected batches of vaccine from production laboratories in different countries; this represents the monitoring of more than 300 million doses.

4.30 Three more monkeypox cases were detected in Zaire during the year and confirmed by WHO collaborating centres conducting research on this problem. Although the reservoir of this disease remains unknown, the absence of smallpox for more than four years from this part of Africa—and particularly from
the areas of Zaire immediately concerned—lends further support to the contention that this disease has no epidemiological implications for smallpox eradication. Research on variola and vaccinia strains is continuing, as are studies in the improvement of laboratory diagnostic techniques, which become increasingly important in the final surveillance phase of the programme.

4.31 The eradication of smallpox, when it is finally achieved, may well come to be counted as one of the great triumphs of mankind, for it will mark the first time that men and women have, by their own concerted efforts, succeeded in totally eliminating a natural scourge from the world. It will be imperative to ensure that the achievement is not later nullified by the sudden appearance of the highly infectious smallpox virus among populations bereft of the immunity that was hitherto conferred by vaccination or a previous natural infection. The Organization is therefore attempting, in collaboration with national authorities, to register all laboratories that are at present holding variola virus for virological research purposes. The ultimate aim is to reduce the number of such laboratories as much as possible and to establish adequate safeguards to prevent the accidental spread of smallpox from the few laboratories that may still retain any stock of the virus after the disease has been eradicated.

4.32 Work has begun to provide full documentation of the smallpox eradication programme, both because of its historical significance and, perhaps more important, because of its operational and epidemiological interest. As was pointed out at the Twenty-eighth World Health Assembly, such documentation will be of value for the conduct of other disease control programmes.

Virus, chlamydial, rickettsial and related diseases

4.33 A scientific group convened in September reviewed the WHO programme on viral diseases and made recommendations regarding its adaptation to changing conditions and problems in public health and concerning the uses to which recent progress in virology should be put. The group recommended continuation of the reagents programme, the network of collaborating centres and the virus reporting system, and more direct assistance to countries (aid in epidemics, immunization, training assistance to laboratories, and support for scientific research). Specific recommendations were made regarding several diseases of particular public health importance, especially those whose etiological agents have recently been characterized, such as viral hepatitis, infantile gastroenteritis and a number of viral respiratory infections. The group also recommended the further study of viruses which may be responsible for chronic or "slow" diseases and those related to cancer.

4.34 The network of WHO collaborating centres for reference and research and the WHO virus collaborating centres continued to play a major role in the fulfilment of the programme. One of their most important functions is the assistance they give to national laboratories, particularly to those in developing countries, through reference services for identification of strains, technical advice, training, and the provision of reagents. A laboratory proficiency testing programme was conducted among 21 laboratories in 12 countries in the Americas, with a view to standardizing laboratory methods.

Reagents programme

4.35 For 15 years the virus reagents programme has been given high priority to meet the constantly growing demand from research and diagnostic laboratories for standardized preparations. Through extensive cooperation with the WHO collaborating centres for virus reference and research, prototype virus strains and reference and working antisera are now available or are being prepared or tested for virtually all recognized types of enteroviruses, respiratory viruses and other viruses important to public health, including measles, herpes, rubella and hepatitis B viruses.

4.36 A major effort is being made in the preparation of antigens needed for serological tests. Complement-fixing or haemagglutination-inhibiting antigens of 16 viruses have been prepared and are being tested by seven WHO collaborating centres. This programme has been set up to assist newly established laboratories, mainly in developing countries, to organize regular diagnostic services by providing them with appropriate standard antigens. It should also help to improve the WHO virus reporting system in countries where there is at present little information on the incidence of virus diseases.

4.37 Uncontaminated, well-characterized cell cultures of known sensitivity are needed for virus isolation and research on virus properties, and particularly to ensure comparable results. For some time, supplies of reference cell cultures to collaborating centres have been arranged through the American Type Culture Collection, more than 160 tissue-culture cell lines now being available under this scheme. In special circumstances regular supplies of limited quantities of tissue cultures have been provided to certain laboratories. However, owing to the high shipping costs, these
laboratories are currently being encouraged and assisted by WHO to develop their own depots of cell strains for tissue cultures.

**WHO team for special studies in virology in Africa**

4.38 This WHO team, located at the East African Virus Research Institute, Entebbe, Uganda, continued its studies on the substance inhibiting the development of poliovirus which had been found in the saliva of approximately 60% of the children investigated in Uganda. There is now good evidence that if this inhibitor is present in the saliva when poliovirus vaccine is ingested, the antibody response may be considerably decreased. The action of the inhibitor, as well as the interference phenomenon noted when other enteroviruses are present, may explain why the results of poliovirus vaccination are often less good in tropical countries than in temperate climates.

4.39 The team also continued the study of upper and lower respiratory infections of children in warm climates with viruses such as respiratory syncytial virus, parainfluenza viruses, and adenoviruses. From organ cultures of Burkitt's lymphoma tissue, two syncytia-forming agents were isolated which seem to differ from similar agents known at present. Members of the team also participated in teaching virology at Makerere University and Uganda Technical College in Kampala and in practical laboratory training of the local technical staff.

**World list of virus laboratories**

4.40 A new edition of the World List of Virus Laboratories was issued, which contains information on the range and type of activity of 538 laboratories in 86 countries or areas. Despite the efforts that have been made in recent years, by WHO in particular, the geographical distribution of these laboratories remains very uneven, as the following tabulation shows:

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>No. of laboratories</th>
<th>No. of countries or areas</th>
<th>No. of Members and Associate Members in Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>17</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>Americas</td>
<td>149</td>
<td>19</td>
<td>28</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>24</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>European</td>
<td>285</td>
<td>29</td>
<td>34</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>18</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>45</td>
<td>11</td>
<td>15</td>
</tr>
</tbody>
</table>

4.41 Over 280 000 reports on viral infections have been collected in the data file of the WHO virus reporting system since its creation in 1967. Nearly 55 000 reports were received in 1975 from 47 countries participating in this system of collection and dissemination of information on virus infections other than arboviruses. Although the majority of the 119 reporting laboratories are in the developed countries, it can be noted from the following figures that a number of developing countries are now joining the scheme:

**Virus reporting system**

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>No. of countries or areas</th>
<th>No. of laboratories</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Americas</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>European</td>
<td>23</td>
<td>84</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

4.42 The data received from laboratories in the virus reporting system are reported quarterly and yearly and are also used for updating and analysing global trends in virus infections. A study was made during the year of the 2035 deaths reported to WHO in association with viral infections over the eight-year period, 1967-74. More than one-third of these were associated with influenzavirus A infections and about one-sixth with herpesvirus. However, this pattern reflects the picture in the industrially developed world (which provides the great bulk of reports on viral infections). In the developing world the enteroviruses—the polioviruses in particular—came high on the list, and almost 90% of deaths associated with these viruses were in the young.

4.43 Marked variations are noted in the percentage of deaths associated with influenzavirus A from year to year. Except for 1967, the lowest percentage was seen in 1974 (about 14%). By contrast, that was the year with the highest percentage (8%) of deaths reported in association with influenzavirus B—an observation that tallies well with the epidemiological pattern in influenza B in the northern hemisphere in 1974. The percentages of deaths associated with herpesviruses showed much less annual fluctuation. Deaths associated with influenza A were reported most frequently in December, January and February and those with influenza B in February and March. Fatal herpesvirus infections were reported uniformly throughout the year. As would be expected, diseases of the respiratory system were most frequently linked with influenza-associated deaths (more than 80% of influenza A and more than 65% of influenza B), but diseases of the nervous system were involved in almost one-fifth of influenza B fatal infections. The
central nervous system was involved in 65% of herpesvirus-associated fatalities. More than 85% of fatal influenza A infections were in adults, while virus B deaths occurred in equal proportions among children and adults. Of the fatal herpesvirus infections, 40% were reported in children.

**Influenza**

4.44 In 1975, information on influenza received from nearly 50 countries in all continents (mainly through the network of national influenza centres and WHO collaborating centres for reference and research in influenza) was published in the *Weekly Epidemiological Record*. All the countries notified infections with virus A, mostly in local outbreaks and increases in the number of sporadic cases. However, there were large epidemics in Hungary, Morocco, and Poland, and moderate epidemics in Trinidad and Tobago, a few countries of tropical Africa and southern Asia, and a number of European countries. In the southern hemisphere, only sporadic cases or local outbreaks associated with viruses A and B were reported from Oceania and southernmost Africa, and only one country in South America reported a few virus A infections. Most of the countries where large or moderate epidemics occurred in 1975 were those which had not been attacked by virus A in 1974. Scotland was an exception in that a moderate epidemic there was associated with a new variant (see below). Many countries experienced their fourth wave of influenza A in four consecutive years. It appears therefore that the usual cycle of influenza A waves every two or three years has been modified in these countries by the yearly appearance of new variants of the virus A/Hong Kong/68.

4.45 Study of the excess mortality from respiratory diseases confirmed the low impact of influenza A and B during the 1974-75 season, with the exception of Czechoslovakia and Israel, where excess mortality was noted.

4.46 Virus isolates received from European and African countries by the WHO collaborating centre in London during the 1974-75 influenza season were either antigenically close to A/Port Chalmers/1/73, which had predominated in 1973-74, or to a new strain designated A/Scotland/840/74. This strain, despite its designation, was later found to be antigenically similar to one received from Australia in September 1974. Evidence of the wide distribution of the A/Scotland variant was provided by isolates obtained in Coonoor, southern India, in late 1974 and early 1975. On the other hand, all the isolates in the USA showed only minor differences from A/Port Chalmers and no strains identical to the new A/Scotland variant were recovered. Both variants of influenza virus A were isolated in the southern hemisphere. In general, influenza B strains were isolated infrequently. In mid 1975 a small number of influenza B strains from Australia and South Africa presented a slight antigenic difference from the current type B/Hong Kong/5/72.

4.47 It was considered highly probable that the A/Scotland variant would become the prevalent influenza A virus in the 1975-76 influenza season and that, although vaccines containing A/Port Chalmers as a single influenza component could still be expected to provide protection, their efficacy might be less than optimal. The WHO collaborating centres in London and in Atlanta, GA, USA, therefore recommended that vaccines for the 1975-76 influenza season should include equal proportions of the two A strains or strains antigenically related to them, together with a B/Hong Kong/5/72-like strain. A recombinant vaccine strain prepared with the A/Scotland variant was made available to vaccine producers by the centre in London. The efficacy of live influenza vaccines has not yet been demonstrated, and arrangements are being made to start a collaborative study of this type of vaccine.

4.48 As the introduction at any time of a new pandemic strain resulting from a major antigenic shift cannot be excluded, the surveillance activities carried out by the 97 national influenza centres are being reinforced. A workshop on advanced laboratory techniques for influenza diagnosis took place in Kuala Lumpur in October for directors of national influenza centres in 12 countries or areas in the South-East Asia and Western Pacific Regions, and a manual on these techniques was published by the collaborating centre in the USA.¹

4.49 A simple technique for seroepidemiological surveys, recently devised by the collaborating centre in London ² and described in the above-mentioned manual, has been used by the London centre to test some 17,000 serial serum samples taken in four villages of the Gambia over a period of several years. It appears that, whereas Europeans normally maintain relatively high levels of antibody for up to three years after influenza infection, the immunity in Gambians may be of very brief duration and the same person may be sequentially infected by the same variant of influenzavirus in a


² The single radial immunodiffusion technique; see WHO Official Records, No. 213, 1974, paragraph 1.36.
short period of time. Further studies will try to elucidate the cause of this striking difference.

4.50 Studies on the ecology of influenza A virus in 1975 continued to provide further evidence of the role of worldwide mammalian and avian reservoirs of influenza; so far, 24 subtypes of virus A have been identified—4 from man, 2 from horses, 1 from swine, and 17 from birds. The antigens in the human strains, or antigens closely related to them, have all been found in avian strains, and it seems possible that birds are the original host and main reservoir of virus A. To encourage the investigation of influenza virus in animals, a document outlining techniques for virus isolation and identification and drawing attention to the manual referred to in paragraph 4.48 was widely circulated by WHO to veterinary diagnosticians.

Poliomyelitis 1

4.51 A meeting was held in November of the consultative group that has been set up by the Organization to advise on matters of oral poliovirus vaccine made from Sabin strains. WHO in 1973 took over the responsibility for the storage and distribution of these strains at the request of Dr Sabin, who had previously assumed that responsibility personally. The participants considered the cases of persistent spinal paralysis associated in time with vaccination that have occurred in ten countries over the period 1970-74. 2 Although the analysis of the data is not yet complete, it was clear that the situation differed markedly in those countries where vaccine was used all the year around and in those in which vaccine was used in short campaigns. A review was made of the production of oral poliomyelitis vaccine in several countries, and it was decided to prepare WHO seed materials from the original Sabin strains.

Viral gastroenteritis

4.52 Parvovirus-like and reovirus-like agents have recently been shown to cause acute nonbacterial gastroenteritis. In temperate zones the infection occurs mainly in children and is the second most common communicable disease of man after respiratory tract infections. In tropical countries a high prevalence of the agents is presumed from the limited studies that have been made, but more information is needed. A collaborative study has therefore been set up for the purpose and the WHO Collaborating Centre for Virus Reference and Research, in Bethesda, MD, USA, the WHO team for special studies in virology (see paragraph 4.38), and laboratories in Dakar, Bangui and Kinshasa are taking part. A similar study is being undertaken in tropical countries of Latin America, where it is estimated that in 1973 enteritis and other diarrhoeal diseases represented between 2% and 40% (according to the country) of the total deaths in infants less than 1 year old, and between 3% and 37% in those 1-4 years old. Attempts are also being made to standardize techniques for seroepidemiological studies in order to characterize antigenically related agents within these two groups of viruses.

Viral hepatitis

4.53 In collaborating with the Government of Romania, a working group on hepatitis B met in Bucharest in order to review the epidemiology and control of the disease and to propose preventive action for countries of the European Region.

4.54 A collaborative study has been undertaken to evaluate the prevalence of hepatitis B in different parts of the world. In the first phase, completed in 1974, 3 the reagents and methods used in the study were standardized. The second phase, now in progress, is expected to yield figures on the prevalence of hepatitis B antigen and antibody by age and sex in the general population and in populations at high risk in different parts of the world, and to allow comparison of the results between areas. Information will also be obtained on the geographical distribution of subtypes and their relation to different clinical manifestations of the infection. Thirty-three laboratories in 25 countries are participating. A WHO-coordinated study in Latin America and the Caribbean has shown a difference in the subtypes predominant among carriers and the general population (adw subtype) and among acute cases (aqw) and has indicated that high carrier rates of hepatitis B antigen are more frequent in isolated rural populations.

4.55 There is hope of progress in the preparation of an inactivated vaccine against hepatitis B. However, as was pointed out at a consultation in 1974, 4 the method of preparation, involving purification of human sera rich in antigen, represents a departure from the methods used for other vaccines, and the greatest care will therefore have to be taken to ensure safety. The agent of viral hepatitis A has recently been revealed by electron microscopy and transmitted to marmosets and chimpanzees. Serological studies of hepatitis A as well as B are now possible. Preliminary inves-

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1 See also paragraphs 4.11, 4.12 and 4.38.
2 WHO Official Records, No. 221, 1975, paragraph 4.45.
3 WHO Official Records, No. 221, 1975, paragraph 4.47.
tigations indicate that some post-transfusion hepatitis may be due to a third virus.

Measles

4.56 Among the populations of many developing areas, measles is frequently fatal or very severe. A study is being undertaken jointly by the Ministry of Health of Kenya, the Royal Tropical Institute, Amsterdam, Netherlands, and WHO to investigate measles-like illnesses seen in very young children in Kenya. It has been shown that maternal haemagglutination-inhibiting antibodies are present at birth in almost 100% of children and disappear at the age of 5-6 months, leaving the children susceptible. Measles in babies 4-9 months old has been confirmed by laboratory tests in 62 out of 200 Kenyan children with rashes but the actual proportion of cases due to measles virus may be greater than this. The antibody response to vaccination at 5-9 months of age is being studied for the titre and duration of antibody produced, and for the protection conferred against natural infection.

Cytomegalovirus

4.57 Further to a survey of complement-fixing antibodies against cytomegalovirus in adults, a collaborative study was undertaken to determine the age of acquisition of antibodies in children 4 months to 4 years old in different parts of the world, using the same reagents and methods in all participating laboratories. The sera were tested in duplicate in participating laboratories and in a WHO virus collaborator laboratory at St. Gallen, Switzerland. The preliminary results indicate that children acquire cytomegalovirus antibodies much earlier in developing than in developed countries. The next phase of this study will be concentrated upon the isolation of strains from infected children.

Arboviruses

4.58 In the Americas, 1973 and 1974 were marked by the southward progression of yellow fever virus in Brazil, as is common every six to ten years. The virus reached the northern part of Paraguay. Following mass vaccinations carried out in Brazil with WHO support, no further cases were observed in this area in 1975. The second thrust of the virus resulted in the appearance of cases in man east of the Panama Canal and was perhaps more dangerous because of the possibility of the virus crossing the Canal and penetrating, as it did in 1950, into urban areas of Middle America, where Aedes aegypti has not been eradicated.

An epidemiological survey carried out in the Bayano river region in Panama by the Gorgas Memorial Institute with the assistance of WHO resulted in the isolation of the virus from Haemagogus mosquitoes and from sentinel monkeys, thus demonstrating the epizootic virus cycle. Efforts were then made to reduce mosquito density in the forest canopy by ultra-low-volume spraying of malathion from aircraft. The control of Aedes aegypti was reinforced in cities, the population was vaccinated and no further case was observed. The highest number of jungle yellow fever cases in 1975 occurred in Bolivia, where more than 98 cases and 51 deaths were recorded among unvaccinated men working in the forests. Two cases also occurred in Colombia near the border with Ecuador, and very soon afterwards, a case was detected in the adjoining area of the Province of Napo in Ecuador and another one later on. Owing to the increasing threat of yellow fever, the programme for dengue, yellow fever and Aedes aegypti surveillance in the Americas was strengthened by the establishment of a Scientific Advisory Committee covering these three areas in the place of the former committee concerned with dengue only.

4.59 In Africa, one case of jungle yellow fever was diagnosed in the United Republic of Cameroon and two in Sierra Leone. The Organization provided Sierra Leone and neighbouring countries with vaccine and equipment for vaccination. An emergency stock of vaccine is maintained at the Institut Pasteur in Dakar (a WHO collaborating centre) and equipment for serological surveys at the epidemiological surveillance centre in Abidjan. There are few data available on the sylvatic cycle of yellow fever virus in West Africa and WHO has supported research programmes to study the transmission of the virus in forest areas. Five strains of yellow fever virus were isolated by the Institut Pasteur, Bangui, from Ae. africanus caught in 1974 in an area in the north of the Central African Republic where unvaccinated children were found to be seropositive. Yellow fever virus was also isolated by workers of the Institut Pasteur in Abidjan from Ae. africanus taken in the forest gallery near the Ivory Coast's border with Guinea. The isolations—confirmed by the WHO collaborating centre at the Institut Pasteur, Dakar—were made at the end of the rainy season in places where the forest and the savanna merge, and the relative ease with which they were obtained proved that when circumstances are favourable the circulation of yellow fever virus may be quite intense in the forest.

4.60 Dengue haemorrhagic fever has continued to be an important public health problem in the South-
East Asia and Western Pacific Regions, and the Organization assisted Bangladesh, Burma and Indonesia in studies on epidemiological and clinical aspects of the disease. The Technical Advisory Committee on Dengue Haemorrhagic Fever in the two Regions met in Bangkok in February, when it reviewed the epidemiological situation and revised the technical guides on diagnosis, treatment and prevention; these have been widely distributed in the Regions. Following a recommendation of the committee, WHO has started issuing a newsletter to provide health officers in these Regions with the latest epidemiological and technical information. The committee paid close attention to recent developments in the Western Pacific. Sweeping across the Pacific islands from 1971 to 1974, denguevirus type 2 caused a series of outbreaks, and type 1 has been reintroduced to the Central and South Pacific after an absence of nearly 30 years. In 1974-75, it caused a wave of outbreaks in the Marshall Islands, Nauru, the Gilbert Islands and Tuvalu, the New Hebrides, Fiji, Tonga, and Tahiti. Most of the victims were young adults and cases of haemorrhagic fever were seen in patients with a primary dengue infection. The haemorrhagic syndrome observed in the Pacific appears to be different from that seen in South-East Asia, with more frequent severe internal bleeding and less frequent shock. Rapid international travel and the high densities of *Ae. aegypti* in the Pacific islands are considered to be the two factors which have facilitated the spread of the virus.

*Lassa fever*

4.61 Serological surveys have now shown that the geographical range of Lassa fever extends to the Central African Republic, Guinea, Ivory Coast, Mali, Senegal, Upper Volta and Zaire, in addition to Liberia, Nigeria and Sierra Leone where several outbreaks have been described since 1969. A total of 211 probable Lassa fever cases were detected from 1972 to 1975 from 67 localities in the Southern and Eastern Provinces of Sierra Leone. The fatality rate is generally from 20% to 50% in hospitalized patients. In addition to its occurrence in the local populations of endemic areas, this highly virulent, lethal virus has caused sporadic and epidemic outbreaks among medical and paramedical groups. WHO has issued a series of technical notes to provide governments with expert advice. An international symposium on arenaviral infections of public health importance, cosponsored by WHO and the Center for Disease Control, Atlanta, GA, USA, was held in that city in July. It was attended by participants from Africa (Nigeria, Liberia, Sierra Leone and Senegal) and from other countries where these viruses have been studied.

*Haemorrhagic conjunctivitis*

4.62 A new enterovirus—designated enterovirus type 70—is recognized as the cause of the epidemic of acute haemorrhagic conjunctivitis which spread between 1969 and 1974 to Africa, Asia and parts of Europe. A retrospective serological survey carried out with the participation of WHO collaborating centres has confirmed the wide geographical distribution of antibodies to this enterovirus and its presence in Africa before 1969. Small outbreaks of the disease continue to be reported in different countries. It has been recently shown by the WHO Collaborating Centre for Virus Reference and Research in Atlanta, GA, USA, that adenovirus type 11 can also cause haemorrhagic symptoms and can be present at the same time as enterovirus type 70 in the epidemics.

*Trachoma*

4.63 Trachoma continues to be the major cause of blindness in many developing countries and accounts for a major proportion of the preventable blindness in the world as a whole. In view of the limited resources available for the control of trachoma in countries where it is endemic, the main emphasis of the WHO programme continues to be on the development of more effective methods for the planning, implementation and evaluation of control measures. Criteria for the clinical diagnosis of the disease have been more precisely defined with a view to the introduction of relatively simple measures of the risk represented by the disease and of the changes which may occur.

4.64 Methods for the laboratory diagnosis of trachoma—with special emphasis on those which may find a practical application in countries where the disease is a public health problem—are described in a new publication which gives an up-to-date review of recent advances and describes in detail the techniques recommended. The gradual adoption of these methods should further contribute to a more rational approach to the control of the disease.

4.65 Assistance to trachoma control activities continued to be given to some countries in the African, South-East Asia and European Regions—Nigeria, Burma and Turkey, respectively. In the Eastern Mediterranean Region, advisory services are provided to most countries through intercountry projects, and several long-term national trachoma control programmes supported by WHO were evaluated in 1975. Although comparable data are still scanty, it appears

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1 WHO Official Records, No. 221, 1975, paragraph 4.57.
that control measures have led to a substantial reduction in the severity of the disease. It is estimated that over the past decade the prevalence of blindness caused by communicable eye diseases has been reduced to between one-quarter and one-third of the previous rate in areas of intensive trachoma control activities. In addition, these activities have introduced a public awareness that much blindness is preventable and have played a major role in health education.

4.66 A second WHO Collaborating Centre for Reference and Research on Trachoma and other Chlamydial Infections was designated in 1975, at the Institute of Ophthalmology of the University of London. Both the London and the San Francisco centres have taken an active part in collaborative studies with other institutions and are engaged in field activities. The research activities sponsored by WHO include the development and application of diagnostic techniques, and the study of the immunological characteristics of the agent and of the effect of antibiotics and other inhibitors on the agent and on the disease itself, both in the laboratory and in the field.

4.67 Within the general context of interagency collaboration, an assessment of the trachoma situation among Palestinian refugees and of the trachoma control activities of UNRWA was carried out in July.

Rickettsial diseases

4.68 Louse-borne typhus remains a serious public health problem in the highlands of central and eastern Africa, and cases continue to be recognized in certain Andean countries in South America. An assessment of the situation in Rwanda was carried out in March. The introduction of effective control measures is hampered by the limited facilities and resources. While the elimination of the disease in endemic areas is beyond present possibilities, current understanding of the problem—based to a large extent on recent WHO-sponsored activities—did make it possible to outline a pragmatic, progressive approach aimed at a better definition of the problem and at the containment of foci of the disease in areas of endemicity.

4.69 The specific measures that are recommended continue to be treatment of the cases with long-acting antibiotics, selective delousing of patients and of their contacts with those insecticides that are still effective, selective immunization of the population at particular risk, and health education. Assistance along these lines was provided to Burundi and Rwanda.

4.70 In the Americas a programme was continued for strengthening the facilities for epidemiological and laboratory surveillance of louse-borne typhus and other rickettsial infections in the Andean region. In Bolivia, a trial of the attenuated typhus E strain vaccine was completed during 1975; the results indicated a high degree of acceptability of the vaccine by the populations at risk, and vaccine potency was demonstrated by serological conversions in the population sample tested.

4.71 The network of WHO collaborating centres concerned with rickettsial reference and research was strengthened by the designation in 1975 of a third centre—at the Department of Microbiology, University of Maryland School of Medicine, Baltimore, MD, USA.

Venereal diseases and treponematoses

4.72 In 1975, the Organization continued to seek ways of making its activities in the field of sexually transmitted diseases and endemic treponematoses more practical and effective. It has supported research, whether fundamental or applied, only where there were real prospects of applying the results for the benefit of health services. Reports from all the Regions indicate still further increases in the prevalence of sexually transmitted diseases. Clearly social and behavioural factors play a key part in their dissemination; however, the principal factors in the failure to control them are the inadequacy or even total absence of the necessary national health policies and infrastructures and the lack of awareness of the true extent and gravity of the problem.

4.73 The growing concern of health authorities at the general increase in venereal diseases was shown by the selection of "Social and health aspects of sexually transmitted diseases: need for a better approach" as the subject for the Technical Discussions at the Twenty-eighth World Health Assembly in May 1975. Following the discussions, the Health Assembly adopted resolution WHA28.58, in which it summarized the steps necessary and urged the expansion of efforts to strengthen the control of sexually transmitted diseases.

4.74 The Organization's activities in the field of venereal diseases and treponematoses are aimed at strengthening and coordinating research and its applications in order to:

- Assess the epidemiological situation and its medical, psychosocial and behavioural components;
- Develop through fundamental and applied research simple, reliable and sensitive methods of diagnosis, treatment and prophylaxis;

— Promote an approach that combines the medical aspects with health education and information of the public; 
— Assist in (a) developing regional and national programmes for the strengthening of services for the control of sexually transmitted diseases integrated with the control of communicable diseases as a whole; (b) organizing seminars and training courses for medical and auxiliary personnel; and (c) evaluating and treating residual foci of yaws and endemic syphilis.

4.75 Among other approaches employed by the Organization, direct contacts with countries, increased financial assistance, and the organization of training courses for national control services are all seen as essential to limit the spread of sexually transmitted diseases and mitigate their socioeconomic consequences.

Sexually transmitted diseases

4.76 Evaluation of the present epidemiological situation. According to surveys carried out or supported by the Organization, and statistical and other reports and replies to questionnaires received from Member States, the incidence of the most frequently identified sexually transmitted diseases—syphilis, gonorrhoea, nonspecific urethritis and genital trichomoniasis—continued to increase alarmingly in all parts of the world except Sweden. Much of the information gathered was presented as background material for the Technical Discussions at the Twenty-eighth World Health Assembly.

4.77 In countries with a strong health infrastructure, surveys promoted by WHO in 1974-75 indicated an annual incidence of gonorrhoea of 1% of the total population, half the cases occurring in the 18-24-year age-group. Similar surveys in countries with a poor health infrastructure showed prevalences ranging from 2% to 20% and sometimes more.

4.78 In most of the world, as these surveys showed, syphilis is 30-50 times less prevalent than gonorrhoea. On the other hand, nonspecific urethritis is at least as frequent as gonorrhoea, and the two often occur together. The seriousness of the position regarding gonorrhoea in particular was emphasized by two groups of scientists convened by WHO in Geneva in June and September 1975, which recognized that frequently more than 10% of poorly or inadequately treated cases of gonorrhoea end in permanent sterility in both men and women.

4.79 At the same time, assessments of the distribution and characteristics of cases were undertaken in a number of countries in order to determine the age, sex, social level and behaviour of patients and thereby to gauge to whom, how and where case-finding, preventive and health education activities should be directed. WHO-assisted research of this type in France, India, Nigeria and Senegal helped to identify high-risk groups and to devise better approaches to them. It would be useful to extend the studies to other areas with different sociocultural characteristics.

4.80 Syphilis. The research supported or coordinated by WHO has centred on two priority areas: (1) the ultrastructure, biochemistry and metabolism of treponemes and the factors necessary for their survival and possible culture; (2) host/agent interactions, the humoral or cellular bases of immunity, and the possibility of specific immunization. The objectives are practical ones: to provide the clinician, the epidemiologist, and the laboratory worker with simpler, more effective, and more sensitive methods of diagnosis and treatment, and to develop methods for specific immunization.

4.81 Electron microscopy and studies on structural biochemistry in progress at the Central Institute for Scientific Research on Skin and Venereal Diseases, Moscow, the Johns Hopkins University School of Medicine, Baltimore, MD, USA, and the Statens Seruminstitut, Copenhagen, made it possible to identify and define the nature of several components of pathogenic or nonpathogenic treponemes. In addition to permitting a taxonomic classification of the treponemes, these studies should help in determining the role of the various components in the pathogenicity of treponemes and the immune response of infected organisms.

4.82 The use of defined fractions, cytoplasmic proteins and axial filaments has already shed light on the kinetics of certain serological reactions. However, further study is required in order to obtain fully purified antigenic fractions for diagnostic tests and, even more important, immunogenic fractions affording specific protection.

4.83 These studies have been carried out, albeit with difficulty, using pathogenic treponemes maintained in animals. The most decisive and important advance is to be anticipated from the production of pathogenic treponemes in culture. Priority research supported by WHO in several centres has already made it possible to define some metabolic requirements and to keep treponemes alive for substantial periods in cell culture.
4.84 The immunological reactions of infected organisms and their detection by serological tests at different stages of the disease have attracted much research aimed at determining the sequence of appearance of antibody immunoglobulins and the sensitivity and reliability of serological diagnostic tests—particularly the TPHA and FTA/ABS tests, which are sometimes unsatisfactory in some autoimmune diseases. Comparative studies on the standardization and reproducibility of these tests were carried out under the guidance of the Center for Disease Control, Atlanta, GA, USA, with the participation of several WHO collaborating centres.

4.85 The study of the humoral or cellular bases of immunity was undertaken or continued by several collaborating centres with the aim of developing a method of specific immunization. It was shown that the transfer of humoral antibodies only delays infection, whereas lymphocytes from an infected animal give more solid and sometimes complete protection. The role of lymphocytes was confirmed by a number of different tests (inhibition of macrophage migration, blastic transformation, suppression of immunity by immunodepressors).

4.86 In the same direction, immunization trials were undertaken in rabbits with killed or irradiated treponemes giving solid immunity; these continue with chemically defined fractions, but remain dependent on obtaining treponemes in culture. Until an effective vaccine can be developed against treponemal infection in the human being, antibiotic therapy remains the only weapon available.

4.87 WHO continued to promote the active surveillance of treponemal sensitivity to penicillin. While no change in clinical responses was observed, resistant strains were obtained in animals by administering progressively increasing doses of penicillin. If this finding is confirmed, great care will have to be taken to ensure that this antibiotic is used at treponemicidal doses.

4.88 Gonorrhoea. The annual rate of increase in the incidence of gonorrhoea is usually considerably higher (1-10%) than that of syphilis (1-2%). This is probably attributable to its greater infectivity, and certainly to the difficulty of diagnosing and sometimes of treating it. The aim of WHO-supported activities has been to find solutions to these problems in order to provide clinicians, laboratories and epidemiologists with reliable, sensitive and simple methods of diagnosis and treatment.

4.89 A satisfactory solution to the problem of transporting samples to the diagnostic laboratories has yet to be found. By agreement with several manufacturers, WHO arranged trials in France, Africa and Central America of different transport media; the first results are being evaluated. With the participation of manufacturers, several WHO collaborating centres continued studies aimed at developing inexpensive, sensitive and selective culture media that are easy to use and have a prolonged shelf-life. Different media are being compared in Africa, Denmark, France, and the USA and further studies are required in order to determine which should be recommended to clinicians or centres without sophisticated equipment. The identification of cultured strains by biochemical tests has been simplified by the use of direct immunofluorescence, though this technique still calls for considerable equipment and skilled staff.

4.90 Priority has been given to assistance to research in serological methods of diagnosis. As 70% of female cases and 10-20% of male cases of gonorrhoea are asymptomatic but nevertheless infectious, investigations on systematic methods of case-finding by serology have been promoted in Africa, Canada, France, the United Kingdom, and the USA.

4.91 During the year, WHO-assisted studies led to a clearer picture of the ultrastructure of the gonococcus and the biomedical characteristics of the antigenic constituents of both pathogenic and nonpathogenic biotypes. The results obtained with polysaccharides, lipopolysaccharides or pili of gonococci have led to the development of promising serological methods that are already in use by several laboratories. This work is also directed towards the development of a vaccine based on the same principle as that against meningococcal diseases; preliminary studies are in progress.

4.92 WHO has also begun a study on the acceptability and effectiveness of intravaginal chemoprophylaxis by means of products combining contraceptive properties with protection against sexually transmitted diseases.

4.93 The theoretical effectiveness of antibiotic therapy remains high. Through the WHO Collaborating Centre for Reference and Research in Gonococci, Copenhagen, WHO maintains worldwide surveillance of the sensitivity of gonococci to antibiotics. The centre also trains staff and provides regional and national centres with techniques and reference strains so that variations in sensitivity can be checked locally.

4.94 Other sexually transmitted diseases. For the first time, WHO oriented research towards these diseases, particularly chlamydial infections. Work promoted by WHO in France, the USSR, the United
Kingdom, and the USA laid the groundwork for future research. It is already evident that in all parts of the world chlamydial urethritis is at least as prevalent as gonococcal urethritis.

Health information and education in the control of sexually transmitted diseases

4.95 The importance of psychosocial and behavioural factors in the spread of sexually transmitted diseases and the need to combat these factors through health education were given considerable emphasis in the Technical Discussions at the Twenty-eighth World Health Assembly. WHO-assisted surveys in Africa, the Americas, Europe and India brought useful information on attitudes to sexuality and the sexually transmitted diseases and on the level of public knowledge; this information has been used in designing education programmes adapted to different sociocultural levels.

4.96 Demand continued to increase for the documents, records, films, and information pamphlets disseminated through WHO, reflecting the growing interest of health authorities in the control of the sexually transmitted diseases.

Strengthening of services for the control of sexually transmitted diseases

4.97 The final objective of all research on pathogenic agents and on the factors favouring their spread is to develop effective services for diagnosis, treatment and eradication. The replies to the questionnaire sent to all Member States as part of the preparations for the Technical Discussions at the Twenty-eighth World Health Assembly and the reports of the discussion groups brought out the essential need to strengthen the control infrastructure where it exists and to create it where it is non-existent. Later in the year, a further and much more detailed questionnaire was sent to countries in all Regions to determine the level of their control infrastructure and their present requirements. The information gathered will be used in the preparation of regional seminars on the strengthening of control services.

4.98 Venereal disease control services are now being reorganized in India, Nigeria and Senegal with WHO support. Many other requests for assistance have been received; the Organization is doing its best to respond to them as funds permit. It is clear that activities for the training of personnel and strengthening control services demand high priority.

4.99 A number of meetings were organized or assisted by WHO during the year. Following the First Central American Seminar on the Venereal Diseases, held in October 1974 in San José, a further seminar on the subject, for the Caribbean area, was held in Port-of-Spain in May 1975. In October, also in the Americas, the VI International Course on the Epidemiology and Control of the Venereal Diseases was organized in Santiago. In the Western Pacific Region, sexually transmitted diseases and yaws were among the topics examined at a regional seminar on tropical skin diseases held in Manila in September.

At the beginning of the year, in advance of the Technical Discussions at the Twenty-eighth World Health Assembly, the Organization published a survey of recent legislation on venereal disease control.1

Endemic treponematoses

4.101 The endemic treponematoses of childhood—yaws and endemic syphilis—have been a priority field for the Organization for 25 years. After extensive mass campaigns these diseases were believed to be disappearing from most of the tropical zones in which they were prevalent. However, surveys following mass campaigns carried out in Ghana, Liberia, Nigeria, and Senegal in the African Region, and in Indonesia in the South-East Asia Region, indicate that some foci of increased endemicity have reappeared in these countries with prevalences equalling, or even exceeding in limited areas, those observed before the mass campaigns. It is anticipated that the control measures now being taken in these countries with WHO’s support, using the epidemiological surveillance and mass campaign methodology developed by the Organization in the course of its past work, will enable these recent foci to be suppressed within a short period. This work, which needs to be expanded if the foci of infection are not to persist, is financed in part by UNDP and from private sources (e.g., the Canadian organization SWAY—Students’ War Against Yaws).

Leprosy

4.102 In resolution WHA28.56 the Twenty-eighth World Health Assembly in May 1975 called for the intensification of leprosy case-detection by Member States and requested the strengthening of training activities of multidisciplinary health workers in that disease.

4.103 Technical support was provided during the year by the Organization, with UNICEF assistance.

1 International digest of health legislation, 26: 1-44 (1975); also available in offprint form.
to numerous leprosy control activities, including case-detection and training. As in the past, valuable financial contributions were received from voluntary agencies for the support of national antileprosy programmes, notably those in Burma, Indonesia, Maldives, the Republic of Korea, Western Samoa, and American Samoa. In addition, several field and laboratory research programmes were assisted by the Organization thanks in part to contributions to the Special Account for the Leprosy Programme from the Order of Malta (Comité international de l'Ordre de Malte pour l'Assistance aux Lépreux), the International Union Against Tuberculosis, the Danish Save the Children Organization, the Danish Scouts' Help, the German Leprosy Relief Association (Federal Republic of Germany), the Italian association Amici dei Lebbrosi, the Japan Shipbuilding Industry Foundation, the Sasakawa Memorial Health Foundation (Japan), the Lepers' Trust Board Inc. (New Zealand), and Emmaüs-Switzerland.

4.104 In the African Region, emphasis is being given to the training of staff involved in leprosy control activities, notably through support for medical and other health workers attending courses at the All Africa Leprosy and Rehabilitation Centre (ALERT), Addis Ababa. (Other training activities in leprosy have been dealt with in Chapter 3 and Table 2.) In the American Region, through the Pan American Zoonoses Centre in Buenos Aires, the Organization supported studies in Colombia on the ecology of leprosy. The WHO Regional Committee for South-East Asia, in a resolution adopted at its twenty-eighth session in August, expressed great concern about the problem of leprosy in countries of the Region and made recommendations for strengthening control activities with increased support from voluntary organizations and bilateral agencies. An intercountry consultative meeting on leprosy was held in New Delhi in December. The progressive integration of leprosy control into the general health services is receiving greater emphasis in the Region, and in many countries the basic health services are beginning routinely to treat reported leprosy cases. In Burma, the WHO-assisted national leprosy control programme has successfully registered over 240,000 cases, which represent approximately 70% of the estimated cases in the country. The integration of leprosy control with other communicable diseases programmes also made progress. In Nepal, leprosy was included as a component of WHO-assisted country health programming. In view of the increasing interest of the Government of India in an intensified approach to leprosy control, preparatory steps were taken for more extensive WHO assistance.

The programme in Indonesia continued to focus on the training of various categories of personnel. In the European Region advisory assistance was given to Spain on the rehabilitation of leprosy patients. In the Western Pacific Region, the Organization provided advisory services to the Republic of Korea, Malaysia, and the New Hebrides. In the Republic of Korea, within the context of the programme, a new long-term plan of operation was prepared. Case-finding and treatment activities are now completely decentralized in Malaysia. In the New Hebrides a survey of the whole population was completed in 1975.

Research

4.105 The objectives of the research programme in leprosy are geared to the development of more effective tools for prevention, case-detection and treatment.

4.106 Prevention. The preventive effect of chemoprophylaxis with oral dapsone has been studied by two institutes collaborating with WHO. The studies by the Central Leprosy Teaching and Research Institute, Chingleput, India, are still in progress. The chemoprophylaxis studies on Culion Island, Philippines, which involved over 600 children with observation periods of up to seven years, ended in 1975. They indicated that oral dapsone alone is of limited chemoprophylactic value and is probably suppressive rather than truly prophylactic.

4.107 Mycobacterium leprae, the bacillus responsible for leprosy, can now be made to infect various species of rodents (including laboratory mice) and the armadillo. The latter has in fact become a prolific source of the mycobacteria, and this has made it possible for the first time to formulate a WHO-coordinated research strategy for years ahead.

4.108 Leprosy is the only nonparasitic disease among the six major tropical diseases included in the special programme for research and training in tropical diseases (see paragraphs 5.8-5.12). In November 1974 a task force on the immunology of leprosy was established as part of the special programme. With the ultimate aim of achieving primary prevention of leprosy, three main objectives were chosen: (a) developing a skin test for the detection of subclinical infection, (b) developing a specific antileprosy vaccine, and (c) devising immunotherapy methods. To attain these objectives the task force drew up a network of research activities to be carried out over, perhaps, the next two decades. In June 1975, this task force's steering committee reviewed the progress made on

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1 WHO Official Records, No. 221, 1975, paragraph 4.98.

skin test antigens, the establishment of an armadillo bank, and managerial aspects of the programme, and at a meeting in December the task force focused on epidemiological problems.

4.109 Important problems remain in ensuring a regular and sufficient supply of *Mycobacterium leprae*. However, some notable achievements were made in the first year of research by the task force. A method for purification of bacilli from armadillo tissue eliminating all but under 1% of contaminating material was developed. Three different soluble skin-test antigens were prepared by the WHO collaborating centres at Caracas, London, and Carville, LA, USA, all of which demonstrated considerable *Mycobacterium leprae* specificity and low levels of skin-test reactivity with lepromatous or nonexposed individuals in preliminary trials. Three small-scale field studies were carried out on two of the soluble antigens, and one large epidemiological survey was carried out with one of the products. A mycobacterial infection in a small number of wild armadillos was discovered in one area and in preliminary tests the organism involved showed similarities to *Mycobacterium leprae*. Immunochemical analysis of isolated mycobacteria demonstrated 45 definable components and indicated both that a reference system for antigens of *Mycobacterium leprae* is feasible, and that individual antigenic components could be purified and specific antisera could be produced. Finally, comparison of antigenic properties, both by serological techniques and by skin testing, indicated a group of readily cultivated, fast-growing species with striking antigenic similarities to *Mycobacterium leprae*.

4.110 In addition to coordinating the work of the task force on the immunology of leprosy, WHO collaborated in 1975 with seven institutes in as many countries investigating the humoral and cell-mediated immune system in leprosy. The objective of these investigations is to establish an immunological profile of the various forms of leprosy and so facilitate the collection of data on immune characteristics or deficiencies that might lead to the development of either a vaccine or immunotherapy. Some of the studies in progress may also help to bring about a better understanding of the frequent lepra reactions that interrupt therapy and slow down bacteriological negativation in lepromatous cases and often cause disability in tuberculoid and borderline forms.

4.111 Although the use of animal models in leprosy is an important advance, *in vitro* mass cultivation of *Mycobacterium leprae* has not yet been conclusively demonstrated. Twelve research institutes in six countries collaborating with WHO were engaged in cultivation attempts in 1975. Using *Mycobacterium leprae* murium as a first phase and taking into account the microorganism’s oxygen and temperature requirements as well as certain growth factors, the Johns Hopkins School of Hygiene and Public Health, Baltimore, MD, USA, reported limited but measurable cultivation of the mycobacterium. This complex approach, which is based on metabolic requirements, is a new one.

4.112 From the long-term antileprosy BCG trial in Burma, in which approximately 28,000 children have been under regular observation since 1964, six lepromatous and borderline ("open") cases were reported in 1974 and four more in 1975. Of the 10 reported cases, four were in the vaccinated group and six in the control group. Although a further period of observation is necessary, this suggests that the freeze-dried BCG used in Burma has not prevented the appearance of either lepromatous or borderline cases. Thus far, the overall protection of the combined age-groups (0-14 years) by BCG is 22.5%. A total of 2027 skin smears taken from leprosy patients or suspected cases in the trial area were examined during the year in the Institute of Hygiene and Epidemiology, Prague, a WHO collaborating centre.

4.113 Other studies were pursued during the year with lepromin, a preparation derived from human tissue containing killed *Mycobacterium leprae* that is used to evoke a skin reaction related to resistance. Over 1000 ml of lepromin prepared by various collaborators was distributed to investigators in different countries. In addition, WHO-initiated multicentre field tests were carried out in Burma, Ethiopia, Japan, and Malawi to compare human-derived lepromin H with armadillo-derived lepromin A, prepared by the Laboratory Research Branch, Public Health Service Hospital, Carville, LA, USA, a WHO collaborating centre. Similar tests were conducted independently by the Department of Biochemistry, Gulf South Research Institute, New Iberia, LA, USA, also a WHO collaborating centre. The preliminary results show that the reactions caused by the two lepromins are comparable. Provided that further testing of relatively simple methods yields satisfactory results, this means that the worldwide shortage of human-derived lepromin may be overcome.

4.114 Case-detection. The problem of case-detection in leprosy is largely organizational but partly educational. In cooperation with Burma, Upper Volta, and Venezuela, among others, the Organization continued to explore more effective and economical means of case-detection, mainly by multidisciplinary health workers. As mentioned in paragraphs 4.137-4.140, case-

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Europe, up to 4.5% in the Americas, and as much as 10.4% in Asia; the lowest percentage in any country is 0.2%. Many countries in Latin America, Asia, and Africa consider tuberculosis a public health problem of the first order.

4.119 Reported data may provide an unrealistic picture of the actual problem: morbidity and mortality data for many countries are incomplete, and are often hardly comparable because of the different diagnostic techniques and criteria used. With the collaboration of the WHO-supported International Tuberculosis Surveillance Centre in The Hague, more precise data have been obtained in a number of countries and areas (for example, in the Federal Republic of Germany, Indonesia, Jordan, Yugoslavia, and Curacao) by measuring the tuberculosis problem in terms of the annual risk of infection, which reflects the pool of infectious sources in the community. It has been estimated that the risk in some developing countries with the greatest pools of infection may be more than 100 times greater than in certain developed countries with the smallest pools of infection. Moreover, while the rate of decline in the risk of infection is as high as 12% in some of the latter countries, there is no decline at all in certain developing countries.

4.120 The fact that in many countries tuberculosis morbidity rates are declining slowly in comparison with morbidity rates indicates that BCG vaccination campaigns have often not been accompanied by effective case-finding and curative services. It is clear that, although cheap, simple and effective tuberculosis control methods have been available for a long time, the organization and management of control programmes are inadequate in many countries.

4.121 Assistance provided to countries by WHO has therefore been mainly of a managerial nature, including evaluation, and aimed at developing realistic and efficient national tuberculosis control programmes. Advice was given, in particular, on the planning of BCG vaccination programmes, with the aim of achieving a higher coverage of the eligible age-groups in the population; on the extension of bacteriological diagnostic facilities; and on the countrywide introduction of efficient and effective standard chemotherapy regimens. Such assistance was given during 1975 to Afghanistan, Bangladesh, Brazil, Burma, Burundi, Colombia, India, Laos, Lesotho, Malawi, Malaysia, Papua New Guinea, Republic of Korea, Singapore, Togo, Uganda, Upper Volta, and Venezuela; on the other hand, the operations of the regional tuberculosis training and evaluation team in the South-East Asia Region had to be discontinued. Further progress was made in the integration of tuberculosis control activities, or of certain aspects of tuberculosis programmes, into the general health services—in particu-

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lar, in Argentina, Bolivia, Brazil, Dominican Republic, Papua New Guinea, Philippines, Republic of Korea, and Venezuela, as well as in countries of the African Region. A guide describing the technical and administrative aspects to be considered when programming for integrated tuberculosis services was prepared and distributed to countries in the Region of the Americas. Special attention was given to the training of microscopists working at health centres, and revised technical guides for them were distributed in countries of Latin America and in the Western Pacific Region. Attention was also given to the technical and operational aspects of joint tuberculosis and leprosy programmes, as noted in paragraphs 4.137-4.140.

4.122 The BCG vaccination programmes of the Latin American countries were reviewed by a study group that met in Mexico City in September. The successful continuation of combined BCG and smallpox vaccination programmes, which are increasingly being integrated into general health services was reported from many countries in other Regions, and in Rwanda, Senegal and Togo such combined programmes also included yellow fever vaccination. In the combined BCG and smallpox vaccination programme in Afghanistan a simplified procedure for the evaluation of direct BCG vaccination programmes was successfully applied for the assessment of different vaccination techniques (see paragraph 4.131). In Colombia an evaluation was made, in a random urban population sample, of the coverage achieved four years previously in a mass BCG vaccination campaign; this revealed large differences in coverage between the different age-groups, pointing to the importance of constant monitoring of the programme.

4.123 In accordance with resolution WHA27.54, WHO continued to facilitate the quality control of all BCG vaccine supplied through UNICEF for national campaigns. It also met the requests made by 15 countries to arrange for the quality control of the vaccine they had produced. On the basis of research carried out during several years, the colony count—the most important of the laboratory test procedures—has been revised and standardized, and the associated central computer processing reprogrammed. A collaborative assay of BCG vaccines is being carried out in laboratories in six countries, and in field projects in Denmark and India.

4.124 The high technical skill and the costly machinery required make it difficult for small laboratories to produce freeze-dried BCG vaccine of good quality at a reasonable price. For this reason, and also with a view to optimizing technical assistance and facilitating international quality control, WHO assisted the development of several regional production centres. Advice on production and quality control methodologies was given to laboratories in Egypt, India, Indonesia, Mexico, Philippines and Senegal. The WHO-assisted laboratory in the Philippines, which during the year started to produce freeze-dried vaccine for national use, should be supplying other countries by 1976. Assistance was also provided to national BCG laboratories in Brazil, Chile, Cuba, and Uruguay. With the assistance of DANIDA, training was provided at the Statens Seruminstitut, Copenhagen (a WHO collaborating centre) for key personnel from laboratories in Bulgaria, Egypt, India, Indonesia, Iran and Madagascar.

4.125 Guidelines were prepared for the use of BCG vaccine in country programmes, and for briefing in connexion with the activities of the expanded immunization programme. The existing technical guides on the WHO standard tuberculin test, on designs for in vitro assays of BCG products, and on the evaluation of BCG vaccination programmes were revised in the light of developments since their issue in past years by the Organization.

4.126 The importance of the health problem posed by tuberculosis among migrant workers has grown considerably with the vast increase in the number of people moving for the purpose of employment to other countries or even within their own country. In Europe, Australia and North America the incidence of tuberculosis among migrant or immigrant workers generally exceeds that in the host country and, sometimes, even that in the country of origin, since the workers often come from social strata and geographical areas in which the prevalence of the disease is particularly high. Moreover, in the host country the workers are often subject to adverse living conditions and to stress arising from lack of job security, adaptation problems, and disruption of family life. A working group convened by WHO in Berne, in April, considered the epidemiological aspects of the problem, the related social and economic factors, and the adequacy or effectiveness of control measures, including legislative, financial and educational provisions; the participants included representatives of 14 countries (both host countries and countries of origin), ILO, the Intergovernmental Committee for European Migration, the International Children's Centre, and the International Union against Tuberculosis. They concluded that migrant workers should be treated as high-risk groups, but that the epidemiological effect on the population of the host country was negligible if preventive measures, case-finding and treatment were adequate.
4.127 Close collaboration was maintained with the International Union against Tuberculosis (IUAT), which complements the work of WHO in the field of tuberculosis control through its six scientific committees, publications programme, and the Tuberculosis Surveillance Research Unit (which is also supported by WHO), as well as through its support for the work of national tuberculosis associations in developing countries. The IUAT's Twenty-third International Conference, held in Mexico City in September, provided a forum for the exchange of knowledge on tuberculosis control among some 4000 participants. The Organization contributed papers concerning its participation in tuberculosis control, approaches to the problem in the Americas, and the long-term effects on health of air pollution. The IUAT organized seminars at the national level, with the collaboration of WHO, in the Regions of the Americas and the Eastern Mediterranean; it also participated actively in a seminar organized by WHO in Karachi, Pakistan, in October, to consider new approaches to the planning, implementation and assessment of tuberculosis programmes in the last-named Region.

4.128 More than 40 000 copies of the ninth report of the WHO Expert Committee on Tuberculosis \(^1\) were distributed in English, French and Spanish, so that the recommendations contained therein might reach as many as possible of the key workers responsible for national programmes. Arrangements were also made for the report to be translated at the national level into Arabic, Czech, Dari (in Afghanistan), German, Italian, Japanese, Portuguese, and Serbian.

**Research**

4.129 During the year 34 research institutions, of which five are WHO collaborating centres, received WHO assistance and cooperated with WHO in research on tuberculosis in such fields as immunization, immunology, epidemiology and surveillance, bacteriology and microbiology, chemotherapy, and operational aspects (especially operational activities carried out by nonspecialized services as an integral part of general health work). Some of this work is reflected in 16 scientific papers published during the year.

4.130 In the WHO-assisted tuberculosis prevention trial in South India, the second round of active follow-up examinations was nearly completed. The number of new cases found among persons who were not infected at the time of intake into the trial (mainly children) remained low, but the total number of cases detected is now approaching the minimum required for analysing the protection afforded by BCG vaccination. The findings have provided further evidence that BCG vaccination does not increase the incidence of new cases among persons suspected of being infected or among strong reactors to tuberculin, and that it does not adversely influence the course of active disease.

4.131 Controlled trials were carried out in Brazil, Chile and Indonesia to determine whether the bifurcated needle, so successfully used against smallpox, can be recommended for BCG vaccination, and whether it offers operational advantages that might offset the qualitative shortcomings observed in all the previous trials. Even with highly concentrated BCG vaccines, the bifurcated needle has been found to introduce, at best, not more than one-third of the adult dose of the international reference preparation that was given intradermally, by syringe, for comparison. Some of the current trials are therefore being conducted with a view to the use of the bifurcated needle in WHO's expanded programme on immunization (see paragraphs 4.2-4.9) in the newborn and young infants, for whom, in any case, a lower dose is recommended. However, since the level of tuberculin allergy induced after intradermal inoculation in vaccination programmes is sometimes lower than in well supervised research projects, it appeared justified to compare both techniques in a routine mass vaccination programme aimed at covering infants as well as older children and adolescents (i.e., the 0-15-year age-group). This investigation was carried out in Afghanistan in a combined BCG and smallpox (maintenance) vaccination campaign undertaken by staff formerly engaged in the smallpox eradication programme. Here again it was apparent that it was impossible to inoculate the desired amount of BCG vaccine with the bifurcated needle. There was an increase of about 10% in the vaccination output, but this operational advantage could be obtained only in the more densely populated areas, where large numbers of eligible persons could be assembled.

4.132 WHO-assisted research was continued to prepare a new tuberculin of higher specificity than the current preparations; this would be of considerable help for epidemiological research, surveillance and BCG evaluation.

4.133 In the field of chemotherapy, efforts were continued to establish therapeutically effective drug regimens which, owing to low toxicity and operational simplicity (in terms of the spacing of drug administration and the total duration of treatment) would lessen the financial implications and the workload for the delivering services and would be more acceptable to the patient. This, in turn, can be expected to reflect

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on the patient’s cooperation and, because of greater regularity in drug ingestion, result in higher cure rates than are obtained under the present conditions of tuberculosis control programmes.

4.134 WHO-assisted controlled clinical trials are under way in Algeria, Czechoslovakia, the German Democratic Republic, India, and Poland. Various intermittent drug regimens, including the efficacy of preparations from which isoniazid is slowly released, are being evaluated in newly detected cases of pulmonary tuberculosis. Data from some of these trials have provided further evidence that the benefit of prolonging a course of adequate standard chemotherapy beyond one year is rather small, and that follow-up examinations after completion of chemotherapy are not necessary if the patient has been regular in drug ingestion during the course of treatment. Short-course chemotherapy requiring not more than six or nine months’ administration of rifampicin-containing drug combinations, which is under intensive investigation by several research groups in different parts of the world, is also being assessed.

4.135 A second controlled trial of intermittent chemotherapy with rifampicin for patients suffering from chronic pulmonary tuberculosis was started in Poland, where cure rates of nearly 100% had been obtained in the first trial. In itself, retreatment in the case of treatment failure cannot be regarded as a rational and practical solution of the problem posed by chronic infectious cases; emphasis in a national programme should rather be given to preventing the occurrence of such cases by an appropriate service providing all those in need with primary chemotherapy. A high rate of success in the original treatment is a guarantee that retreatment of failure cases is kept to a minimum.

4.136 In WHO-assisted operational research projects in Algeria, Japan, Romania, and Venezuela the various aspects of organizing BCG vaccination, case-finding and treatment programmes, and the costs involved, were under investigation. The studies underlined the importance of evaluating such programmes under the prevailing local conditions, and of continual monitoring and revision. Several of the results obtained in the methodological studies may be relevant for the control of diseases other than tuberculosis and contribute to the development of health services in general.

Combined leprosy and tuberculosis activities

4.137 Seeking ways and means to achieve a more effective implementation of country-level programmes for the control of the two diseases discussed in the immediately preceding sections of this chapter, the Organization during the year explored the practicability of planning and putting into effect joint activities against both.

4.138 In Upper Volta, a research programme is in progress under WHO auspices that features a combined leprosy and tuberculosis survey of the population; this is to be followed by combined programme delivery through the existing structure for health care. A similar WHO-supported survey for the purpose of determining the prevalence of both diseases, begun in June, in Western Samoa and American Samoa was almost concluded by the end of the year.

4.139 In the Maldives and in one township of Burma, combined tuberculosis and leprosy activities included case-detection and treatment. In Burma these activities with regard to leprosy proved comparable in their effect to those of the specialized leprosy service, and for tuberculosis a significant increase in case-detection was reported. Tentative plans were made for extended feasibility studies on combined leprosy and tuberculosis programme delivery in Bangladesh and Venezuela.

4.140 It is recognized that the evolution of an optimally efficient system for control of the two diseases jointly will depend upon acquiring more operational experience in countries with different epidemiological and socioeconomic conditions, so that the apparent similarities between tuberculosis and leprosy programmes can be fully tested under field conditions. It would be premature, therefore, to draw conclusions from the activities started so far as to the general applicability of combined programmes; owing to the chronic nature of both diseases, trials will have to be undertaken over an extended period before conclusive results can be expected.

Acute bacterial diseases

4.141 Among the acute bacterial diseases, diarrhoeal diseases, including cholera, continue to be one of the commonest causes of disability and death in developing countries, followed by the infections of early childhood that are preventable by immunization (diphtheria, whooping cough, and tetanus). Cerebrospinal meningitis has again become more widespread, and streptococcal and staphylococcal infections continue to take a heavy toll, while plague, which persists in its natural foci, remains a constant threat to the populations in neighbouring areas.

4.142 The Organization’s attention and activities were directed towards the control of these acute bacterial
4. COMMUNICABLE DISEASES

The overall fatality rate from cholera was around 8% for Asia and about 6% for Africa. The reduction of cholera fatality to such a remarkably low level compared with earlier years in the present pandemic is in large measure due to national and WHO efforts to disseminate knowledge of intravenous and oral rehydration techniques, and to make available the essential supplies for such treatment. By 1974, WHO alone had trained, at interregional and other courses and seminars, over 1500 professionals, who in turn trained many more national staff (medical and auxiliary) in their home countries. In 1975, a further training seminar on diarrhoeal diseases was held in Guatemala (see Table 2). In collaboration with other agencies for international assistance, intravenous rehydration fluid and pre-packaged ingredients for oral rehydration were made available promptly in sufficient quantities to countries requesting such supplies.

4.146 Members of the WHO interregional cholera team visited Afghanistan, Democratic Yemen, Egypt, Indonesia, Philippines, Portugal, and Yemen to assist inter alia in the wide application of modern life-saving therapy—particularly, the use of oral rehydration—and in training for that purpose. Democratic Yemen and Yemen are making arrangements to train paramedical personnel in institutions for health manpower development in order to adopt this method of treatment for all diarrhoeal diseases including cholera.

4.147 A consultation on cholera control in countries of the Mediterranean basin was held in Madrid in February to review the experience gained since the conference on cholera control in Europe, held in Copenhagen in 1971.

4.148 The WHO collaborating centre for vibrios, in Calcutta, India, provided diagnostic antisera, phages, and standard strains to Member States and helped to characterize and phage-type strains whenever required. The examination of a large number of strains of *Vibrio cholerae*, isolated in different countries, for their sensitivity to commonly used antimicrobials at this centre and at another in the United Kingdom did not reveal any problem with resistant strains.

4.149 The field trial of a killed cholera vaccine with aluminium hydroxide as an adjuvant, organized by the Government of Indonesia and WHO,1 was completed after two years’ follow-up. In all, the degree of protection conferred by the adjuvant vaccine, which is given in a single dose, was about 50-60% and lasted for about 18 months. This immunity is not significantly different from that induced by the corresponding plain vaccine, but in children 1-4 years old the single-dose adjuvant vaccine did give slightly superior results—an encouraging finding because in that age-group the plain vaccine is effective only when given in two doses. The Indian Council of Medical Research has independently been undertaking a field trial (now in the follow-up stage) in Calcutta with a similar vaccine prepared locally. In the meantime, the field trial of a gluteraldehyde-treated, purified cholera toxoid vaccine carried out by the Bangladesh-US Cholera Research Laboratory, Dacca,2 has shown that the batch of toxoid concerned is not very effective. This observation, however, does not necessarily mean that antitoxic immunity is not important in cholera; and since no avenue of approach to cholera immunization can be neglected, research is being supported by the Organization and by others in order to develop a more effective type of toxoid. Work progressed on the

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1 WHO Official Records, No. 213, 1974, paragraph 1.144; No. 221, 1975, paragraph 4.118.
development of a combined vaccine, containing both the somatic antigen of \textit{V. cholerae} and the toxoid, which has been undertaken by a laboratory in Italy with the help of WHO, and this is expected soon to be ready for trial.

4.150 In studies towards the development of a live oral vaccine, there were some encouraging results with a laboratory-obtained nontoxigenic mutant of \textit{V. cholerae}, but in one instance there was laboratory evidence of reversion by the organisms. However, there are some other laboratory mutants and several naturally avirulent strains isolated from water that are available for further studies.

4.151 In India, in a clinical trial undertaken by the WHO collaborating centre concerned with vibrios and the Infectious Diseases Hospital, both in Calcutta, a long-acting tetracycline (doxycycline) given in a single dose of 300 mg was found to be nearly as effective in shortening the period of vibrio excretion in cholera patients as 500 mg of tetracycline given every six hours for two days. Although doxycycline is more expensive than tetracycline, the single dose means that successful therapy can be ensured. Smaller doses of doxycycline were less effective, even when given on two occasions. The use of the 300-mg dose of doxycycline among potential carriers, to prevent spread of the vibrio, will now be investigated.

4.152 Although 1975 was a year of relative quiescence as regards cholera, the total number of acute diarrhoea cases showed no decline. Data from some of the infectious diseases hospitals in cholera-endemic areas indicated that only about 30-40\% of the gastroenteritis cases admitted were bacteriologically proved to be due to \textit{V. cholerae}. The development—through contributions to the Voluntary Fund for Health Promotion—of an expanded WHO programme encompassing all acute enteric diseases, including cholera, continues. The aim of this programme is to promote the use of simple methods of oral rehydration, sanitation, and health education in order to save lives and prevent the spread of infection.

4.153 An advance in the identification of the etiological agents of acute diarrhoea has been made by the recent recognition of the role of viruses similar to reoviruses and parvoviruses in diarrhoea among children (see paragraph 4.52). About 5-11\% of hospitalized cases of gastroenteritis in Calcutta were found by the WHO collaborating centre there to be due to \textit{V. parahaemolyticus}, which produced symptoms almost indistinguishable from those of cholera. Determination of these various enteropathogenic agents is of epidemiological significance for control but may be less important so far as treatment is concerned, since oral rehydration\(^1\) with appropriate fluid can provide valuable therapy for acute diarrhoea, including cholera, in all age-groups.

4.154 Research was initiated in the Philippines, Turkey and Yugoslavia on the field application of oral rehydration for the treatment of diarrhoeal diseases in rural areas through health centres and auxiliaries as an element of primary health care. Studies on the feasibility and acceptability of oral rehydration have yielded very encouraging preliminary results, and are being continued to observe the long-term effects on the nutritional status of children in the community and to develop simplified methods of delivery of this basic form of medical care. A guide for use by the health worker in primary care for the treatment and prevention of dehydration due to diarrhoea was prepared; while awaiting formal publication, it was widely used in a number of national and international training courses supported by WHO.

4.155 While killed oral \textit{typhoid} vaccines tested in field trials in India and Chile\(^2\) have not been found to be effective, live epimerase-deficient \textit{Salmonella typhi} strains used as oral vaccine in multiple doses have shown promise in WHO-supported studies.

4.156 The WHO Collaborating Centre for Phage-typing and Resistance of Enterobacteria, in London, studying strains of \textit{S. typhi} with multiple drug resistance, has shown that strains from India, Mexico, Republic of South Viet-Nam, and Thailand all exhibited a common genetic mechanism involved in the development of the resistance, although differences in the Vi phage-types indicated that the organism involved in the four countries was not derived from the same source. Similar studies with \textit{S. wien} from France and the United Kingdom indicated that the strains carried the same genetic markers in both countries. In Malaysia, strains of \textit{S. typhimurium} of the same phage-types and carrying identical genetic markers of resistance were observed in isolates from both man and animals. In December the Belgian Government sponsored a meeting held in Brussels under WHO’s auspices on the public health aspects of antibiotic-resistant bacteria in the environment, with a view to strengthening national expertise.

\textbf{Cerebrospinal meningitis}

4.157 In 1975 cerebrospinal meningitis continued to occur in the African “cerebrospinal meningitis belt”, and in Kenya, Zambia and southern Africa. There

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\(^1\) WHO Official Records, No. 197, 1972, paragraph 1.167.

were epidemics in Brazil and Mongolia and, to a lesser extent, in some other countries with a temperate or cold climate in Europe and Latin America. Some of these countries received WHO assistance in combating the disease.

4.158 Previously reported observations on the effectiveness of polysaccharide vaccines against clinical disease due to groups A and C meningococci were further confirmed during the year by studies in Egypt, Finland and Sudan; however, these vaccines do not have a significant effect in controlling the carrier rate. The Organization also supported a collaborative study of the safety and potency of group A and group C vaccines that was facilitated by a voluntary contribution from the Austrian Government and conducted by laboratories in France, Netherlands, USA and other countries. The results were reviewed by a study group that met in October and that considered the minimum requirements for polysaccharide groups A and C vaccines, which were accepted by the WHO Expert Committee on Biological Standardization in December. These requirements differ in many respects from those for other commonly used bacterial vaccines, notably because there is no animal model in which the potency of the vaccines can be assayed, and they are therefore characterized by their chemical composition and molecular weight. As they are readily degradable by heat, cold storage is essential, which renders their field use in many developing countries logistically difficult and expensive. In view of this and of the fact that these vaccines do not protect against infection with other serogroups, the study group considered that they should be applied primarily to give protection against homologous infection to high-risk groups of suitable ages. The group A vaccine does not protect children less than 6 months old, and the group C vaccine does not protect those under 2 years.

4.159 Further work on the production and testing of groups A and C vaccines was undertaken, WHO acting as coordinator, in several laboratories in order to seek more stable and less expensive products. Attempts to produce a vaccine that would protect against serogroup B meningococci, which are common in some countries, still proved unsuccessful. In view of the limitations of present vaccines, the Organization continues to maintain stocks of sulfonamides and of chloramphenicol at Brazzaville and Niamey for treatment in emergencies.

4.160 The control of these three diseases, which are common in newborn and young children in developing countries, was assisted by the promotion of immunization programmes in several countries. Research aimed at the improvement of the vaccines was also supported.

4.161 A study of the untoward reactions to pertussis vaccine was organized through WHO. Five institutions in different countries have begun to collect relevant clinical information, and laboratory studies on the identification of possible reactogenic substances in vaccines have been initiated. A WHO collaborative investigation was begun in the Netherlands, Sweden, and the USSR to study a new fractionated vaccine and other vaccines known to be less reactogenic than those commonly available.

4.162 The WHO collaborating centres concerned with bacterial vaccines assisted in the quality control of diphtheria and tetanus toxoid and other combined vaccines by testing national products.

4.163 The presence of a number of members of the WHO Expert Advisory Panel on Bacterial Diseases at the Fourth International Conference on Tetanus, held in Dakar in April, provided WHO with an opportunity to hold an informal meeting at which practical guidelines for the control of tetanus were drawn up, for publication by the organizers of the conference.

Streptococcal and staphylococcal infections

4.164 An international cooperative study of the streptozyme test—considered a sensitive indicator of past streptococcal infection—was conducted with the assistance of the WHO Collaborating Centre for Reference and Research on Streptococci, Prague, in five laboratories in Czechoslovakia, Israel, the United Kingdom, and the USA. The test was shown to be reliable and useful for epidemiological surveys and diagnostic purposes.

4.165 The WHO collaborating centre concerned with staphylococcal phage-typing, in London, assisted national reference centres in the standardization of phage-typing techniques and helped to compile basic information towards the development of a study of hospital infections in Europe.

Plague

4.166 Plague flared up again in several countries with endemic foci, e.g., Brazil, Lesotho, and the USA. Assistance was provided to control the outbreak in Lesotho, and to train national staff and strengthen surveillance in Burma, where the large outbreak that started in 1974 continued in 1975.

4.167 In order to promote the surveillance of this disease, an international collaborative study on the
reproducibility and reliability of the passive haemagglutination test with Fraction 1 antigen was set up in collaboration with laboratories in France, Iran, the USA, and the USSR. A detailed manual of specific field and laboratory techniques for plague surveillance and control was prepared.

4.168 In the USSR, an interregional travelling seminar on the detection, surveillance, and control of plague was held with WHO assistance for plague workers from developing countries.

Veterinary public health (including zoonoses control, food hygiene and comparative medicine)

4.169 Interest in the utilization of veterinary knowledge and skills for promoting and preserving human health is growing, and requests to WHO for assistance in the control of the major zoonoses (rabies, brucellosis, hydatidosis, cysticercosis, leptospirosis and others) and of foodborne diseases have been steadily increasing. Among the various instruments for assisting Member countries in this field, the Pan American Zoonoses Centre, Buenos Aires, and the Pan American Foot-and-Mouth Disease Centre, Rio de Janeiro, Brazil, have proved very useful in the Region of the Americas. These centres provide technical consultation (especially in planning), carry out research, train workers at various levels, furnish standardized reagents and biologicals, and give direct help in emergencies. Encouraged by this experience the Organizational designated in 1975 a WHO Collaborating Centre for Training and Research in Veterinary Public Health, in Iran. Initially, three well-developed national institutions in Teheran are participating jointly, but efforts are being made to develop a self-contained centre that could serve countries in both the Eastern Mediterranean and the South-East Asia Regions.

4.170 The problem of the shortage of supplies of nonhuman primates for biomedical work is being increasingly felt and was the subject of discussions at the Twenty-eighth World Health Assembly in May, when it adopted resolution WHA28.83, by the Advisory Committee on Medical Research in June, and at several informal WHO consultations. Encouragement and assistance are being given to limit the inappropriate use of and unnecessary trading in simians and to the development of international guidelines for more effective, economical and safe use of simians in biomedical work and their breeding in countries which use them in large numbers and in those where they are indigenous.

Rabies

4.171 Many countries received assistance for rabies surveillance and control. In particular support was given to activities in Bolivia, Ecuador, Nigeria, and Peru. In Brazil, the national rabies-control programme was expanded to cover 20 states of the country with special emphasis on the postexposure treatment of humans, massive campaigns of canine vaccination, and the improvement of laboratory diagnosis.

4.172 In WHO-coordinated research, emphasis was placed on the improvement of prophylaxis, surveillance and postexposure treatment in man. The research programme was examined by the Advisory Committee on Medical Research in June.¹

4.173 The results obtained in field trials with the human diploid cell vaccine were reviewed at a WHO consultation held at the Pasteur Institute of Iran, Teheran. This vaccine, originally developed at the Wistar Institute, Philadelphia, PA, USA—a WHO collaborating centre—has been widely tested in various countries and has proved to be highly potent and much safer than previous vaccines; with a basic schedule of four inoculations over 14 days, followed by boosters at 30 and 90 days, it confers the long-lasting antibody levels that are desirable in postexposure treatment.

4.174 Wildlife rabies, in particular the reservoir in foxes, still causes many problems, since control measures in the wild are most difficult to plan and assess on a countrywide scale. A simple mathematical model has been developed which can be used to forecast the results of fox control operations. Field studies coordinated by WHO that simulated oral vaccine application were carried out in Canada, France, Federal Republic of Germany, Switzerland, and the USA. The results obtained were discussed at a consultation in Frankfurt, Federal Republic of Germany. The procedures for bait application and for the attenuation of virus need to be further improved before oral immunization of wildlife can be considered safe and can be recommended for general use.

4.175 In the Federal Republic of Germany, studies conducted by WHO and the authorities in North Rhine-Westphalia showed that most persons who should have had immediate antirabies treatment because of the nature of their contact with a rabid animal were not in fact treated until rabies had been diagnosed in the animal concerned.² To provide for more immediate treatment after exposure and at the same time to avoid unnecessary treatment, the estab-

lishment of special advisory services has been recommended. The practice of postexposure treatment in most countries of the world indicates a need for much closer collaboration between the veterinary services responsible for rabies surveillance in animals and the medical services.

4.176 In view of the success of the monthly international rabies surveys of the Pan American Zoonoses Centre, a WHO collaborating centre has been established at Tübingen, Federal Republic of Germany, to build up a rabies surveillance system in Europe. Close collaboration is envisaged between this centre and the collaborating centre in Teheran in order eventually to establish rapid reporting systems, covering a large geographical area; this work would be assisted by the electronic data processing services available to WHO.

**Brucellosis**

4.177 A UNDP/WHO-assisted project for the control of brucellosis has been in operation in Mongolia for some years, and in a number of the more highly infected districts animals have been inoculated in the field with vaccines that are now prepared locally. In view of the large number of animals husbanded under nomadic conditions it was not possible to control the mixing of the younger animals with the old; the original plan of vaccinating only the young female animals was consequently modified to include all the females. However, this sometimes led to the vaccination of pregnant animals, and to obviate untoward reactions it was decided during the year to use a smaller dose of the vaccine (diluted). This modified procedure had been found to produce satisfactory immunity in earlier experimental trials by the Pan American Zoonoses Centre, Buenos Aires.

4.178 The Department of Veterinary Science, University of Wisconsin, USA, conducted a study, with WHO assistance, of the role of strain 19 live vaccine in the control of bovine brucellosis in the USA over the past quarter of a century. In one state with a dense concentration of cattle and a particularly high vaccination coverage a dramatic reduction of infection was achieved within four years of instituting the control programme, whereas a neighbouring state that was also well stocked but that vaccinated much less took another five years to achieve comparable results. In the country as a whole, those areas where there has been extensive and continued vaccination have achieved complete or nearly complete elimination of the infection, but where this has not been the case there is still a brucellosis problem, which seems to be increasing rather than receding.

4.179 Most of the anti-Brucella vaccines now in use contain live or inactivated whole Brucella cells. The old idea of using antigens extracted from these cells has been pursued by the WHO Collaborating Centre for Research and Reference on Brucellosis, Moscow, with satisfactory results in experimental animals. Workers at this centre isolated a protein polysaccharide complex from vaccine strain 19-BA, a small dose of which (0.6 mg) was found to protect guinea-pigs against *B. melitensis*, *B. abortus* and *B. suis*.

4.180 The same centre reported further progress in improving laboratory tests for diagnosis. The sensitivity and specificity of the indirect haemagglutination test, using a polysaccharide antigen coated on sheep erythrocytes, in diagnosing human brucellosis has been reported in earlier years. An antiglobulin test, based on the foregoing system, has now been compared with Coombs’ test in detecting incomplete antibody and found to be equally efficient and specific. It appears to be a useful and rapid test for the diagnosis of human brucellosis, but somewhat less sensitive than Coombs’ test in reindeer brucellosis. Further trials are in hand to confirm and extend these findings.

4.181 A second edition of a monograph on laboratory techniques in brucellosis was published during the year, containing new or revised methods and additional chapters, one of which deals with the newly described species, *Brucella canis*. A review of brucellosis as a world problem also appeared.

**Leptospirosis**

4.182 Although vaccination of persons occupationally exposed to leptospirosis has been practised for many years, the vaccines used (consisting of inactivated suspensions of leptospires) have been variable in effectiveness and not always free from untoward side-effects. In attempting to improve the vaccine, the Monash University Medical School, Australia, with support from WHO, has isolated a purified and chemically characterized protective antigen from the serotype *icterohaemorrhagiae*. It is a lipopolysaccharide which, coated on red cells or in Freund’s incomplete adjuvant, actively immunized experimental animals (hopping mice, *Notomys alexis*) against lethal or carrier infections with the homologous serotype. Preliminary tests show that a vaccine containing this antigen may prove useful for human immunization.


4.183 At the same university the role of circulating antibody in immunity against leptospires was investigated. It was found that mice with such antibody resisted challenge with the homologous serotype, and that protective antibody could be substituted for by injecting the mice with serum from the blood of immunized rabbits or other animals (including convalescent human beings). While rabbit serum reacts specifically with only those types of leptospires against which the rabbits have been immunized, human sera cross-react with several types. These results should assist in vaccine development.

4.184 Various FAO/WHO collaborating centres have been assisting actively in epidemiological studies and in strengthening laboratory diagnostic services for leptospirosis in different countries. The centre in Moscow assisted in the determination of six serogroups in the blood of abattoir workers, meat packers and town dwellers in Mongolia and demonstrated laboratory methods and recommended ways of strengthening laboratory services. The Paris centre assisted epidemiological studies in Mali, Morocco, Portugal, the United Republic of Cameroon, and French overseas departments or territories in the Caribbean and the Pacific. The London centre assisted leptospirosis workers in the Gambia, Greece, India and Nigeria in epidemiological and bacteriological studies. The Pan American Zoonoses Centre provided similar services for countries in Latin America. The Center for Disease Control, Atlanta, GA, USA, which was designated a FAO/WHO Collaborating Centre for the Epidemiology of Leptospirosis during the year, published a supplement to the world distribution list of leptospiral serotypes originally issued in 1966.

Parasitic zoonoses

4.185 Hydatidosis. It has been known for some time that hydatid cysts of horses differ slightly in their morphology from those of sheep, but their relative importance in the epidemiology of human hydatidosis remains to be clarified. The Imperial College of Science and Technology, London, assisted by WHO and the Pan American Zoonoses Centre, found that rhesus monkeys were refractory to infection with the horse strain but that the Mongolian gerbil could be readily infected with it as well as with the sheep strain. An in vitro culture technique developed at the Imperial College made it possible to distinguish between the growth patterns of the two strains. The question of the transformation of one strain into the other by simple genetic manipulation is being investigated.

4.186 Laboratory diagnosis of hydatidosis in man is carried out by serological tests and by the Casoni skin test or its modifications, but none gives unequivocal results. The Pan American Zoonoses Centre compared these tests with an immunoelectrophoretic test that measures the circulating antibody. No false positives have so far been found in the latter test. These studies suggest that it would be advantageous to use the latex test for screening in seroepidemiological surveys and immunoelectrophoresis for confirmation of sera found positive.

4.187 A common difficulty in testing therapeutic substances against hydatid cysts in experimental animals is the difficulty of determining the viability of the treated cyst. Workers at the Pan American Zoonoses Centre have devised a test based on macroscopic examination of treated cysts, which are transplanted into the peritoneal cavity of a gerbil. Living cysts maintain their swollen appearance and morphological integrity after transplantation, whereas dead cysts show loss of hydatid fluid, rupture of the germinal layer and a flattened appearance.

4.188 Cysticercosis- taeniasis. The vaccination of young calves with irradiated or living oncospheres administered subcutaneously had previously met with difficulty because of their inability to develop strong immunity at an early age. Studies carried out with WHO support by the College of Veterinary Medicine, Philadelphia, PA, USA, and the University of Edinburgh Centre for Tropical Veterinary Medicine, in the United Kingdom, led to the important finding that artificially activated oncospheres of Taenia saginata injected intramuscularly in one-month-old calves render them resistant to subsequent challenge and that these animals show antibody in their blood. Intramuscularly injected hatched oncospheres do not become generalized, as they would if administered by certain other routes. The availability in micronized form of mebendazole, a wide-spectrum anthelmintic, had raised hopes that it might be effective in treating cysticerci in cattle. However, the same centre in the United Kingdom and the Medical Academy of Poznan, Poland, trying this drug in infected calves by intraperitoneal injection of doses of 40-100 mg/kg, found it quite ineffective against cysticerci of T. saginata.

4.189 Toxoplasmosis. Following the discovery of the oocyst stage of Toxoplasma and its development in the gut of the cat some years ago, interest has centred on the epidemiological importance of the oocysts and the possibility of their formation in other animal hosts.

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1 Sulzer, C. R. Leptospiral serotype distribution lists, Atlanta, Center for Disease Control, 1975.
One laboratory which received WHO assistance studied the susceptibility of sheep (including lambs), crows and pigeons to this infection and found no evidence of oocyst formation in any of these hosts.\textsuperscript{1} Orally administered oocysts passing through the alimentary canals of sheep and lambs were, however, still viable on being passed out and could infect other animals. Infection of pregnant ewes by oocysts was as harmful to the fetus as infection with tissue cysts of \textit{T. gondii}.

**Foot-and-mouth disease**

4.190 A significant development in connexion with the VIII Inter-American Meeting, at the Ministerial Level, for the Control of Foot-and-Mouth Disease and the Zoonoses, held in Guatemala City in April, was that for the first time official delegations of the ministries of health of 11 countries attended. Previous meetings had been largely restricted to ministries of agriculture.

**Food hygiene** \textsuperscript{2}

4.191 The main areas of concern in WHO’s food hygiene programme during 1975 were, as hitherto, strengthening food hygiene activities in Member States, developing microbiological specifications for foods, and supporting research on microbiological and parasitological agents causing foodborne disease. The work included a number of activities in related programmes discussed elsewhere in this report, such as the Joint FAO/WHO Food Standards Programme, the joint FAO/WHO food contamination monitoring programme, and the programme for the surveillance of food infections and food poisoning of biological origin.

4.192 A joint FAO/WHO expert consultation on microbiological specifications for foods took place in Geneva in April 1975, as the first of a planned series of meetings sponsored by UNEP to prepare microbiological specifications suitable for incorporation in Codex Alimentarius codes and standards. The participants prepared specifications for egg products, including sampling procedures, laboratory methodology and microbial limits. Specifications for precooked frozen shrimps and prawns, and nonfat dry milk were considered items of priority for future work. The report of this expert consultation was presented to the Codex Committee on Food Hygiene, which initiated action for the incorporation of the egg-product specifications into the Code of Hygienic Practice for Egg Products. Food microbiology was also the subject of an informal consultation held in cooperation with FAO in Berlin in November, when the needs for and the coordination of activities in postgraduate training in this field were discussed.

4.193 The above-mentioned specifications for egg products were largely the outcome of WHO-supported collaborative research carried out since the late 1960s by the International Commission on Microbiological Specifications for Foods and by the National Institute of Public Health, Bilthoven, Netherlands. Further research carried out during the year with WHO assistance by the International Commission included a collaborative study, involving four laboratories, to compare the accuracy of three main plating procedures for assessing total mesophilic count. It was found that the pour-plate and drop-plate procedures were equal in performance and more sensitive than the spread-plate method for all foods except egg. The institute in Bilthoven has mechanized the enzyme-linked immunosorbent assay \textsuperscript{3} for the detection of \textit{Trichinella} in pigs, making it possible to examine 4000 sera daily. Data are fed into a computer which prints out positive results.

4.194 Within the WHO food virology programme, a recently appointed collaborating centre in Madison, WI, USA, is now making available specific information on viruses in food, using a retrieval system specially developed for this programme. This information is intended for the use of food control authorities, epidemiologists dealing with foodborne disease outbreaks, and research and laboratory workers in food hygiene.

4.195 As part of WHO-supported investigations the Institute of Hygiene and Microbiology, Copenhagen, developed a method for the detection of enterotoxin production in pure cultures of staphylococci, using the gel diffusion technique, and a simple procedure for the detection of ochratoxin A in cereals which can be used in the field when thin-layer chromatography is impracticable.

4.196 In the Americas, the Pan American Zoonoses Centre provided diagnostic and epidemiological collaboration in studies of various problems arising out of food contamination in Argentina, Brazil, Guatemala, and Uruguay. In collaboration with the Government of Brazil, the Organization is developing a multi-institutional programme for food hygiene and control, under the authority of the Ministry of Health.

\textsuperscript{1} Beverley, J. K. A. et al. \textit{British veterinary journal}, 131: 130 (1975).

\textsuperscript{2} See also paragraphs 10.55-10.66.

\textsuperscript{3} See paragraph 5.7.
Animal wastes

4.197 In recent years an increasing imbalance of ecosystems has been observed in many developed and developing countries alike owing to the concentration of food-producing animals and the separation of animal production from the source of feed and the areas of waste disposal. In collaboration with FAO and national authorities, a network of collaborating institutes is being established to study hygienic methods of disposal and recycling of animal wastes and to advise countries on the requirements and measures for the prevention of environmental pollution by infective agents and chemical compounds.

Laboratory animal medicine

4.198 Mention has already been made (paragraph 4.170) of the shortage of nonhuman primates that are essential for biomedical research and for the testing of pharmaceutical and biological preparations for use in man. Consultations were held during the year with the International Association of Biological Standardization to consider how best to overcome the problem and to promote the establishment of breeding colonies. The Advisory Committee of Medical Research discussed the matter in June and considered that WHO should make a major effort to alert countries dependent on primate imports to the necessity of establishing breeding facilities to meet their own basic needs. Animals bred in such colonies would be better standardized. In connexion with the special programme for research and training in tropical diseases discussed in the following chapter, a consultation took place to plan facilities for nonhuman primates and other laboratory animals at the research centre at Ndola, Zambia (see paragraph 5.12).

4.199 A new WHO Collaborating Centre for Haematology of Primate Animals was designated in 1975 in New York, USA, to provide training to workers from other laboratories, especially those sponsored by WHO, and to advise WHO and other collaborating centres. Three WHO Collaborating Centres for Defined Laboratory Animals—in Japan, the United Kingdom and the USA—and the WHO Collaborating Centre for Research and Training in Comparative Medicine in the Federal Republic of Germany maintain more than 150 strains and stocks of small laboratory animals. During the year 12 new strains or stocks were added to the collection, and investigators in these and other countries were issued with more than 300 specimens of various animal strains to establish new breeding colonies.

Comparative oncology

4.200 The development of an international histological classification of naturally occurring tumours of domestic animals was completed during the year. The classification of tumours of 10 animal body sites was published in 1974, and that of the 11 remaining sites was finalized for publication at a consultation in September. This classification will facilitate the use of naturally occurring animal tumours as models for research in comparative studies.

4.201 WHO continued its support of studies on the carcinogenicity of bracken fern (Pteridium aquilinum). Evidence has been found of the transfer of some carcinogenic activity in the milk of cows and mice but not of rats. Water from catchment areas with much bracken is being examined for the possible presence of carcinogens. The latest experiments confirm earlier observations that shikimic acid (one of two carcinogens isolated from bracken) is strongly mutagenic and this has been demonstrated by both mammalian and monocellular systems. This work is closely related to the study of regional variations in the incidence of some forms of human cancer, notably gastric and related malignancies.

4.202 Among other WHO-supported research in comparative oncology is a study of feline leukaemic virus (FeLV), which serves as a model for human leukaemic virus. New results obtained in 1975 support and extend earlier findings that the FeLV infection is common and is horizontally transmitted. The three different subgroups of FeLV produce somewhat different pathogenic effects when inoculated into cats in pure culture. Challenge experiments conducted with experimentally vaccinated cats showed that animals were protected against large doses of a highly pathogenic strain of the virus, whereas unvaccinated cats became infected. Work is in progress to develop an inactivated vaccine that would induce a high level of immunity.

Congenital defects

4.203 In three collaborating laboratories WHO supports research on environmental factors causing non-genetic congenital malformation. As an earlier investigation had shown that newborn sheep, guinea-pigs and rats exposed to hyperthermia in utero at a certain period of gestation had smaller brains and less DNA in their brains than control animals, recent research has been directed towards finding the basic mechanisms involved in the development of these defects.

and their consequences. Histological studies have shown that heat exposure results in the death of mitotic cells in the neuroepithelium and inhibition of mitosis which involves a block before prophase and during metaphase for 6-8 hours after exposure. As at this stage of brain development neurones are proliferating, it appears that a deficit in cell numbers includes a deficit of neurones. A loss in brain growth was apparent six days after heat-stress and remained constant to maturity. The functional efficiency of the microencephalic brain appears severely limited.

**Comparative cardiology**

4.204 For several years the Organization has been giving support to work on comparative cardiology. Studies of diseases of the arteries is continuing in several animal model systems at the Institute for Animal Pathology, Berne; these include investigations of vascular changes in the retina of spontaneously diabetic hamsters (*Cricetulus griseus*). Vessels localized at the zone of junction between the internal plexiform and internal granular layers were found to be those most frequently and most severely affected. Degenerative changes of endothelial cells and pericycles and very significant thickening of basement membranes were most prominent at this site. For clarification of the etiology and pathogenesis of diabetic retinopathy, which is a major cause of blindness in man, the Institute studied the role of the anterior pituitary gland in diabetic hamsters, which were shown to have a significantly increased number of somatotrophic cells. This suggests that a primary hyperproduction of somatotrophin may be responsible for the diabetic condition in the hamsters.

**Bronchitis**

4.205 With support from the Organization, the University of Glasgow, United Kingdom, has been engaged in a comparative study on chronic respiratory diseases which has shown that natural respiratory disease in the dog and an experimental canine model developed at Glasgow provide ideal systems for studying chronic bronchitis of man. In the model it is possible to quantify changes in the mucous glands. In studies on "farmers' lung" it has been shown that the incidence and titre of precipitins to *Mycoplasma faeni* in cattle herds can be used as indicators of the degree of exposure of farm workers. A reliable diagnostic serological test of skin test has important applications in medicine and therefore this work is now particularly concerned with the development of standard antigens.

**Comparative virology**

4.206 Within the WHO/FAO programme on comparative virology a collaborating centre concerned with the collection and evaluation of data on comparative virology has been established at the University of Munich, Federal Republic of Germany. The centre collaborates closely with the International Committee for Taxonomy of Viruses and relevant national data banks. A symposium was held at the centre in October at which its services and new developments in comparative virology were reviewed.

4.207 In the same WHO/FAO programme two additional international teams have been established for the study of reoviruses and foamyviruses. The programme now comprises about 135 laboratories organized in 16 teams, each team being responsible for a distinct group of animal viruses. So far, 96 reference virus strains have been approved and a further 119 strains accepted as candidate reference strains. Antisera for reference purposes have been prepared against 50 viruses.

**Prevention of blindness and visual impairment**

4.208 Resolutions adopted by the World Health Assembly in recent years (resolutions WHA22.29 and WHA25.55) have urged greater national and international efforts to prevent blindness, and the Organization has been taking steps to develop a coordinated programme to this end. In May 1975 the Twenty-eighth World Health Assembly adopted a further resolution (WHA28.54) by which it requested the Director-General to encourage Member countries to develop national programmes for the prevention of such major causes of blindness as trachoma, xerophthalmia and onchocerciasis. The importance of the early detection and treatment of other potentially blinding conditions such as cataract and glaucoma was also stressed in the resolution, as was the need to mobilize financial and other resources for the implementation of an effective programme.

4.209 The activities during the year in connexion with xerophthalmia and the vitamin-A deficiency with which it is associated have been dealt with in relation to nutrition in Chapter 2 and those concerning trachoma and onchocerciasis are described earlier in the present chapter and in Chapter 5. Preliminary assessments of the problem of blindness and its prevention were made in Bangladesh, Burma and India in 1973 and in Northern Nigeria in 1974; in February 1975 a similar

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1 Animal influenza has been considered in paragraph 4.50.
assessment was carried out in Guatemala, and it was confirmed that the three diseases just mentioned were the main causes of preventable blindness there too.

4.210 It has been estimated that more than one-third of the visually handicapped in the world live in countries of the South-East Asia Region, where a resolution on the prevention of blindness was adopted in August by the Regional Committee at its twenty-eighth session. National programmes for the prevention of blindness and visual impairment have been stimulated in Bangladesh, Burma and India following the assessments referred to above; and the Organization gave assistance and advice to these three countries and to Indonesia, Sri Lanka and Thailand for the development of programmes in public health ophthalmology.

4.211 In the European Region, a problem-oriented systems approach to the prevention of visual impairment and blindness has evolved from the previous etiological and disease-oriented approach, which remains one of the means contributing to assessment of priorities and establishment of operational objectives at the country level. Advisory services and training opportunities in public health ophthalmology were provided to the Governments of Morocco, Turkey and Yugoslavia with a view to the development of further activities in this field.

4.212 Close contacts have been maintained with other organizations active in this field and especially with the International Agency for the Prevention of Blindness. In his address to the Twenty-eighth World Health Assembly the President of this nongovernmental organization indicated that national committees had already been formed in 30 countries to mobilize interest and resources to increase world action against blindness.
5. MALARIA AND OTHER PARASITIC DISEASES

5.1 The parasitic diseases, and malaria in particular, have been one of the Organization's primary concerns since its inception. In recent years WHO has been intensifying its activities in this field even further as political and health authorities and social scientists have increasingly come to recognize the urgency of the problems that these diseases pose, particularly in the tropical countries. There are measures that can be, and have been, applied to control many of these diseases with a greater or lesser degree of effectiveness (in 20 areas of the world, for instance, it has been possible to certify that malaria has been completely eradicated, although in many others it is seriously increasing), but it is clear that the present measures do not suffice. New control methods, more effective and easier and cheaper to apply, are needed. They will depend upon research into immunology, chemotherapy and prophylaxis in order to yield new knowledge and into methodology in order to determine how to make the best use of that knowledge and of the great scientific advances that have already been made in recent years.

5.2 All this was brought out forcefully in May 1975 in a number of resolutions adopted by the Twenty-eighth World Health Assembly on the development and coordination of biomedical research and on tropical and parasitic diseases. One of the features particularly stressed by the Assembly was the special programme for research and training in tropical diseases that the Organization is developing. This is described below (paragraphs 5.8-5.12) and is followed by accounts of the year's work in connexion with most of the diseases with which it is concerned.

5.3 In 1974 the Organization initiated an interdisciplinary study of the health problems associated with the creation of artificial water impoundments. As a further step in that study the preparation began in 1975 of a manual on the health hazards involved in the development of water resources, with particular reference to their prevention and to schistosomiasis. One of the features particularly stressed by the Assembly was the special programme for research and training in tropical diseases that the Organization is developing. This is described below (paragraphs 5.8-5.12) and is followed by accounts of the year's work in connexion with most of the diseases with which it is concerned.

5.4 While Member countries have placed a major emphasis upon such parasitic infections as malaria, schistosomiasis, trypanosomiasis, and the filariases, they are also showing a growing interest in intestinal parasitoses and diseases caused by the superficial and systemic fungi. The Organization is undertaking a nosogeographical study of fungal infections and preparing a programme for training in mycological techniques in order to assist Member States to set up appropriate laboratory facilities, undertake epidemiological studies and provide adequate treatment. Following the adoption by the Twenty-eighth World Health Assembly of a resolution (WHA28.55) drawing attention to the importance of mycotic diseases in both industrial and developing countries, a number of health authorities have furnished information to WHO on the public health importance of those diseases in their countries.

5.5 With respect to intestinal parasites, which are particularly prevalent in the developing countries, WHO is cooperating with IBRD to develop control methods for use concomitantly with the establishment of community water supplies, for it is recognized that medical measures cannot bring about permanent control in the absence of adequate environmental sanitation. In Guam, assistance was provided to review the results of control measures taken in 1974 against intestinal parasites. Operational research on the seroepidemiology of amoebiasis and other parasitic diseases received support in the Philippines. In Mexico a new experimental model (in the chick embryo) for and publications on the effects of major water resources development undertakings (man-made lakes, irrigation networks, etc.) on public health in the widest sense of the term. This will be expanded as new information comes to light and should be valuable to scientists and administrators in various disciplines. The bibliography was widely distributed to, among others, those intergovernmental and nongovernmental organizations with which WHO is reinforcing its cooperation in this field—for instance, UNDP, UNEP, FAO, the Man and the Biosphere Programme of UNESCO, and the International Council of Scientific Unions' Scientific Committee on Problems of the Environment and Scientific Committee on Water Research.

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1 Obtainable on request to Division of Malaria and other Parasitic Diseases, World Health Organization, 1211 Geneva 27, Switzerland.
the study of the pathology of hepatic amoebiasis was developed with WHO assistance; it has considerable promise by virtue of its reproducibility, reliability and cheapness.

5.6 Immunological tests can be very valuable for seroepidemiological studies and for the individual diagnosis of parasitic infections, but the lack of specific, characterized antigens makes it almost impossible to establish acceptable standard diagnostic titres for the serological techniques in use, since the titres vary with the type of antigenic preparation and the results are often in disagreement with the information derived from more classical parasitological methods. The Organization is therefore coordinating a collaborative study, undertaken by laboratories in Finland, France and Mali, for the isolation and characterization of specific parasite antigens to be tested in serology. At a consultation on this subject in July the present situation was reviewed and the framework was established for further joint activities (including field trials) for the preparation of schistosomal, onchocercal and trypanosomal antigens by three laboratories in Europe and a fourth in the USA.

5.7 A recently introduced technique that has improved the prospect for the quicker and easier diagnosis of, or serological screening for, a number of parasitic diseases is one that has been given the acronym ELISA—the enzyme-linked immunoabsorbent assay. First devised in Sweden and modified and simplified, partly with WHO support, in the Netherlands and the United Kingdom, this technique requires only minute quantities of blood and is accurate and rapid, one technician being able to screen several hundred samples in a day. Research workers at WHO collaborating centres and other institutions have successfully tested various modifications of it on a small scale in malaria, schistosomiasis, and African and American trypanosomiasis, among other diseases; and it may be expected to become an even more practical tool as better-defined specific antigens become available. A consultation among the specialists using the new technique was held by WHO in October. Recent results and information on the procedure were discussed and collaborative work for its further improvement and its application to a variety of parasitic diseases was planned. Intensive work to improve the technique in collaboration with the Organization is also continuing in research institutions in the Netherlands, Sweden and the United Kingdom, and field trials are in progress in Africa and elsewhere, some of them being conducted with financial support from WHO.

Special programme for research and training in tropical diseases

5.8 In 1974 the World Health Assembly adopted resolution WHA27.52, calling for the further development and intensification of research on tropical parasitic diseases, and in resolution WHA27.61 it stressed the importance of promoting research in countries principally affected by such diseases and of strengthening research and training centres there. The Organization has borne these considerations in mind in developing a special programme for research and training in tropical diseases, which was considered by the Executive Board in January 1975 and by the Twenty-eighth World Health Assembly in May, as well as by the Advisory Committee on Medical Research in June. The programme is expected to be financed mainly from extrabudgetary resources and it was further scrutinized in October at a meeting of potential donors.

5.9 The two main objectives of the programme are interdependent. They are to develop and apply new diagnostic methods, chemotherapeutic agents, vaccines and vector control measures specifically suited to treat and prevent tropical diseases in the countries affected by them, and to strengthen research in those countries by training scientists and technicians in the disciplines concerned.

5.10 The number of tropical diseases is too great and the tropics extend over too vast an area for all of them to be included from the outset in a manageable programme. Six diseases—five of them parasitic—have therefore been selected for their incidence, their severity, their effect on capacity for work, and the lack of effective methods for their control. They are malaria, schistosomiasis, filariasis (including onchocerciasis), trypanosomiasis, leishmaniasis, and leprosy. Africa has been selected as the area on which the programme will first focus; all six diseases occur there in some form, affecting some 200 million people and usually causing multiple infections.

5.11 The programme is being planned to include two complementary elements: research task forces and a network of collaborating laboratories. The task forces—made up of leading scientists both from the affected countries and from technologically more advanced countries—will be responsible for the scientific planning and direction of all phases of research.
into the development of new chemotherapeutic agents and vaccines for each of the six diseases. The research itself will be in the hands of the network of collaborating laboratories, many of which will also supply members of the task forces. The laboratories will be in both developed and developing countries, those in the latter receiving the support needed to make them self-reliant in research and research training. The foundation of the network in Africa is the existing research institutes and university departments there. The establishment of an international multidisciplinary research centre is also envisaged in Africa as part of the network, to act as a focal point for strengthening research and training in the Region.

5.12 Among the year's pilot activities in this programme were first steps towards the development of a research centre at Ndola in Zambia, made possible by the Zambian Government's provision of clinical and laboratory facilities; the work here is concerned initially with schistosomiasis (see paragraph 5.47). The work of the task force on the immunology of leprosy reported in paragraphs 4.108-4.109 is also part of this programme. The opportunity was seized, wherever possible, to advance those components of the programme that are not yet fully developed. In malaria, for instance, advantage was taken of the meeting of the WHO Scientific Group on Developments in Malaria Immunology (paragraph 5.24) to review the potential for immunization against that disease, whereas the task force on malaria chemotherapy referred to in paragraph 5.34 was convened specifically for the programme. The work of other task forces and other activities connected with the programme are mentioned in paragraphs 5.55, 5.76 and 5.77.

Malaria

Status of the antimalaria programme

5.13 The generally worsening situation to which attention was drawn in 1974 can hardly be said to have improved in 1975. While there was progress in several areas where sustained efforts were maintained and governments gave strong support to antimalaria work, further deterioration was reported from those parts of the world which are still in the process of defining and revising policies, strategies and ways of action. In most of those infected areas, technical, financial, logistic and administrative problems certainly play an extremely important role, but the deterioration in the world as a whole has also been in no small measure due to an insufficient appreciation of the economic and social effects of the disease. A new impetus to action may be expected as those effects increasingly make themselves felt.

5.14 The Organization has made an attempt to assess all the antimalaria programmes in the world and to group malarious countries and areas according to their geographical location and to their prospects of attaining different epidemiological and operational levels of malaria control or eradication. The situation was closely studied by a special ad hoc Committee of the Executive Board in 1975. It was concluded that this assessment and classification would be of little practical value without the intimate involvement of the countries themselves in dealing with the malaria problem. Guidelines for the grading of areas or situations according to the technical possibilities and the prospects were therefore made available to governments, in order to help them to evaluate and classify their malarious areas and so be in a better position to make a realistic assessment of the situation and, if necessary, revise their antimalaria activities and strategies accordingly. In resolution WHA28.87, on the development of the antimalaria programme, the World Health Assembly in May invited the regional committees to give special attention to the malaria situation in their Regions and make recommendations regarding the orientation of antimalaria programmes there.

5.15 A threefold objective has been set in the African Region, which has about 60% of those people in the world who live in areas where no specific antimalaria measures are carried out. That objective is (a) to reduce mortality, suffering and incapacity due to malaria generally; (b) to improve the protection of the population of urban areas and communities of economic importance; and (c) specifically to reduce fetal and neonatal mortality by protecting all pregnant women from the fifth month of pregnancy. The increasing number of requests from governments for advisory services from the WHO intercountry teams testifies to the renewed interest of many countries in planning and launching antimalaria activities and a few governments are actively engaged on their own in planning organized malaria control programmes. In Mauritius, where malaria eradication had been certified in 1973, a small active focus of reintroduced transmission followed the ravages of a cyclone in 1975, but the Government made strenuous efforts to maintain the malaria-free status of the country despite the island’s high vulnerability.

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5.16 In the Region of the Americas, eradication remains the objective of most antimalaria programmes, even if not as a time-limited operation; in very few of these programmes is there a wish to revert to integrated control activities. However, in view of the fact that sole reliance cannot be placed on total coverage with insecticides, a revised approach to the problem of malaria was initiated in the Region. This involves efforts to improve and encourage epidemiological studies to provide a sound base for planning and evaluating field work, the promotion of research on new methods of attack, and a change in the orientation of the training of professional antimalaria personnel in order to give them a wider scientific background while maintaining a firm grounding in field work. Programmes progressed favourably in Argentina; in Brazil, where an additional 6 million people were considered freed from the risk of malaria transmission; in Dominican Republic, Guatemala, and parts of Mexico; and in Paraguay, where transmission has been virtually interrupted throughout the whole country. In Belize, Bolivia, Costa Rica, Panama, Peru and Venezuela, the programmes maintained their momentum; but in Colombia, Haiti, Surinam and the Central American countries of El Salvador, Honduras and Nicaragua where vector resistance is increasing, the situation deteriorated in 1975.

5.17 The hard core of the deterioration is in the South-East Asia Region, although this has only some 15% of the people who live in areas where there are no specific antimalaria measures. Malaria has re-emerged as a major public health problem in Burma, India and Sri Lanka and could do so in Nepal and Thailand unless measures can be extended and intensified. The operational obstacles are largely due to financial problems, which are aggravated by the spiralling costs of insecticides and antimalarial drugs and difficulties in procuring them. In Bangladesh, the number of malaria cases increased, with P. falciparum as the predominant parasite species. The need for a revised strategy and the development of a methodology within the available resources for the containment of the disease is nowhere felt more than in India, where the malaria situation was further aggravated by floods and the shortage of drugs. On the other hand in Indonesia, in antimalaria operations carried out as an integral part of the general health services, there was a marked decline in the incidence of the disease, particularly falciparum infections. In Nepal, where emergency assistance, including DDT supplies, had been provided by WHO, a situation analysis was carried out jointly by the Government, USAID and WHO and an interim plan of activities and a long-term plan of operations were developed; substantial assistance is under negotiation with UNDP for four years and USAID for five years which should improve the situation. There was a further sharp rise in the number of detected cases of malaria in Sri Lanka, with an alarming spread of falciparum malaria in the north. The programme in Thailand is faced with severe budgetary problems as well as technical problems of drug resistance by P. falciparum and outdoor transmission of the disease by An. balabacensis.

5.18 Of the three antimalaria programmes being conducted in the European Region, those in Algeria and Morocco were reported to be progressing satisfactorily. In Turkey, however, the situation deteriorated, with an increase in the incidence in several areas (see also paragraph 5.32); WHO continued to provide assistance for this programme.

5.19 In the Eastern Mediterranean Region the programmes in Iran, Iraq, Jordan, Syrian Arab Republic, and Tunisia continued to progress towards their objective of eradication. Malaria control measures (including residual insecticide spraying, larviciding, water management, source reduction and biological control through the use of larvivorous fish) were strengthened in Democratic Yemen, Ethiopia, Oman, Saudi Arabia, Somalia, and the United Arab Emirates. For Oman, an agreement for UNDP assistance was approved. However, there continued to be grave concern in three countries with antimalaria programmes—Afghanistan, Pakistan, and Sudan—owing to the high endemicity of the disease. Progress in the first two named is likely to be slow for administrative and technical reasons, but in Sudan (in the Gezira irrigated area) a renewed attack could be made, with important changes in the methodology and in the insecticide used (see paragraph 5.32), and the first results showed some success.

5.20 The gains in the antimalaria programme in the Western Pacific Region were largely preserved and in a number of areas there was a modest improvement in the situation, although Singapore experienced more local transmission. Substantial progress was made in the Solomon Islands' programme, where it was possible to discontinue spraying in a number of the islands. In Peninsular Malaysia the programme now covers all states and the incidence of malaria is at one-tenth of the pre-operational figure. In the Philippines, the overall incidence of the disease declined and considerable progress was made in the integration of the malaria eradication programme into the general health services. Assistance was also given to control operations in Cambodia, Laos, New Hebrides, Papua New Guinea, and Republic of South Viet-Nam.
5.21 In all, the Organization assisted 78 countries in their endeavours against malaria in the course of 1975. The assistance was for malaria eradication projects in 37 countries or areas, for organized control programmes in 20, and for antimalaria activities integrated into those of the general health services in 21.

Coordination and meetings

5.22 UNICEF assistance for antimalaria activities continued to be largely indirect, being given as support for integrated activities of general health services, except in the case of emergency situations resulting from disasters. UNDP financially assisted several malaria projects and widened its support by providing supplies in exceptional circumstances as part of the United Nations special programme of assistance to countries most seriously affected by the energy crisis and the economic crisis. The United States Government, besides supporting several malaria research projects, made a considerable financial contribution for a number of antimalaria programmes. Other governments responded to the Organization's plea for cooperation in combating the disease, notably the Governments of Kuwait and Saudi Arabia which made important financial contributions to support the antimalaria programme in Sudan.

5.23 The Organization promoted or participated in several coordinating meetings during the year. Among these were the Second Meeting of Directors of National Malaria Eradication Services of the Americas, which was held in Quito; meetings between Belize, El Salvador, Guatemala, Honduras and Mexico; Ecuador and Peru; French Guiana and Surinam; Guyana and Surinam; Iraq, Syrian Arab Republic and Turkey; Bangladesh, Burma and India; and the Maghreb Committee for the Coordination of Antimalaria Activities. A meeting on bioenvironmental methods in the control of malaria was organized jointly by UNEP and the Organization in Lima in December.

Research

5.24 A WHO Scientific Group on Developments in Malaria Immunology, meeting in Geneva in April-May, reviewed the information which had become available since the last such group was convened, in 1967. The report reviews the mechanisms of malaria resistance, the value of serological methods in epdemiology, the substantial recent advances in the understanding of immunopathological processes in malaria, and the developments in immunization techniques. Particular attention is paid to the importance for further progress in immunization of the cultivation of the various stages of the human malaria parasite. Among the recommended subjects for study are the purification, identification and serological properties of antigens derived from specific stages of malaria parasite populations. A broad approach is recommended in research towards the development of a vaccine for use against human malaria, since the areas of ignorance are still much greater than those of knowledge.

5.25 The extent to which WHO could provide financial support for malaria research was somewhat restricted in 1975 by shortage of funds but 42 research agreements were nevertheless concluded or renewed. The following paragraphs summarize some recent research coordinated and assisted by the Organization.

5.26 Biology of malaria parasites. Deeper knowledge of the biology of the membranes of the malaria parasite and of the parasitized red cells is needed both for the in vitro culture of the parasites and to advance the search for new lines of chemotherapeutic agents. At the Liverpool School of Tropical Medicine, United Kingdom, it has been shown that D-glucose can diffuse into the parasitized red cell membrane, possibly through very small pores which do not permit the entry of sucrose, and which appear to be present only in infected cells. This observation may have a bearing upon the development of chemotherapeutic agents. At the National Institute of Medical Research, London, work has been initiated on methods of blocking the surface components of the red cell (and possibly of the merozoite) responsible for recognition and penetration of the cell by the merozoite.

5.27 Human malaria parasites are rather highly specific for man, and few simian species could be infected experimentally, even if they were in abundant supply. Therefore much of the immunological and chemotherapeutic research has to be carried out in simian and rodent malaria models that provide close similarities to conditions in man, although they involve other Plasmodium species. Further experiments at Guy's Hospital Medical School, London, with merozoite immunization have highlighted the broad variant specificity of immunity in induced P. knowlesi infections and the immunized monkeys have also resisted P. knowlesi sporozoite challenge from infected mosquitos. Vaccination of rhesus monkeys with

attenuated sporozoites of *P. cynomolgi* at New York University Medical Center, NY, USA, has shown that extensive or total protection of these monkeys against sporozoite challenge can only be obtained after a period of several months and the administration of multiple immunizing doses.

5.28 In a study on the origin of relapses in malaria at the National Museum of Natural History, Paris, tree rats (*Thammomys*) have been treated with DL-ethionine, a hepatotoxic competitor of the naturally occurring methionine, during the pre-erythrocytic period of *P. yoelii* infection. This resulted in a delayed prepatent period and a relapsing pattern of cyclical periodicity of positive and negative blood. It is suggested that this phenomenon is due to rupture of delayed hepatic schizonts induced by ethionine treatment. This study is expected to lead to a better understanding of the relapse mechanism in human malaria, for which there was so far no convenient laboratory model.

5.29 *Malaria epidemiology*. Further studies on the epidemiology of cerebral malaria, at the New York University School of Medicine in the USA, using a virulent and fatal strain of *P. yoelii* previously described, have shown that the virulence was produced by genetic change in the parasite and have confirmed that the histopathological changes found in mice infected with this strain are in most details similar to those encountered in fatal falciparum infections in man.

5.30 Advice was given on seroepidemiological studies in Colombia, Iran, Sri Lanka and Surinam by the WHO collaborating centres concerned with malaria serology, in London and Nijmegen, Netherlands. These centres, together with the East African Institute for Malaria and other Vector Borne Diseases, Amani, United Republic of Tanzania, evaluated the malaria passive (or indirect) haemagglutination test on an African population naturally exposed to the disease and found that many parasite carriers in the younger age-groups were not detected by this method.

5.31 Ecological studies provide information that can lead to economical means of controlling the mosquito vectors of malaria. Using barrier fences, the United Kingdom Medical Research Council Laboratories in the Gambia investigated the flight patterns of mosquitoes; contrary to the common assumption, it was found that the mosquitoes' searching-flight before they detected the host stimuli must have been in a general downwind direction and low enough for the mosquitoes to encounter the “plume” of odour that arises from the host at ground level. The WHO collaborating centre concerned with cytogenetic studies of malaria vectors, in Rome, showed that near Kano, Nigeria, in a situation where the animal hosts outnumbered the human, species A of the *Anopheles gambiae* complex remained highly anthropophilic whereas species B was more easily deviated to cattle. The sporozoite index reported in species A during the rainy season appears to be at least double the species B index. Studies on anophelines that were previously vectors of malaria in Romania were conducted by the Institute of Hygiene and Scientific Research, Iași, and revealed a marked change in the resting behaviour of the *An. maculipennis* complex: contrary to their habits before the DDT-spraying era, the majority of mosquitoes now shelter in stables and are scarce in houses. Housing improvement has rendered the microclimate in modern houses less favourable for the mosquitoes than that in the stables.

5.32 At the WHO Collaborating Centre for Maintenance and Distribution of Standardized Strains of *Anopheles*, London, the tentative discriminating dosages of organophosphorus and carbamate insecticides which would kill all susceptible individuals have been established for a number of species. The objective of this work is to develop standards that could be applied in the field to monitor the degree of susceptibility of anopheline vector populations. Studies carried out at the centre on *An. sacharovi* from Turkey confirmed the presence of resistance to propoxur, fenitrothion and fenthion in addition to the previously reported resistance to chlorinated hydrocarbon insecticides. Malathion has therefore been substituted for propoxur in the Turkish anti-malaria programme. With support from WHO, the Malaria Control Service in Sudan continued studies of DDT resistance in species B of the *An. gambiae* complex and showed that DDT spraying cannot produce sufficient impact on resistant populations of *An. gambiae* in the Gezira irrigated area where recent outbreaks of malaria have been recorded; a switch to malathion was therefore made in this area also.
5.33 In collaboration with the National Malaria Service of Papua New Guinea a method has been developed for age-grouping anopheline populations by examining the intact ovary. The method, by which the amount of the variations in the granular residue of the follicular debris is assessed, was applied on *An. farauti*, the main vector of malaria in that area, and shown to be practical for epidemiological assessment.

5.34 Chemotherapy of malaria and drug resistance. In the framework of the special programme for research and training in tropical diseases (see paragraphs 5.8-5.12), a task force on the chemotherapy of malaria was convened in November to develop a research programme primarily intended to promote the testing of new antimalarials and to identify research approaches that will help to understand the action of drugs on the malaria parasite.

5.35 Field studies on the resistance of *P. falciparum* to 4-aminoquinolines, using an *in vitro* method, were made by a research team of the Malaria Eradication Service in the Philippines, where 43 of 153 patients tested showed some degree of drug resistance. Foci of chloroquine-resistant *P. falciparum* were identified in several islands. Resistance to 4-aminoquinolines was also reported by the Institute of Medical Sciences, University of Tokyo, among Japanese nationals returning from Kalimantan Timur and Irian Jaya, Indonesia; this indicates a southern and eastward spread of the resistance. These patients were successfully treated with a combination of sulfonamides and pyrimethamine.

5.36 At the Institute of Organic Chemistry, Warsaw, an active triazine was developed which not only shows blood schizontocidal action but also prevents the exo-erythrocytic development of the parasite and has a potentiating effect with other antimalarials. The examination of this drug was carried out at the WHO Collaborating Centre for Reference and Research on the Screening of Potential Antimalaria Compounds, Liverpool, United Kingdom, which also studied the use of drug mixtures for the prevention of drug resistance in a rodent malaria model, with the objective of avoiding or delaying the occurrence of drug resistance.

5.37 Studies on the metabolism of antimalarials at St Louis University, USA, demonstrated the existence of a process inherent in the malaria-parasitized erythrocyte by which it accumulates amodiaquine. Other studies of drug action on the malaria parasite, undertaken at the Institute of Animal Physiology, Babraham, United Kingdom, led to the identification of phospholipase C in parasitized erythrocytes; on the basis of this finding, attempts are being made to develop an immunizing agent. The same institute demonstrated a mechanism of action by which quininelike drugs induce cell lysis during the development of the parasite within the red cell and consequently "abortion" of the parasite.

5.38 Methodology of control. The WHO field research project on the epidemiology and control of malaria in the African savanna, which has been conducted at Kano, Nigeria, was completed in December 1975. The soundness of the mathematical model of transmission that has been developed was further verified by the continued observations of the aftermath of interventions in the study area from December 1973 to December 1975 and by the use of epidemiological data available from Kenya. The work has confirmed that, in the environment of northern Nigeria, the currently available residual insecticides do not control malaria to a significant degree when used singly and that, even when their use is combined with mass drug administration, this does not interrupt the transmission of malaria. Basic data are being collected for a further project to be conducted jointly by the Nigerian Government and WHO in southern Nigeria, in which use will be made of the model in arriving at decisions on malaria-control interventions in the light of their cost/benefit and cost/effectiveness. Simulation will be used to reduce the number, size, and cost of pilot projects to the minimum required for decision.

5.39 In a Stage VII (epidemiological) trial of the use of fenitrothion applied at three-month intervals since September 1973 as a residual insecticide in Kisumu, Kenya, malaria transmission due to *An. gambiae* was completely interrupted during the greater part of the period during which the insecticide was applied (September 1973-June 1975) and reduced to a very low level during the main peak of vector activity. Excellent malaria control has been achieved and falciparum malaria prevalence rates have been reduced from 54% to 16% after 18 months of spraying (see paragraph 6.13).

Schistosomiasis

5.40 Among the parasitic infections of man schistosomiasis is second only to malaria in public health and socioeconomic significance and is particularly common in those tropical and subtropical regions where sanitation facilities and domestic water supplies...
are inadequate. One or more of the four major species of schistosome infecting man is endemic in 71 countries or areas. There are geographical differences in species prevalence and these parallel the presence of the intermediate snail hosts. It is estimated that more than 600 million people are exposed to the risk of infection but surveys of prevalence rates indicate that probably some 200 million are actually infected.

5.41 A significant development in 1975 was a sharp upsurge of interest in schistosomiasis, expressed by an intensification of activity by many health authorities, local, national and international. A full discussion of schistosomiasis and the problems of its control was undertaken in May at the Twenty-eighth World Health Assembly, which noted that the disease remained largely uncontrolled and that its prevalence was increasing. The need for greatly increased food production had previously been noted by the World Food Conference and it was appreciated that the nutritional requirements of the world’s expanding population necessitated an increase in water impoundments, water developments and irrigation systems, all of which are associated with the spread of schistosomiasis in endemic areas (see also paragraph 5.3). Population movements from endemic areas into nonendemic zones may be instrumental in seeding new foci of infection if the right conditions obtain or are created.

5.42 The activities of WHO in schistosomiasis research and control remain broad-based. One continuous process is the compilation, up-dating and evaluation of data on the prevalence and intensity of infection. This information is used both for planning programmes within the Organization and for advising other international agencies or investment bodies (e.g., UNDP, IBRD) on the potential health dangers from schistosomiasis. In the resolution on schistosomiasis adopted by the World Health Assembly (WHA28.53), Members were requested to make available information on schistosomiasis control programmes under way or carried out in their countries, including details of research work, manpower development programmes, costs, etc.

5.43 In April discussions were held with members of the pharmaceutical industry on the development of new antiparasitic drugs, and a consultation was held in the same month to explore the potentialities of the organophosphorus compounds as chemotherapeutic agents in parasitic disease.

5.44 An international conference on schistosomiasis was held in Cairo in October under the auspices of the Ministry of Health of Egypt, together with the United States Government, UNEP, and WHO. The conference, which was attended by more than 350 participants from 32 countries, considered the epidemiological, socioeconomic, chemotherapeutic, and immunological aspects of the disease, ecological and habitat management, and chemical control of snails. The conference particularly stressed the need for a combination of measures to control schistosomiasis. Environmental measures, molluscicide applications and chemotherapy are all necessary but cannot be fully effective individually; the balance to be struck between them will vary according to the particular epidemiological situation and the funds and expertise available.

Field activities

5.45 The Organization is the executing agency for a Ghana-based interregional project on research on the epidemiology and methodology of schistosomiasis control in man-made lakes; this is funded by UNDP, with assistance from the Edna McConnell Clark Foundation. Meticulous biological, epidemiological and sociological studies have provided both qualitative and quantitative descriptions of schistosome transmission in villages on the shore of Lake Volta and of the variations encountered in the course of ecological changes affecting the lake and its shoreline. Following trials of the effectiveness of molluscicides, backed by monitoring of their effects on all nontarget fauna and flora, a satisfactory dosage scheme was evolved for the control of focal transmission. Weed clearance, focal molluscicide application and health education were introduced into the area in 1975 as intervention measures for control. Field trials of the acceptability of metrifonate (trichlorfon) in the project area were completed and population-based chemotherapy campaigns will be added to focal snail control and will be conducted yearly for three years. In some villages where wells were sunk as a subsidiary control measure the enthusiastic cooperation of the villagers was gained.

5.46 Advice was given to Congo, Ethiopia, Indonesia, Libyan Arab Republic, Philippines, Somalia, Surinam, Tunisia, United Republic of Tanzania (concerning Zanzibar), and Yemen in respect of the development of control programmes or the assessment of programmes under way.

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1 During the year an extension of the habitat of Biomphalaria straminea, the intermediate host of Schistosoma mansoni in Brazil, was reported from Hong Kong, where it appears to have been recently introduced. See: Meier-Brook, C. Bulletin of the World Health Organization, 51: 661 (1974).
Research

5.47 A parasitological laboratory being established at Ndola, Zambia, as part of the special programme for research and training in tropical diseases (see paragraphs 5.8-5.12) will be concentrating in the first instance on schistosomiasis, and preparations were made in 1975 for chemotherapeutic trials.

5.48 WHO maintained close liaison with the Rockefeller Foundation in connexion with its programme of schistosomiasis research and control in St Lucia, West Indies. Also in St Lucia, the Edna McConnell Clark Foundation organized a meeting in February, at which WHO participated, on the establishment of research priorities in the epidemiology and control, biochemistry and immunology of schistosomiasis and in drug development.

5.49 The role of the Organization in assisting research was maintained and agreements with collaborating laboratories cover the fields of malacological taxonomy and physiology; molluscicides, their mode of action and methods of application; biological methods of control; clinical and experimental chemotherapy; morbidity and clinical manifestations; immunodiagnosis; and Schistosoma intercalatum infections in primates other than man. Cooperation in research on schistosomiasis was discussed at a meeting with the heads of European medical research councils in June.

5.50 A number of slow-release formulations of molluscicides have been developed with WHO assistance by the Creative Biology Laboratory, Barberton, OH, USA, and some of these were tested at Tsukuba University, Japan, by the Centre for Overseas Pest Research, London, and in Ghana in the course of the research on the epidemiology and methodology of the control of schistosomiasis in man-made lakes referred to above. The centre in London also studied the implications of potential molluscicides for the fish food-chain.

5.51 WHO-supported research by the Tropical Pesticides Research Institute, Arusha, United Republic of Tanzania, yielded evidence of little improvement in the prevalence of S. mansoni at Kisangara, North Pare, after three years of applying niclosamide at four-month intervals, but the prevalence of S. haematobium was found to have been halved.

5.52 Increasing interest is being shown in controlling host snails by developing biological means that do not involve environmental pollution and WHO is supporting research to this end. It provided assistance to the University of Sussex, United Kingdom, which is investigating whether species of the snail genera Heliosoma, Physa and Lanutes can compete success-fully with the intermediate snail hosts of schistosomiasis. The WHO Collaborating Centre for Snail Identification, Copenhagen, has demonstrated that an excretion of Heliosoma can kill eggs and young snails of certain species of Bulinus and Biomphalaria of African origin. At the Faculty of Health Sciences, University of Brasilia, snail predation by larvae of the aquatic insects of the family Sciomyzidae was investigated.

5.53 There remains an urgent need for new and effective chemotherapeutic agents, particularly those that can be administered orally to young children and adolescents. Facilities for screening potential anti-schistosomal agents were supported at the Schistosomiasis Research Unit, Belo Horizonte, Brazil, where a new technique of evaluating drug activity is in use that involves counting schistosomula in the peritoneal cavity of mice after intraperitoneal infection with cercariae of S. mansoni and administration of the drug to be assessed. When the rates of development and loss of resistance by schistosome species in albino mice treated with hycanthone or oxamnique were evaluated by traditional techniques, it was observed that the Puerto Rican strain of S. mansoni was much more resistant to either hycanthone or oxamnique than the Belo Horizonte strain.

5.54 Follow-up of S. intercalatum infections in cynomolgus monkeys (Macaca fascicularis) by the Southwest Foundation for Research and Education, San Antonio, TX, USA, showed the rapid development of transitional-cell bladder carcinomas in two of five monkeys. Other pathological research included studies on the renal pathology occurring in S. haematobium infections and on the effects of treatment in the reversal of lesions, conducted at the University of Ibadan, Nigeria,¹ and long-term clinicopathological studies that are being made at the University of Brasilia on a population with hepatosplenic S. mansoni infections.

5.55 Following a meeting of investigators on the immunology of schistosomiasis ² in December 1974, a consultation was held in September 1975 to consider the areas of priority for research by a task force in the special programme for research and training in tropical diseases (see paragraphs 5.8-5.12). In addition to the ELISA method mentioned in paragraph 5.7, another highly sensitive immunodiagnostic technique (the "defined antigen substrate spheres" system) was recently applied to schistosomiasis. The University of

Leiden, Netherlands, which developed this technique, is comparing its applicability and sensitivity with that of ELISA in *S. mansoni* infections, as a continuation of studies on schistosomiasis in Ethiopia.¹

**Onchocerciasis**

**Onchocerciasis control programme in the Volta River basin area**

5.56 This control programme is aimed at interrupting the transmission of onchocerciasis by the destruction of the larvae of the blackfly vector, *Simulium damnosum*, and thereby at opening up for socioeconomic development uninhabited yet fertile river valleys in seven countries in the area of the Volta River basin—Benin, Ghana, Ivory Coast, Mali, Niger, Togo and Upper Volta. The funds are provided by the Governments of Belgium, Canada, France, Federal Republic of Germany, Japan, Kuwait, Netherlands, United Kingdom, and USA, and by the African Development Bank; UNDP, IBRD and the International Development Association are also contributing. The sponsoring organizations are WHO as the executing agency, FAO as associate agency, and IBRD and UNDP.

5.57 A brief account of some aspects of the management structure of the programme may be of interest, before the operations during the year are considered. A Joint Coordinating Committee headed by an independent chairman—with representatives of the donors, the seven participating governments, and the four sponsoring agencies—has general oversight of the planning and implementation of the programme. It met twice in 1975—in February and December. A Steering Committee, which acts on behalf of the heads of the sponsoring agencies and reviews plans for the programme, met four times. A Scientific Advisory Panel established by WHO is made up of scientists in fields related to the programme. Panel members participated in three working groups which met in 1975 to consider insecticides, environmental monitoring, and techniques for the laboratory breeding of *Simulium*. A Scientific and Technical Advisory Committee, made up of 12 members of the above panel, assists WHO by undertaking an independent evaluation of programme plans and operations; it also advises on training and research activities. Members visited the programme area at intervals during the year to review the different activities, and in June the committee paid particular attention to medical research matters.

5.58 An Ecological Panel is made up of a small number of experts in the ecology of river basins. It met in August to review an aquatic monitoring programme prepared by a working group, and panel members also visited the programme area, paying special attention to the monitoring of the possible effects of larvicide applications on nontarget organisms. An Economic Development Advisory Panel is being established by IBRD. Each participating country has set up a National Onchocerciasis Committee of representatives of the key ministries concerned to coordinate national activities and provide a link between them and the international action.

5.59 In view of the size of the programme area it was considered advisable to initiate control operations by phases. The first phase, which started at the end of 1974, covers the basins of the Black Volta, the Comoé-Léraba, the Bandama and the Banifing. Throughout 1975 all running watercourses were treated with ABATE larvicide applied from three helicopters and a light aeroplane; strict entomological surveillance showed that *Simulium* breeding was very effectively controlled in the phase I zone. Between May and September, however, the southern part of the zone experienced reinfestation by adult, multiparous blackflies. A very thorough investigation was made. The entomological evidence points to the flies having come from outside the control area, perhaps borne on the high winds; the meteorological records are being scrutinized. Extensive searches of waterbodies in the phase I zone consistently confirmed that larviciding measures were effective throughout the control zone, with the exception of a few complex breeding sites where difficulty was occasionally encountered.

5.60 Both simple and detailed epidemiological surveys were carried out in 1975 in villages of the phase I zone in Ivory Coast and Upper Volta, and were extended to the phase II zone in October. The simple surveys, which include a population census, the diagnosis of onchocerciasis, and assessments of the infection rate and of visual acuity, will embrace some 3000 persons in the more detailed surveys. A programme was started for the computer storage and analysis of all entomological and epidemiological data.

collected in the field, so that the epidemiological situation can be constantly evaluated as operations proceed.

5.61 The research elements of the programme were strengthened during the year to embrace a variety of studies on the ecology and biology of *Simulium damnosum*, on new and established insecticides, on their effects on target and nontarget organisms, and, equally important, on the epidemiology and treatment of the disease.

5.62 UNDP-financed research on the epidemiology and chemotherapy of onchocerciasis was started with the collaboration of institutions working both in the programme area itself (for instance, the national Mobile Ophthalmological Team in Upper Volta and the Royal Commonwealth Society for the Blind in northern Ghana) and beyond its confines (e.g., the Medical Research Council of the United Kingdom and the Center for Disease Control, Atlanta, GA, USA). Prospective entomological and parasitological studies are designed to elicit information necessary for an understanding of the dynamics of transmission and for evaluating progress as the programme proceeds; the data derived from these and from clinical and pharmacological investigations will be used for constructing a mathematical model for epidemiological and related studies. As regards chemotherapy, clinical trials are being undertaken to seek means to obviate the side-effects of established antifilarials such as suramin and diethylcarbamazine, and clinicopharmacological research is directed towards the development of new compounds that do not have the disadvantages of the present drugs. Efforts were pursued with the pharmaceutical industry to seek new drugs; and a research centre is also being established in the programme area to conduct investigations into new drugs that may be developed and into the side-effects of suramin and diethylcarbamazine, using the most recent biochemical and immunological techniques. To facilitate the work of scientists in the programme and collaborating investigators, a comprehensive bibliography is being prepared on suramin and diethylcarbamazine, with special reference to their pharmacodynamics and toxicity. The value of an indirect immunofluorescence technique for the serodiagnosis of onchocerciasis is also being assessed. In addition, UNDP funds were used for the training of nationals of the participating countries in entomology at the Onchocerciasis Entomological Centre at Bouaké, and a cytotaxonomist was included among the staff of the control programme itself. Other—particularly biochemical—methods for identifying cytotypes were studied at Legon University, Ghana, in association with the Liverpool School of Tropical Medicine, United Kingdom. Systems for sampling adult and larval populations were under development by the Office de la Recherche scientifique et technique outre-mer (ORSTOM) in conjunction with the Bouaké Onchocerciasis Entomological Centre and the Prince Leopold Institute of Tropical Medicine, Antwerp, Belgium, while the Centre for Overseas Pest Research, London, has been investigating the effect of wind and other meteorological factors on the dispersal of *S. damnosum*.

5.64 Among the organizations or institutes collaborating on insecticide and associated environmental studies were the OCCI Onchocerciasis Entomological Centre and the Hydrobiological Section of ORSTOM, both at Bouaké, the Institute of Aquatic Biology at Accra, Alberta University in Canada, the Center for Disease Control at Atlanta, Reading and Salford Universities in the United Kingdom, and the Institute of Medical Research at Zagreb, Yugoslavia. Research on the physicochemical properties of emulsion concentrate larvicides was focused not only upon ABATE—the biodegradable compound at present in operational use—but also upon possible alternatives that might be needed for operational or financial reasons. Several new larvicides and a new formulation of chlorpyrifosmethyl—already shown to be effective—are being assessed under field conditions. A larvicidal formulation of chlorphoxim—also known to be effective—is being applied weekly (as in operational use) to a *Simulium*-infested river to evaluate its possible long-term effects on nontarget species. New chemical methods of monitoring ABATE in the environment were developed, and similar methods are being devised for other larvicides under trial. The methods developed include special field sampling and extraction techniques and accurate determination of insecticide residues by gas-liquid chromatography. The effect of metrifonate (trichlorfon) upon the mammalian organism that has been exposed to ABATE is also being studied, as this may have implications for the treatment of schistosomiasis in the programme area.

*Other onchocerciasis activities*

5.65 In addition to being the executing agency for the seven-country programme just described, the
Organization collaborated with a number of other countries in the African Region; during the year, for instance, WHO provided advice to the Governments of Guinea (which received bilateral assistance from the Canadian Government), Kenya, Nigeria, Senegal, and Uganda in respect of onchocerciasis control operations. In the Eastern Mediterranean Region, further advice was provided (in collaboration with the African Development Bank) to Sudan, where treatment is being carried out in Bahr el Ghazal and Nile Provinces and ABATE is used for Simulium control. In the Americas, particular attention was paid to epidemiological studies in Brazil, where the Trans-Amazon Highway passes close to several onchocerciasis foci.

5.66 A WHO Expert Committee on the Epidemiology of Onchocerciasis met in Geneva in November. It reviewed the geographical distribution and prevalence of the disease, studied the epidemiological factors and features of its transmission with particular emphasis on the risk factors of blindness and systemic onchocerciasis, considered matters of classification and diagnosis, and evaluated the control measures available. It also prepared a guideline on recommended epidemiological methods and on diagnostic tests and ophthalmological examinations. The Committee recommended, inter alia, that better systems be devised and applied for gathering information on the disease and, in view of the importance of both onchocerciasis and other causes of blindness in tropical Africa, that special attention be given to tropical eye diseases in the training of physicians and auxiliaries. The Committee also emphasized the need for research leading to the development of new drugs suitable for the mass treatment of onchocerciasis.

5.67 In February a consultation was held on audiovisual material on onchocerciasis. The participants made a selection of films, photographs and slides available from WHO, IBRD and private collections for use in the preparation of a film-strip intended for physicians and medical auxiliaries on the epidemiological, entomological and clinical aspects of onchocerciasis.

5.68 Among the research supported by the Organization may be mentioned the exploration at Johns Hopkins University, Baltimore, MD, USA, of techniques for the in vitro cultivation of Onchocerca volvulus microfilariae or their maintenance for reasonable periods of time; microfilariae from onchocercomata from patients in Guatemala were transferred to fresh culture medium every 72 hours and developmental forms were observed after 18 days, indicating that in vitro cultivation may be feasible. The Minerva Institute for Medical Research, Helsinki, was attempting to define and purify antigens from extracts of *O. volvulus* worms from skin nodules. The interactions of various parasitic diseases in onchocerciasis immunopathology were under investigation by the University Centre for Health Sciences, Yaoundé, in collaboration with the Cantonal Hospital in Geneva.

Other filarial infections

5.69 A consultation was held in May to advise the Organization on the planning of laboratory and field studies for the better understanding of the epidemiology of filarial infections and for developing the most effective and economic means of control. A number of topics were proposed for study, including the development of mathematical models, the isolation of specific filarial antigens from all stages, the development of sensitive and simple serological techniques for field use, the cultivation of filarial parasites *in vitro* to obtain an understanding of the basic modes of action of antifilarial drugs, the clinical assessment of potential macro- and microfilaricides, and the use of biological methods for control of the vectors.

Epidemiology and control

5.70 In Africa, where filariasis is endemic and frequently involves simultaneous infection with several different filarial worms, the laboratory jointly supported by the Government of Tanzania, the Medical Research Council of the United Kingdom, and WHO at Tanga devoted much attention to assessment of the problem of bancroftian filariasis in the coastal areas of East Africa. In the South-East Asia Region WHO supported and advised on antifilarial operations in Burma, India, Indonesia, Maldives, and Sri Lanka. In India, a longitudinal study of the disease is being undertaken in the Rajahmundry area of Andhra Pradesh by the National Institute of Communicable Diseases; and the Government of Indonesia was advised on a programme for the control of filariasis due to *Brugia malayi* in Central Sulawesi, where large resettlement projects are attracting migrant populations into an area where the disease is endemic. In the Western Pacific Region investigations in the Solomon Islands to identify the vector of filariasis suggested that *Aedes scutellaris hebrideus* is responsible for transmission. Advice was given to Tonga on the development of a nationwide control programme that is assisted by the Government of New Zealand. Preliminary studies on the filariasis situation in Papua
New Guinea were made, and in Fiji tests were made of the susceptibility of filariasis vectors to insecticides. In Western Samoa, where mass drug administration has been carried out for 10 years, and where it was thought that the infection was disappearing, new and more sensitive means of detection have revealed high rates of microfilaraemia of very low densities.

Research

5.71 The WHO interregional programme of field investigations in filariasis was completed in the Western Pacific Region, where research was focused on the vectors of the disease, and assistance has been given to the Smithsonian Institution, Washington, DC, to continue the taxonomic study of mosquitos of the *Aedes scutellaris* group obtained from this research.¹ This study is being carried out in collaboration with a genetics investigation supported at the Johns Hopkins University, Baltimore, MD, USA. Other genetic studies on the *Ae. scutellaris* group are being undertaken at the Liverpool School of Tropical Medicine, United Kingdom. A natural mechanism that limits the entry of ingested microfilariae into the haemocoele of the vector is being investigated at the National Museum of Natural History, Paris, in an experimental model using the filaria *Dipetalonema dessertae* in *Aedes aegypti*. It has been found that when 1-10 microfilariae are ingested, over half enter the haemocoele whereas with 100-500 microfilariae only 10% of them do so, indicating that the degree of transmission is not necessarily related to the size of the infective mass in the vector. At the London School of Hygiene and Tropical Medicine, a technique was developed for mass separation of infective-stage filarial larvae from mosquitos; this method, which avoids the need to dissect individual mosquitos, is useful where infection rates are low, and may be used in surveys to obtain a rapid indication of the filarial species present in an area.

5.72 The Institute for Parasitology and Parasitic Diseases of Animals, Justus Liebig University, Giessen, Federal Republic of Germany, evaluated the efficacy of a number of organophosphorus compounds against the filaria *Litomosoides carinii*. The veterinary anthelmintic haloxon proved to be the most effective compound, with high activity against microfilariae and a favourable chemotherapeutic range. Fenthion, chlorpyrifos, trichlorfon, coumaphos and crufoxate also showed pronounced microfilaricidal activity but with lower chemotherapeutic indices. The organophosphorus compounds tested had no influence on the mobility or viability of adult worms of *L. carinii*.

African trypanosomiasis

Epidemiology and control

5.73 Most of the trypanosomiasis foci in Africa appear at present to be in a state of low endemicity, probably as a result of the systematic case-detection and treatment that has been carried out for several decades. However, regular surveillance of the population is time-consuming and often requires transport and manpower beyond the resources of the national health services, and epidemic outbreaks may occur which are not recognized in time. Such epidemics have recently developed in areas of Congo and Ivory Coast and in south-western Sudan near the borders with Uganda and Zaire. The outbreak in Sudan is particularly severe and the Organization provided assistance, with funds from UNHCR. An attempt, begun in 1974, to establish adequate services to deal with this problem proved unsuccessful owing to lack of facilities, in particular transport and adequate manpower; a modified control strategy was therefore proposed in 1975 that takes account of the current constraints in the area.

5.74 A new impetus has been given to the development of control methods in the African savanna by a UNDP-financed programme, for which WHO is the executing agency, with FAO as associate agency; this is concerned with applied research on trypanosomiasis epidemiology and control, and specifically with trypanosomiasis surveillance and *Glossina* control in the moist savanna zones. Nineteen African countries in this zone, where *Trypanosoma gambiae* occurs, are participating. The programme, which became operational late in 1975 with a WHO team stationed in Bobo Dioulasso, Upper Volta, has two main components. The first is on control of the vector, the main objectives being the development of new methods for applications of insecticides, with special reference to riverine tsetse control, and the development of techniques to ensure minimal contamination of the environment by insecticides and a more economical use of them. The second component is on medical surveillance and treatment and includes modification and evaluation of recent simple diagnostic tests under field conditions, redefinition of standard principles of treatment, and trials of new chemotherapeutics. The long-term aim of this research programme as a whole is to provide on-the-spot training and to prepare guidelines and practical manuals to permit the methods that are devised to be widely applied. UNDP assistance through WHO is also being provided to a vector control programme against the tsetse fly in Gabon.

5.75 It is generally recognized that total eradication of trypanosomiasis is neither technically nor econo-

¹ Huang, Y-M. Mosquito systematics, 7: 87-103 (1975).
mically feasible at present and that a strategy of permanent vigilance, even if it has to be at a restricted level, will in the long term be more profitable than massive single operations. In the Organization's programme against trypanosomiasis, emphasis is therefore laid on the development of a practical and realistic control strategy suited to the average capacity of rural public health services. For this purpose the development of simple field diagnostic tests is a matter of high priority. As a first step, a parallel evaluation of serological tests was made in 1975 by seven laboratories, using identical samples of sera collected by four African centres. The screening included recently developed tests such as capillary indirect haemagglutination, ELISA (see paragraph 5.7), capillary flocculation, and various precipitation methods. The results of these tests were compared with the established indirect fluorescent antibody test (IFAT) and IgM estimations. The results of the capillary indirect haemagglutination method, the best suited for field use, were particularly encouraging, showing concurrent results with IFAT in about 90% of the tests. Further trials are being carried out in the field.

Research

5.76 The development of new drugs that would provide a greater margin of safety in treatment and yet not be subject to the resistance found with current compounds is a matter of priority. As part of the special programme for research and training in tropical diseases (see paragraphs 5.8-5.12), a task force on trypanosomiasis chemotherapy met in May to define research priorities for the planning of a collaborative programme comprising research on biochemistry, the development of new trypanocides, in vitro and in vivo experimental screening methods, and clinical trials. Special attention was paid to the question of how efforts in industry could be linked efficiently with activities under way elsewhere; this might be particularly rewarding with respect to clinical trials and those steps of the development process that are subcontractable to independent institutes. This task force has included the chemotherapy of American as well as African trypanosomiasis in its programme.

5.77 In the course of WHO-supported studies in Congo, the Office de la Recherche scientifique et technique outre-mer (ORSTOM) observed that the distribution of *T. gambiense* was concentrated among members of some households. This is circumstantial evidence for the mechanical as opposed to the cyclical transmission of *T. gambiense*. If it can be confirmed, it will have practical implications not only for vector control, but also for the future use of vaccine, since by mechanical transmission any antigenic variant occurring in man could be directly inoculated into the next host, whereas a vaccine would presumably be constituted from the basic antigenic types to which variants revert on passage through the tsetse. Rapid progress has been made in the past two years in research on antigenic variation in trypanosomes. During 1975 new techniques were developed to identify the antigenic variety of individual organisms independently by the WHO collaborating centre for immunoglobulins in Lausanne, Switzerland, and in Belgium. Scientists working on antigenic variation participated in a consultation in December as part of the special programme for research and training in tropical diseases. The present state of knowledge was reviewed, results were collated and arrangements were made for collaborative research using identical strains and clones.

5.78 The discovery in WHO-assisted research at the University of Geneva that erythrotropic substances occur in the circulation during experimental infections with *T. brucei* as early as 24 hours after infection puts the pathology and pathogenesis of the anaemia occurring in trypanosomiasis in a new light, as it suggests that the anaemia may not be due, or not entirely, to immune haemolysis.

5.79 Support was also given to ORSTOM, Bobo Dioulasso, Upper Volta, for an investigation into the possibility of marking *Glossina palpalis gambiensis* with radioactive material for dispersal studies and the detection of diurnal resting-places. However, the injection of radioactive material into goats on which the flies were fed did not give satisfactory results due to the high mortality among the flies, the loss of the biological activity of the radioactive material, and the weak radioactivity emitted by *Glossina*.

American trypanosomiasis

5.80 Poor housing and sanitary standards bring the insect vector of Chagas' disease into man's direct environment, permitting transmission of *Trypanosoma cruzi* to man from his domestic animals through reduviid bugs. The reservoir of infection is the persisting sylvatic cycle in wild animals which forms an infinite source of parasites for the man/domestic-animal cycle. With the economic and social development of rural areas, the degree of contact between man and the insect vector may be expected to be lessened to such a point that Chagas' disease will eventually

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disappear. Meanwhile, better preventive measures are needed, for none of the present methods is fully satisfactory. The annual application of insecticides is often effective, as past experience has shown, but it is costly and must be pursued with diligence, and resistance to current insecticides does occur. The WHO Chagas’ Disease Vector Research Unit in Venezuela undertakes applied research in these aspects (see paragraph 6.18).

5.81 A facility was created with WHO support at the WHO collaborating centre in Belo Horizonte, Brazil, for research on the epidemiology and pathology of American trypanosomiasis through the provision of a reference bank containing well-documented, cryopreserved T. cruzi strains from different parts of America. For the identification of T. cruzi, which is difficult but important for epidemiological and clinicopathological studies, a method for recognizing specific enzyme properties was developed at the Lister Institute in London.

5.82 In São Paulo, Brazil, WHO supported a programme at the university laboratory to compare various serological tests, particularly with reference to the significance of the results they yield. At present, any person with antibodies to T. cruzi is assumed to be ill, an assumption that affects his prospects of employment; a means for making prognostic conclusions is therefore of immediate social importance.

5.83 Several inactivated vaccine preparations have been developed that have shown promise in experimental infections. Studies during the year at the University of Buenos Aires, in collaboration with the University of Geneva, proved that protection can be obtained. However, it is not clear to what extent antigenic variation may occur under natural conditions and may restrict the applicability of such methods.

Leishmaniasis

Epidemiology and control

5.84 Better means of reporting and diagnosing leishmaniasis are required for its public health importance to be fully appreciated; this is especially true for the visceral leishmaniasis occurring in Africa, South America, and South-East Asia, which appears to be often misdiagnosed for lack of a simple means of diagnosis, and which is fatal if untreated. The mucocutaneous form of the disease has been reported to be on the increase in areas where dense South American tropical forest is being cleared for road construction work. The cutaneous form in its endemic or hyper-endemic situation around the Mediterranean can occur in massive outbreaks when large numbers of people move into previously sparsely populated territories where the animal reservoir is abundant. There is also increased risk of exposure when migrant populations pass through endemic areas. For this last situation and for areas of low endemicity, there has been renewed interest in the use of immunizing agents. At the WHO collaborating centre in Jerusalem, materials and methods of Leishmania tropica vaccine production have been standardized, so that the inoculate is identical in virulence and free from contamination, bacterial as well as mycoplasmatial. A reference strain for vaccine production is available from the centre. Other methods of control, such as eradication of the animal reservoir, are applicable, but require careful epidemiological analysis beforehand. With support from the Organization, scientists at the Marcinovskij Institute in Moscow have demonstrated that control of the rodent reservoir is profitable only if the area is isolated by natural barriers.

Research

5.85 Various methods for the identification of Leishmania have been developed in recent years, many of them with WHO support. At the Liverpool School of Tropical Medicine, United Kingdom, work has been carried out on methods of measuring buoyant densities of kinetoplast DNA and nuclear DNA and on the demonstration of specific characteristics of various isoenzymes and small differences in structures at electron microscopy level. At the WHO collaborating centre in Jerusalem, an identification method based on specific immunological characteristics of excretion factors of Leishmania is used. These methods are now carried out in parallel on identical strains through close collaboration between the two laboratories. New media and tissue culture systems for in vitro cultivation of various Leishmania species were developed at the Liverpool School; screening of chemotherapeutic agents is possible using in vitro culture for some compounds, but it cannot entirely replace the use of laboratory animals for the screening of new drugs.¹

5.86 At the Gamaleja Institute in Moscow, experimental evidence showed that mixed infections of L. tropica and an unidentified Leishmania isolated from reptiles can occur in sandflies. Thus, the isolation of antigenically nonhomogeneous strains from sandflies and under field conditions might represent a mixed

infection with different species. A similar complication may affect the epidemiology of kala-azar. In Humera, in northern Ethiopia, an unexpectedly high prevalence of skin hypersensitivity to *L. donovani* has recently been found in humans, which is suspected to be due in part to infection with lizard *Leishmania* and the development of cross-sensitivity.

5.87 With WHO support, a colony of the phlebotomid vector *Lutzomyia longipalpis* originating from Brazil was established at the Imperial College Field Station, Ascot, United Kingdom, which has carried out work on the development of the parasite in this sandfly and has achieved successful transmission through the biting of laboratory animals.
6. VECTOR BIOLOGY AND CONTROL

6.1 Considerable success in the control of some of the vectorborne diseases has been achieved over the past 30 years, mainly by chemical methods of vector control. However, the total picture is by no means one of unmitigated success. Recent years have seen a resurgence of some of these diseases as a result of a combination of factors; the chief among these are the development by vector species of resistance to some pesticides—a phenomenon at first unforeseen and later often unheeded—the rising cost of vector control operations, and man’s tendency to modify his environment in a manner that promotes the breeding of vectors or increases the possibility of contact between man, parasite, and vector or intermediate host. Examples of these environmental modifications are the provision of water resources for man or domestic animals, the formation of man-made lakes, changing methods of agriculture, and increasing urbanization. While standard methods of vector control have stood the test of time and still apply under most circumstances, changes in strategy are needed and research on methods of vector control has therefore evolved to meet this need.

6.2 The number of new pesticides received in 1975 for evaluation by WHO for use in vector control was considerably lower than in previous years. The great increase in the cost of developing and testing new chemical pesticides has caused industry to limit the number of compounds being developed to those which can be shown to have wide potential use in agriculture as well as in public health. In the insecticides evaluation programme, emphasis is now therefore not only on evaluating new insecticides, but also on testing new formulations of older insecticides, applied by new methods. Much attention is now being paid to the ecology of vectors and animal reservoirs, the fate of pesticides in the environment and their effects on nontarget species, and the feasibility of using biological or other nonchemical means of control.

6.3 In recent years the economic loss or retardation that insect vectors of human disease may indirectly cause has been increasingly taken into account in the development of vector control programmes. Examples are the onchocerciasis control programme in the Volta River basin area, which has now been in operation for a year, and a UNDP-funded field research programme for the control of tsetse flies in the African savanna that is being established in collaboration with FAO. Both these programmes (see Chapter 5) are aimed not only at controlling diseases—onchocerciasis or trypanosomiasis—but also, thereby, at facilitating agricultural development.

Applied ecology

6.4 A three-year WHO study on the ecology of sylvatic plague in Java, Indonesia, has demonstrated that infected rodents and fleas are found throughout the year even in the absence of human cases of plague. The rodent reservoirs do not hibernate or aestivate; nor—which makes their control the more difficult—do they burrow deeply, as is the case in plague foci in arid temperate zones. Numerous rodent and flea species were involved in maintenance of the infection, which appeared to be evenly distributed in the bush, crop fields, and around houses. Control of the rat flea, Xenopsylla cheopis, is difficult because it is resistant to DDT, dieldrin and malathion; this may be due to the use of these compounds during previous plague epidemics.

6.5 The WHO Arbovirus Vector Research Unit in Enugu, Nigeria, has, among other work, continued ecological studies on the several Aedes species known to be vectors of yellow fever and other important arboviruses. Certain species of this mosquito breed in water lying in tree-holes or leaf axils of plants; it has been observed that the number of times their eggs are alternately submerged and dried strongly influences the pattern of adult emergence. Whereas Aedes aegypti emerges rapidly following one or two submersions, other species, such as Aedes africanus, only emerge in number following four to six submersions. This observation may prove useful for the development of survey methods, as well as in helping to explain changes in vector population densities and their potential rate of contact with man. This unit has also been extending its research into other parts of Nigeria to obtain information on the distribution of mosquitoes in the various geographical zones from the moist forest areas of southern Nigeria to the savanna area of the north. These studies are being coordinated with similar work by the Office de la Recherche scientifique et technique outre-mer (ORSTOM) in
Ivory Coast and Upper Volta, the Pasteur Institute, Bangui, and other research groups in order that the findings may be comparable and may give a comprehensive picture of the ecology of virus vectors in this part of Africa.

6.6 The Memorial University of Newfoundland, Canada, a WHO collaborating centre on the biological control of vectors, expanded its work to include studies on the ecology and taxonomy of nontarget species that might be affected by biological control methods.

Resistance to insecticides and rodenticides

6.7 The global trends in insecticide resistance have been followed from the reports resulting from the use of WHO resistance test kits. Data obtained during 1975 in a global survey on the impact of insecticide resistance on the control of vectors and vectorborne diseases confirmed that in some vectors there has been an increase in the frequency of resistance to specific organophosphorus compounds more or less proportional to the extent to which these compounds have been used. These vectors include two important malaria vectors (Anopheles albimanus and An. sacharovi) and the human louse (Pediculus humanus). Other species—such as Culex tarsalis and C. pipiens fatigans, in which similar resistance had already been demonstrated in a survey in 1968—have shown a tendency to develop resistance to a broader spectrum of organophosphorus compounds. The possibility that other vectors may do likewise is being given priority consideration in planning long-term programmes, such as the onchocerciasis control programme in the Volta River basin area that has been described in Chapter 5.

6.8 Organophosphorus resistance tends to differ in some respects from organochlorine resistance. The levels of resistance to the former group of compounds are generally lower and do not so readily lead to complete failure to control the vector. Moreover, the cross-resistance pattern is much less sharply defined, as resistance to an organophosphorus insecticide is usually associated with a low-level cross-resistance to a considerable range of other organophosphorus compounds. This may be due to the involvement of several resistance mechanisms of low specificity. These mechanisms can extend cross-resistance to totally new types of pesticides, such as insect growth regulators. The picture is further complicated by the extensive use of organophosphorus and carbamate insecticides for agricultural purposes which in certain areas have exerted selective pressure on vectors of human disease. Resistance to An. albimanus in Middle America, in Ae. nigromaculatus and C. fatigans in California, USA, and in lice in Burundi may be due to this cause.

6.9 Resistance to other pesticides, including insect growth regulators, rodenticides and even the biological control agent Bacillus thuringiensis, has been reported. A twelvefold degree of resistance to methoprene, an insect growth regulator, has been induced in C. p. pipiens, and strains of An. gambiae species A that are resistant to dieldrin or both DDT and dieldrin have shown a marked cross-resistance to it. Resistance to warfarin and other anticoagulant rodenticides has now been confirmed in Rattus norvegicus in Denmark, the Netherlands, the United Kingdom and the USA, in Rattus rattus in the United Kingdom, and in Mus musculus in the Federal Republic of Germany, the United Kingdom and the USA. Houseflies have been reported to acquire a thirtyfold resistance to the toxin from B. thuringiensis after six months' continuous selection from larval exposures.

6.10 The pesticide resistance situation, although serious, is not out of hand, as most vectors and animal reservoirs of disease remain susceptible to one or several pesticides. However, many vectors are now resistant over extended areas to the most common, cheapest, and safest pesticides, even where no organized campaigns have been carried out. The situation could rapidly become more serious if an organized programme was conducted for the control of a vector, thus exerting an additional selection pressure on the vector population over a large area.

6.11 At its meeting in September the WHO Expert Committee on Insecticides reviewed the present status of resistance of vectors and animal reservoirs of disease. It recommended that WHO continue to encourage and support research on the fundamental aspects of resistance, screening new types of pesticides to determine their spectrum of resistance and the speed with which resistance may develop; that steps be taken by FAO and WHO to advise governments on the monitoring of the import, manufacture, marketing and use of all pesticides so that some warning can be given of possible future development of resistance; and that satisfactory methods be developed for the detection and measurement of larvicide resistance in Simulium damnosum larvae and of molluscicide resistance in snail intermediate hosts of schistosomiasis. The Committee also emphasized the urgent need to provide training in the detection of resistance, and in measures to cope with it, for staff engaged in vector control programmes.
Evaluation of new insecticides and chemical control

6.12 WHO's evaluation of new insecticides for possible use in vector control continues, largely through the work of six WHO collaborating centres and three field research units, but only seven new compounds were received for testing during the year—the lowest number received in any one year since the programme began in 1960; they were simultaneously tested at Stages I, II, and III. Most of the new compounds are synthetic pyrethroids and insect growth regulators. These have chemical structures quite different from organochlorine, organophosphorus and carbamate insecticides, and usually are low in toxicity to nontarget organisms, including man and animals. However, they tend to be costly and, as their activity is usually confined to a few species of insects, they require special testing and evaluation. They have not yet been widely used in agriculture, and so have not been rapidly developed, but this situation may change, since one class of the synthetic pyrethroids has been found to exhibit residual activity in the presence of light, a property which neither the other synthetic pyrethroids nor the natural pyrethrins have been shown to possess.

6.13 The insecticide fenitrothion is now in Stage VII of testing in the WHO scheme. Spraying activities started in 1974 by the WHO Anopheles Control Research Unit No. 2, Kisumu, Kenya, in the two-year trial on vector control with epidemiological evaluation were completed. It was found that fenitrothion interrupted malaria transmission during most of the trial, with the exception of two brief periods when heavy rain created conditions favouring an explosive increase in the density of An. gambiae. In addition to malathion and propoxur, which have already been recommended for malaria control, fenitrothion therefore appears to control malaria vectors under the conditions of the trial.

6.14 The WHO Anopheles Control Research Unit No. 1 in Kaduna, Nigeria, conducted an extended Stage V trial of chlorphoxim against malaria vectors, using fenitrothion for comparison. Final results are not yet available, but good control of An. gambiae and An. funestus was obtained with both compounds, with spray applications at three-month intervals. This unit was also active in the onchocerciasis control programme in the Volta River basin area, where it has been analysing ABATE in treated rivers, using gas-liquid chromatography. Indeed, a very considerable proportion of the research on insecticides and their formulations conducted in 1975 as part of WHO's vector biology and control programme was performed in support of that onchocerciasis control programme, and the reader is referred to Chapter 5 (and paragraphs 5.63 and 5.64 in particular) for an account of this work.

6.15 A USAID-supported substation of the WHO Vector and Rodent Control Research Unit in Jakarta was set up in Semarang, Indonesia, to carry out village-scale trials on insecticides for the control of DDT-resistant An. aconitus. Laboratory and other facilities have been established and baseline data collected in preparation for trials to begin shortly.

General vector control activities

6.16 Dense rodent populations in virtually all tropical cities present a considerable threat to public health, in addition to causing severe economic losses. Most of the existing control programmes are of very limited efficacy, and in order to seek more efficient and economic methods of control a WHO Rodent Control Demonstration and Study Unit has been established, with DANIDA support, in Rangoon.

6.17 Dengue haemorrhagic fever continues to be one of the most important vectorborne diseases in the South-East Asia Region and parts of the Western Pacific Region. Research on the ecology and control of the vector, Ae. aegypti, carried out at the WHO Vector and Rodent Control Research Unit in Jakarta, and earlier at the Aedes Research Unit in Bangkok, has led to the development of mosquito control measures which are effective during epidemics and for long-term application; these have now been adopted and used by several governments.

6.18 The WHO Chagas' Disease Vector Research Unit in Acarigua, Venezuela, studied the maintenance of Chagas' disease in sylvatic, peridomestic and house foci. Two species of rodents (Hetexyounys anomalous and Mus musculus) were found positive for Trypanosoma cruzi-like organisms for the first time in Venezuela. Studies confirmed the importance of Didelphis marsupialis, the common opossum, as the main wild reservoir—a finding that has far-reaching implications in view of the readiness with which this animal adapts to living in and around human communities. It was also confirmed that the trypanosomes can readily adapt to commensal reservoirs other than the dog and pig, as has occurred elsewhere in Latin America.

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1 The stages in the evaluation programme are: Stage I, initial screening tests; Stages II and III, laboratory and simulated field tests; Stage IV, small-scale field tests in experimental houses and ponds; Stage V, village-scale trials; Stage VI, operational field trials; Stage VII, large-scale epidemiological trials.
Equipment for vector control

6.19 The demand for pesticide application equipment for public health purposes is seldom sufficiently large to stimulate the commercial development of equipment designed solely for this purpose, and equipment used in vector control programmes must also be of use in agriculture. WHO has worked closely with FAO in this field. A comprehensive registry of equipment suitable for use in vector control operations has been established. Specifications have been prepared for use in the testing and procurement of pesticide application equipment; initial tests for compliance with these specifications are carried out first at WHO collaborating centres, and then in the field.

6.20 Several types of equipment are under trial. A novel form of vehicle-mounted aerosol generator has undergone tests in the United Kingdom and is now being field-tested in Thailand for the control of *Ae. aegypti*. Work has been carried out on the development of a portable ultra-low-volume sprayer to apply concentrated insecticides to the interior surfaces of dwellings for the residual control of *Anopheles*; the use of concentrated insecticides could result in a saving in time and effort by spray teams and avoid the need for water as an insecticide dispersant, an important consideration in many arid areas. Hand-compression sprayers are in general use in malaria control programmes and the replacement of worn parts, especially spray nozzle tips, can form a significant part of the overall cost of a programme. Laboratory and field tests have been made on a low-pressure nozzle tip which, if certain design problems can be overcome, will have a considerably extended useful life.

Biological control

6.21 The rising costs of chemical insecticides and concern about their possible effects on man and the environment have resulted in increased interest in the development of biological agents for vector control. As part of a scheme for the screening and evaluation of biological control agents,1 WHO collaborating centres have been designated to conduct tests on the efficacy of biological control agents against major insect vectors, to determine their host specificity and effects on nontarget species, and to define the potential hazard to man of the use of these agents. The biological control of arthropod pests of agricultural importance is more advanced than that of disease vectors, but appropriate tests for human and environmental safety are still lacking. This scheme will make it possible to evaluate the hazards to man of these agents in the same way as is done for chemical pesticides.

6.22 The WHO collaborating centre on biological control of vectors, at Ohio State University, USA, has computerized over 20,000 records of diseased vector insects, and it is now possible to conduct data searches on insect pathogens by country, host, or pathogen. Other institutions have also entered their records into this system, to form a central data bank on insect pathogens as candidate biological control agents. In addition, an annotated bibliography of pathogens of arthropods, summarizing the literature of public health importance up to 1974, was prepared.

6.23 Although the biological control agents tested in the laboratory and in limited field tests during the year showed promise, they are not yet available for large-scale field trials. The basic problems to be solved are the uniformity and stability of microbial cultures, the formulation to be applied, and the lack of adequate tests for human and environmental safety. Two of the WHO research units—the Vector and Rodent Control Research Unit in Jakarta, and the *Anopheles* Control Research Unit No. 1 in Kaduna, Nigeria—now have biological control specialists to carry out the appropriate bioassay and field tests as new isolates and formulations become available. The unit in Nigeria terminated field trials with two local species of larvivorous fish, *Epilatys bifasciatus* and *Aphyosemion gardneri*; although both are effective predators of mosquito larvae in their natural habitat, their reproductive potential was found to be too low for them to be used as effective agents in vector control operations. Microbial agents, including *Bacillus sphaericus*, and the fungus *Metarrhizium anisopliae* have been tested against several vector species, and, where laboratory bioassays have demonstrated the efficacy of certain strains or cultures, work on formulation and uniformity is proceeding. Laboratory tests have shown that several cultures of *B. sphaericus* are highly active against *An. gambiae* larvae, with up to 100% mortality in some tests. In addition, a WHO collaborating centre has found that over 90% of larval *An. albimanus* are killed by certain cultures, the formulation to be applied, and the lack of adequate tests for human and environmental safety. Microbial agents, including *Bacillus sphaericus*, and the fungus *Metarrhizium anisopliae* have been tested against several vector species, and, where laboratory bioassays have demonstrated the efficacy of certain strains or cultures, work on formulation and uniformity is proceeding. Laboratory tests have shown that several cultures of *B. sphaericus* are highly active against *An. gambiae* larvae, with up to 100% mortality in some tests. In addition, a WHO collaborating centre has found that over 90% of larval *An. albimanus* are killed by certain cultures of the same bacteria. A new strain of *B. sphaericus* was isolated from material collected near Jakarta by the WHO Vector and Rodent Control Research Unit.

6.24 Priority is being given in collaborative research to the development of entomopathogenic fungi and spore-forming bacteria, as these offer potential for local production. The vectors receiving priority

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attention are those mosquito species whose larval forms are amenable to larviciding, as adult insects are usually resistant to insect pathogens.

**Genetic control**

6.25 Laboratory studies and small-scale field trials of various methods of genetic control suggest that, in the case of those vectors which have a high degree of mobility and in which larval mortality is strongly density-dependent, one promising approach is likely to be the replacement of populations by a nonvector strain. WHO is therefore developing a programme of research on vector-parasite relationships and the isolation of strains of mosquitos refractory to parasites.

6.26 Between 1969 and 1975 the Indian Council of Medical Research and WHO jointly sponsored a Research Unit on the Genetic Control of Mosquitoes, in New Delhi. The agreement between the two sponsors expired during the year, but it is anticipated that the Indian Council of Medical Research will continue the work. Over the years the unit has developed much essential methodology, carried out several small-scale field trials, and assisted in the creation of a nucleus of scientists fully conversant with the techniques. The data obtained can now be used to conduct large-scale feasibility studies in areas where mosquito-borne diseases are endemic.

6.27 Among the research carried out in the first part of the year was the further development of methods for the mass rearing, sexing, chemical sterilization and release of *Ae. aegypti* males, making it possible to produce up to 500,000 sterile males with the aim of controlling *Ae. aegypti*. An experiment was carried out in large outdoor cages to compare the efficiency of three different methods of genetic control of *Ae. aegypti*—chemosterilized males, and double translocation heterozygotes with or without a gene causing distortion of the sex ratio in favour of males. The ability of the three types of males to compete with wild males for mates in the field was found to be equal in the case of the two former types, and subnormal in the case of those not carrying the gene.

6.28 Ecological studies of *Culex pipiens fatigans* were continued to develop means of estimating the density of this species in urban conditions and to study the degree to which regulation of the *C. fatigans* population depends upon its density. The latter estimates allow tentative predictions of the level of egg sterility that will be necessary to produce effective control of urban populations. In areas in South India where filariasis is endemic, surveys were carried out to define suitable sites for future genetic control experiments on *C. fatigans*. Other studies with *C. fatigans* revealed that the phenomenon of cytoplasmic incompatibility is much more complex than was previously thought. A polymorphism for cytoplasmic incompatibility was found in Indian wild populations of this mosquito. Also, aging of males was found to result in partial loss of cytoplasmic incompatibility. These phenomena had important effects on the outcome of outdoor cage experiments to test the possibility of replacement of one population by another, using cytoplasmic incompatibility as the “driving force”. Attempts to select a strain of *C. fatigans* which was not able to transmit *Wuchereria bancrofti* were unsuccessful.

6.29 Studies on *An. stephensi* were concentrated on rearing the species in the laboratory, on methods of chemical sterilization at the pupal stage, and on ecological methods of estimating densities of adult populations. One of the problems with the rearing of anophelines for genetic control is that, in contrast to culicines, the male and female pupae do not differ markedly in size, and therefore the automatic sexing of pupae is more difficult. A project was initiated to produce a sexing system in which the gene for dieldrin resistance is linked to the male-determining chromosome, so that females can be killed with a controlled dose of dieldrin, leaving only males for release.

**Vector control in international health**

6.30 To comply with quarantine regulations for insects of agricultural importance, resmethrin and bioremethrin have been applied in aircraft at dosages ten or more times greater than the standard recommended by the Organization for vector control. This has been reported to give rise to undesirable odours in the aircraft owing to breakdown products of the insecticide. Comparative tests have therefore been started by WHO on another pyrethroid, phenothrin; under operational conditions this compound, used at the rate of 16 g per 100 m³, has given almost 100% mortality of *An. quadrinaculatus* and *Ae. taeniorhynchus*. At this dosage, mortality of *Musca domestica* was about 70%, but 100% mortality required twice the dosage. Further tests are in progress under operational conditions to determine whether this insecticide can be recommended for inclusion in the International Health Regulations.

6.31 Following reports from Bangkok of resistance of *Ae. aegypti* to some pyrethroids, particularly bioremsmethrin, studies on the subject are being carried
The safe use of pesticides

6.32 During the second year of the large-scale trial of fenitrothion in Kenya (see paragraph 6.13), toxicological surveillance of the spraymen was continued. It had been shown in the previous year that it was advisable to carry out cholinesterase tests weekly, and that even though no symptoms of organophosphorus poisoning occurred it was occasionally necessary to withdraw a sprayman from contact with the insecticide because of cholinesterase depression, as measured by the tintometric method. The experience in 1975 was similar, and an attempt was made through studies of work habits, other indices of exposure (such as the number of pump charges sprayed), and biochemical tests other than cholinesterase to see whether the spraymen who had been withdrawn differed in any way from those whose cholinesterase activity was unaffected. Comprehensive medical examinations were carried out, but no significant correlations were found. Since there does not appear to be any test that might be used in the selection of spraymen to predict susceptibility to cholinesterase depression, it becomes even more important that regular monitoring of cholinesterase activity should be carried out whenever an indoor spray operation with fenitrothion lasts longer than a month.

6.33 A newly devised kit¹ for the more accurate measurement of cholinesterase after exposure to fenitrothion was evaluated in the field. The results obtained with the kit by the spectrophotometric method were compared with a standard laboratory reference method and with the currently used tintometric field kit. Good correlation was obtained with the laboratory method, but experience showed that modification of the kit was necessary before it could be recommended for production. The tintometric kit, which is cheap and easy to operate, will remain useful for cholinesterase monitoring, while the new field kit, although more expensive, will be the best choice for epidemiological work where no laboratory facilities are readily available. Preliminary work was also carried out on the further development of the new kit so that it can also be used for estimating exposure to other types of pesticide.

6.34 WHO provided assistance to the Industrial Toxicology Centre in Lucknow, India, and the Central Agricultural Pesticides Laboratory, in Cairo, for the development of toxicological facilities, and gave advice to Member countries on the toxicology of a number of public health pesticides.

6.35 The studies on the effects of long-term exposure to DDT² are approaching the evaluative phase. Financial restraints prevented the proposed extension of the study to cover a group of spraymen in Mexico; however, data concerning these spraymen, who had been exposed for many years to DDT alone, may be used to elucidate any points not clear in the existing studies when these have been evaluated.

6.36 The pesticides that are being increasingly used in agriculture in developing tropical countries are frequently more toxic than those used for vector control. Many more data are required on the level of protective equipment necessary to prevent occupational intoxication, and a minimum standard of protection needs to be defined. A survey was carried out in Sudan to refine a protocol for epidemiological studies and to study a specific exposure situation. It was found that, with the insecticide used (dimethoate), the normal working clothing of the spraymen provided adequate protection, but the problem that might arise with more toxic chemicals was emphasized by the fact that the wearing of respirators to measure respiratory exposure had to be discontinued because sweat soon made them unusable. After revision in the light of the experience gained, the protocol is being widely distributed so that comparable data can be obtained by national authorities in a number of small surveys. Assistance was also given by WHO for a survey being carried out in Pakistan by the Agricultural University, Lyallpur.

6.37 Acute accidental poisoning by pesticides remains a problem of uncertain dimensions. The limited response to the Organization's invitation to countries to submit annual statistics on pesticide poisoning indicates that many countries are not in a position to provide detailed information; the notifications received show that, although the problem is only part of the total problem of poisoning, it is one that can be substantially reduced by education and the national control of pesticide registration and distribution. Two steps taken during 1975 should be of direct assistance to Member States in this connexion. The Twenty-eighth World Health Assembly adopted a WHO recommended classification of pesticides by hazard, and this was circulated to Member States and international organizations; and a series of brief but comprehensive data sheets on pesticides was established in collaboration with FAO.

7. NONCOMMUNICABLE DISEASES

7.1 If, in the past, much of the effort in various WHO-assisted studies on the noncommunicable diseases was concentrated on elaborating a standard methodology for the measurement of such diseases in the community and on assessing the type of health services operating under different health care and economic systems, more recent efforts have been strongly oriented towards prevention. In a rapidly increasing number of studies the main emphasis is placed on the technology of preventive measures, of both a primary and a secondary character, on estimating the readiness of the community to apply these measures in their everyday lives, and on assessing the outcome of the measures thus introduced.

7.2 This shift in emphasis has resulted from the lack of success encountered in efforts to increase the life expectancy of persons who have already reached the age of 40 years, and from the fact that in several industrialized countries over 75% of all deaths are due to so-called chronic diseases, which are mainly of a noncommunicable character. According to various calculations the average life expectancy of males in the countries in question could be extended by seven to nine years if our present knowledge concerning the prevention of noncommunicable diseases were fully applied. Major efforts are also concentrated on incorporating these established primary and secondary prevention measures into existing health care systems.

7.3 Recent observations have demonstrated that chronic diseases such as cardiovascular diseases, cancer, and certain liver and kidney diseases are becoming more commonly recognized in the developing countries, as are the cerebrovascular diseases. There are good reasons for attributing this quite largely to improved diagnostic procedures, but it may also be indicative of a real increase. Therefore it is essential for any efficient preventive action to endeavour to identify the relevant “health factors” in the community and adapt them appropriately, in both the developing and the industrialized countries. For this reason, WHO has been coordinating a wide variety of studies in many countries, as can be seen from the descriptions of the various programmes included in this chapter.

7.4 Cancer

After reviewing the Organization's long-term cancer programme, the Twenty-eighth World Health Assembly requested, in its resolution WHA28.85, that the programme be continued with a view to fostering international collaboration and coordination of research efforts. The evolution of the cancer programme will include the following stages: selection of priorities for international cooperation; stimulation of national, bilateral, multilateral, and regional activities; application of new methodologies such as mathematical modelling and systems analysis; development and dissemination of research findings; and revision of priorities.

7.5 With the support of the National Cancer Institute, Bethesda, MD, USA, WHO convened an international conference in Milan, Italy, in November during which participants from 16 countries discussed the possibilities for the design and synthesis of compounds for cancer chemotherapy. New findings in basic cancer research will be utilized in the search for new compounds.

7.6 A national standard for carcinoembryonic antigen (CEA), developed with WHO support, has been used in immunological studies in a number of laboratories; it was provisionally accepted as an international reference preparation by the WHO Expert Committee on Biological Standardization in December (see paragraph 9.26). In addition, support was given to clinical studies on the immunology of breast cancer and immunological aspects of cancer radiotherapy, the former in Switzerland and the latter in the USSR.

7.7 WHO collaborating centres for evaluation of methods of diagnosis and treatment of melanoma, breast cancer, stomach cancer, and ovarian cancer continued their activities (registration, clinical trials, and abstracting of current literature). The WHO Collaborating Centre for Evaluation of Methods of Diagnosis and Treatment of Melanoma, Milan, Italy, devised methods for the statistical evaluation of results of therapeutic trials. The WHO collaborating centres for research on the drug therapy of cancer concentrated on elaborating combined chemotherapy of oesophageal...
cancer, breast cancer, acute lymphoid leukaemia in children, and the blastic phase of chronic myeloid leukaemia. Cancer of the uterus is an important cause of death, exacting a heavy annual toll in both developing and developed countries. The Organization held a meeting in Monaco in September to reappraise this problem and consider what future activities should be carried out by WHO.

7.8 In connexion with promoting standardized data recording in hospital-based cancer registries, a consultation on the finalization of an instruction manual to be used in this work took place in Geneva in March. Implementation by a number of cancer centres of the standardized hospital-based cancer registry will provide important information for an evaluation of current therapy, new treatment facilities, survival rates for cancer of different sites, policies and management methods, and the functioning of cancer health services; it may also yield information on trends in mortality and incidence.

7.9 At a meeting in April, discussions were held with the International Institute for Applied Systems Analysis, in Laxenburg, Austria, regarding a project on cervical cancer screening methodology. The aim of this project is to construct a mathematical model in order to produce a suitable screening procedure, for a given population, with maximization of benefits and minimization of constraints. WHO, as cosponsor with the Institute, arranged an international meeting on information systems for cancer research in Moscow in December, with special reference to international cooperation.

7.10 The Organization continued its work on the evaluation of the long-term results of cancer control—for which five-year survival is no longer considered an adequate indicator. Consultations between selected WHO collaborating centres have been held in Bombay, India, and Leningrad, USSR, in order to harmonize the centres' activities on the basis of standardized hospital cancer registries. The Organization also assisted national projects on the rehabilitation of patients with oral cancer (India) and the early detection of cervical cancer (Haiti). A number of training courses in cytology were held during the year (see Table 2).

7.11 In connexion with the programme on the histological classification of tumours, supported by the National Cancer Institute in the USA, three meetings of investigators were held during which classifications were reviewed, finalized, and recommended for publication in the WHO series *International Histological Classification of Tumours*. These meetings, which took place in Geneva, concerned tumours of the eye and ocular adnexa, tumours of the upper respiratory tract, and tumours of the liver, biliary tract, and pancreas. Each of the groups of investigators has been working since 1972 on the formulation and testing of internationally acceptable classifications. A further volume in the above-named WHO series was published during the year. ¹ The Organization has also been developing an internationally agreed histological classification of naturally occurring tumours in domestic animals (see paragraph 4.200).

7.12 In order to review and coordinate WHO's activities in the field of cancer, an interregional meeting was held in Copenhagen in December. Practical steps for a situation analysis of cancer control in the different Regions were discussed and planned.

7.13 At a meeting of leading African cancer specialists in Brazzaville in November, practical procedures for intensifying cancer programmes in the African Region were outlined. Particular attention was paid to the development of cancer health services within the general health structure of African countries.

7.14 In the Region of the Americas, Mexico, Paraguay, and Trinidad and Tobago received assistance with the development of cancer registry subsystems. Help was also provided in the evaluation of clinical trials for different types of cancer in Chile, Colombia, and Peru. The Organization continued to collaborate with Argentina, Brazil, Chile, Guatemala, and Peru in their cervical and uterine cancer control programmes. To determine areas for collaborative epidemiological, clinical, and basic research, a multicountry information project was initiated in collaboration with the National Cancer Institute in the USA. A workshop to discuss the progress of this project was held in São Paulo, Brazil, in November, with the participation of eight Latin American countries. An initial study of resources for overall cancer control in Latin America was carried out and the results were presented at the VI Integrated Latin American Cancer Congress, held in Acapulco, Mexico, in October.

7.15 In the South-East Asia Region, a meeting to discuss the problem of chronic liver diseases, including liver cancer, was organized in New Delhi in collabora-

tion with the Indian Council of Medical Research. Support to individual countries in the Region included the following: technical advice was provided for the organization of radiotherapy facilities for cancer treatment in Bangladesh; Burma received technical assistance in connexion with training in cytology and cytopathology, the strengthening of radiotherapy facilities in Rangoon and Mandalay, and an epidemiological survey of oral precancerous and cancerous conditions; the facilities for cancer research at the National Cancer Institute, Pyongyang, were strengthened; a request was formulated for UNDP assistance in the establishment of regional cancer centres in India; the training of physicians in bronchoscopic examination and the organization of services for the early detection of lung cancer and radiological services for cancer diagnosis and radiotherapy were assisted and developed in Mongolia; and technical advice was provided for the organization of radiotherapy facilities in Sri Lanka.

7.16 In the Eastern Mediterranean Region, a meeting of the Regional Advisory Panel on Cancer was held in Alexandria in February to elaborate a regional cancer control programme designed as a model for national programmes throughout the Region. The regional programme defines the main activities that should be developed for cancer prevention, detection, diagnosis, and treatment, and recommends comprehensive measures in this respect. To study the most effective ways of controlling the main types of cancer prevalent in the Region, among which are urinary bladder cancer, oesophageal cancer, breast cancer, and lymphoma, regional reference centres were set up in cancer institutes in Alexandria, Cairo, Teheran, and Tunis. Cancer activities in Iran, Iraq, Israel, and Pakistan were assessed and ways of improving them suggested. Two scientific meetings were held in Teheran in April—a symposium on breast cancer and a multidisciplinary meeting on lymphomas. A seminar on the international classification of tumours was held in Pakistan, with assistance from WHO, to clarify the use of this classification for national pathologists.

7.17 The first working group on the organization of cancer control programmes for the Western Pacific Region met in Manila in October. Experts from 11 countries were invited to participate. Following an exchange of information on the magnitude and nature of cancer problems in the various countries of the Region, strategies for prevention and control were discussed, as were education and training and the organization of comprehensive community cancer control programmes and resources mobilization.

International Agency for Research on Cancer (IARC) 1

7.18 The long-term research programme of the International Agency for Research on Cancer is devoted to the identification of etiological factors of human cancer in the environment. Based on the collation of epidemiological data on cancer morbidity throughout the world, the individual projects seek to determine differences between local environments that might prove to be correlated with significant differences in cancer incidence. The programme was carried out by the scientific staff of the Agency and in collaboration with 70 national laboratories and institutions with whom there were research agreements. The Agency has three research centres—in Nairobi, Singapore, and Teheran. The Agency's training programme continued to award fellowships and organize short courses, and the scientific publications programme was pursued.

7.19 Cancer registries. In preparation for the third volume of Cancer Incidence in Five Continents data have been collected from 67 cancer registries covering 102 population groups in 34 countries. Final collation and standardization of these world cancer morbidity data were carried out and the book was made ready for publication in 1976. This volume was prepared in collaboration with the International Association of Cancer Registries and with the cooperation of the Birmingham Cancer Registry (United Kingdom).

7.20 Clearing-house for research on cancer epidemiology. In collaboration with the German Cancer Research Centre, Heidelberg, Federal Republic of Germany, the Agency began the preparation of the first issue of the classified directory of ongoing studies in cancer epidemiology. Some 4000 questionnaires were distributed in six languages, and 400 had been completed and returned by December. The data from these questionnaires are stored in the computer of the German Cancer Research Centre, which will provide the printout and indexes for the directory. The clearing-house is supported by the National Cancer Institute (USA) within the framework of its international cancer research data-bank programme.

7.21 Environmental carcinogens. Continuing the development of this programme, the Agency laid increasing emphasis on the carcinogenic hazard from chronic environmental pollution. Chemicals that may

be human carcinogens enter the environment in many different ways, and any attempt to control the carcinogenic hazard is dependent upon their identification and upon the ability to measure their concentration in any particular environment.

7.22 In an effort to coordinate national carcinogenicity testing facilities, the Agency has collected information on substances undergoing long-term tests in experimental animals. In 1975, only 74 laboratories reported current studies, involving 481 different substances. The smallness of this number in contrast with the very large number of new chemical substances produced by world industry emphasizes the need to develop more rapid—and cheaper—tests that can at least be used to screen substances, so as to indicate those which must be subjected to the closer scrutiny of a long-term animal experiment. In the Agency, the tissue-mediated mutagenicity assay is being developed, as the most promising of the more rapid methods that have been proposed. The test, which is based on the premise that nearly all known carcinogens are also mutagens, measures the mutation frequency of selected strains of Salmonella typhimurium in the presence of the putative carcinogen and its metabolites formed by tissue enzymes. A workshop was organized in Brussels jointly with the Commission of the European Communities (Directorate for Research, Science and Education) and with the support of the Belgian Government to review the progress being made in rapid in vitro tests for carcinogenicity.

7.23 In the field of detection and measurement of environmental carcinogens, continued efforts were made to standardize the method of determination of N-nitroso compounds and in particular the volatile nitrosamines. The method in use in the Agency depends on measurement by gas chromatography with confirmation by mass spectrometry. A workshop devoted to studies of the analysis and formation of N-nitroso compounds and their carcinogenicity was held in Tallinn, USSR, with the cooperation of the Institute of Experimental and Clinical Oncology, Tallinn.

7.24 Four workshops were held in the Agency to evaluate the available data on the carcinogenicity of further groups of substances. Following these, two new volumes of monographs have already been published summarizing studies, both experimental and epidemiological, on aromatic azo compounds and aziridines, N-, S- and O-mustards, and selenium. The two other volumes in preparation will deal with some naturally occurring compounds and with asbestos, cadmium and nickel.

7.25 Manuals of selected analytical methods for environmental carcinogens are also in preparation. The first volume will deal with analysis of polycyclic aromatic hydrocarbons and the second with mycotoxins. Subsequent volumes will deal with N-nitroso compounds and aromatic amines.

7.26 Occupational cancer. Whatever the carcinogenic hazards to the general population, the exposures and therefore the risks are much greater in industry. In this connexion, two symposia were organized at the Agency. One dealt with the role of cancer registries in identifying the presence of a carcinogenic hazard in industry; the other (held in collaboration with the Institut national de la Santé et de la Recherche médicale, of France) dealt more generally with environmental pollution and carcinogenic risk. This meeting brought together persons concerned with academic research, government legislation, and both sides of industry, all of whom have a role to play in reducing the level of risk inherent, in particular, in the chemical and asbestos industries.

7.27 A working group met at the Agency to adopt minimal requirements for industry-based epidemiological studies on workers exposed to vinyl chloride monomer.

7.28 With the approval of its Governing Council, the Agency acceded to the request of a European glass-fibres producers' group to organize an epidemiological study of the possible carcinogenic hazards in that industry, which may be akin to those in the asbestos industry.

7.29 Role of viruses in human malignancies. In the study of Burkitt's lymphoma in the West Nile district of Uganda, sera from blood samples taken from about 40 000 children 1-7 years old are being stored in the deep-frozen state at the Agency, ready for immunological comparison of later sera from any of these children who develop Burkitt's lymphoma. To date 11 cases of Burkitt's lymphoma have been identified in the study population and 8 of the sera drawn before the disease developed have been examined. All showed significantly higher antibody levels against Epstein-
Barr virus capsid antigens than those of matched controls. This indicates that children who later develop Burkitt’s lymphoma have experienced an infection with that virus that is in some way different from that experienced by others who do not develop the lymphoma.

7.30 Meanwhile, comparison of the distribution of hyperendemic and holoendemic malaria with that of Burkitt’s lymphoma in the same district in Uganda and northern Mara Region, United Republic of Tanzania, strongly indicates an association between the two diseases. It may be that infection with malaria parasites in areas of very high endemicity modifies the body’s immune mechanism, permitting the Epstein-Barr virus to exercise its oncogenic potential.

7.31 The nasopharyngeal cancer study being carried out among the Chinese populations in Hong Kong and Singapore continued. Laboratory studies using DNA hybridization techniques demonstrated the regular presence of the Epstein-Barr viral genome in epithelial cells from biopsies of nasopharyngeal tumours from areas of high, intermediate and low risk. The studies on the HLA antigen profiles of nasopharyngeal cancer patients in Singapore continued at the WHO Immunology Research and Training Centre there. A newly described antigen—the Singapore 2 antigen—was shown by the centre to be present to a much greater extent among the nasopharyngeal cancer patients than among the rest of the Chinese population, but sera studied at IARC in Lyons from nasopharyngeal cancer patients in Tunisia did not show the presence of this antigen. As with Burkitt’s lymphoma, the Epstein-Barr virus, although it is strongly associated with nasopharyngeal carcinoma, is not believed to be the sole cause, and the role of other cofactors is being actively sought. It has been observed, for example, that young nasopharyngeal carcinoma patients in Hong Kong had been brought up on diets somewhat deficient in vitamin C and that they had consumed considerable amounts of dried, salted fish since early childhood. The presence of nitrosamines in this salt fish is being looked for.

7.32 The Agency started to develop a reference programme concerned with oncogenic herpesviruses that is intended to bring about agreement on the standardization of reagents used in this specific field and, when possible, to make them available to other laboratories.

7.33 Respiratory system. High rates for death from lung cancer are found in Chinese women in Hong Kong, Singapore and the USA. In Singapore, the age-adjusted incidence is 25.6 per 100,000 in Cantonese women, which is twice that in non-Cantonese women. Analysis of the results of a study of the contribution of tobacco smoking to these lung cancer deaths showed that while 74% of the cases among non-Cantonese women could be attributed to cigarette smoking, only 17% of the cases among Cantonese women could be so explained. The high incidence of lung cancer among nonsmoking Cantonese women has still to be explained. Occupational exposure, cooking fuels and methods, and the burning of incense and of mosquito coils have all been excluded as causative factors.

7.34 Oesophageal cancer in Iran. The search for the etiological factors responsible for the very high incidence of oesophageal cancer on the southern littoral of the Caspian Sea in Iran continued with a case-control study designed to test the significance of the apparent association between the cancer and the consumption of bread and sheep’s milk and yoghurt, a low intake of foodstuffs containing vitamins A and C and riboflavin, the chewing of “nass” (a mixture of tobacco and lime) by men, and the use of wool-dyes by women. In addition, the use of wild plants for medical purposes, special pregnancy diets, and the contamination of food grains by weeds will be studied. For every household with an oesophageal cancer patient, two control households will be selected. Patients with cancers other than of the oesophagus will also be included in the study. The analysis of food and water samples for volatile nitrosamines, polycyclic aromatic hydrocarbons, aflatoxins, nitrate and nitrite have not so far revealed any significant differences between the areas of high and low incidence.

7.35 Oesophageal cancer in France. In a study in Brittany, France (department of Ille-et-Vilaine), a comparison has been made of the drinking and smoking habits of a control group from the local population and oesophageal cancer patients. The average daily consumption of alcohol in the control group was equivalent to 44 g of ethanol per day for men and 12 g for women. Among the oesophageal cancer patients the consumption was much higher, and the relative risk for males for oesophageal cancer was calculated according to their level of consumption both of alcohol and tobacco. A man who consumed a daily average equivalent to 81-100 g of ethanol per day was found to be at more than 12 times the risk of a man whose consumption was in the range of 0-40 g. If, as well, he smoked 20 or more cigarettes a day, his risk was nearly 29 times greater.

7.36 Analysis of samples of farm-distilled apple brandy from Brittany showed evidence of nitrosodimethylamine at a level of 1-2 μg/kg; a few samples
were in the range 5-10 μg/kg. Levels of 5-10 μg/kg of polycyclic aromatic hydrocarbon were found in the French samples, while none was detectable in samples of apple brandy obtained from a manufacturer in the USA. Patulin, a mycotoxin, was also found in a few samples from France, in a range of 0.15-0.70 μg/kg. Furfural was found in samples from France but in much lower quantity than in the apple brandy from the USA or in Scotch whisky.

7.37 Alcohol consumption as related to other cancers. In a collaborative study on the relationship between alcoholism, alcohol consumption and cancer, supported by the National Institute on Alcohol Abuse and Alcoholism of the USA, reports were obtained indicating associations with varying degrees of certainty between the consumption of alcoholic beverages and cancers of the buccal cavity and pharynx, larynx, oesophagus, colon, rectum, liver and pancreas. In a detailed survey of Danish brewery workers, a cohort of males who were employed in the industry between 1939 and 1962 is being constructed in collaboration with St Elizabeth’s Hospital, Copenhagen. It is expected to include 16,500 persons; so far 14,700 records have been extracted, coded, and transferred to punch-cards for subsequent matching, first with death certificates and later with the records of the Danish Cancer Society. A control group was established, comprising 1,606 male members of Danish temperance societies.

7.38 Large bowel cancer. A pilot study has been completed in a rural area of Finland and in Copenhagen. It was earlier reported that the incidence of cancer of the colon was four times higher in Copenhagen than in the Finnish area and it was decided to test two current hypotheses in these areas. These are: (1) that a low fibre intake in the diet results in a delay in transit time, permitting longer mucosal contact with carcinogens and hence a higher risk of cancer of the colon; and (2) that a high dietary fat intake results in a greater production of bile and thus of faecal bile acids, and a greater number of bacteria capable of degrading the bile acids, possibly into carcinogens. Data on present and past diets, defaecation habits, mouth-anus transit times, and characteristics of faeces, including weight, were collected. Analyses of faecal steroids and bacteria are being carried out by the Public Health Laboratory Service, London, and the University of Uppsala, Sweden.

7.39 Breast cancer. In a study of the incidence of breast cancer in Iceland, begun in 1973 in collaboration with the Cancer Registry there, preliminary results during the year indicated a twofold to fivefold greater risk for a first-degree relative of a breast cancer patient. As part of the study, differences in breast cancer risk according to the time interval between menarche and first delivery were investigated; when the figures were standardized for age at first delivery, the interval was found to be no more sensitive as a risk determinant than age at first delivery itself.

7.40 Immunological studies. A pilot study, in collaboration with the Chester Beatty Research Institute, London, demonstrated the viability of thawed Burkitt’s lymphoma cells that are stored frozen in the cell and serum bank at the IARC Research Centre, Nairobi. The cells could be labelled satisfactorily with radioactive uridine and therefore may be used as target cells in cytotoxicity tests. The spontaneous rosette tests and the rosette-inhibition test gave comparable results for fresh and frozen material and were applied to an immunological evaluation of Burkitt’s lymphoma patients at different stages of their disease.

7.41 Training programme. Rising travel costs and necessary increases in stipends reduced the numbers of fellowships awarded in 1975 to 10 for research training and two for travel in connexion with research. A two-week course in French on current problems in cancer epidemiology was organized at the School of Public Health, Brussels; this was arranged to follow immediately after a WHO European Region course on general epidemiology, so that some participants could attend both.

Cardiovascular diseases

7.42 In an effort further to develop its already strong cardiovascular disease programme, in 1975 the Organization extended and intensified its activities in this field by devoting increased attention to the specific problems of developing countries.

7.43 In the Western Pacific Region, a seminar was held in Manila in March-April on the prevention and control of cardiovascular diseases. Its aims were to collate available information on the prevalence and incidence of these diseases in the Region, to outline appropriate methods for prevention and community control, to assess the present resources and potential for improving the control of the major cardiovascular diseases, and to discuss practical control projects. The seminar was attended by experts from Cambodia, Fiji, Japan, Laos, Malaysia, New Zealand, Philippines, Republic of Korea, Republic of South Viet-Nam, Singapore, and Western Samoa. It was noted that while rheumatic fever and rheumatic heart
disease, hypertension, and stroke are common in some of the developing countries of the Region—especially among certain ethnic groups—there is also a high prevalence of ischaemic heart disease. The examples presented by some countries showed that it is possible to deal with cardiovascular disease problems among whole populations and not merely on an individual basis. In their conclusions the participants concentrated on future actions that might help governments to deal with these problems in a comprehensive manner. As a priority consideration was given to the strengthening of activities essential for prevention at the community level.

7.44 A meeting in Geneva on activities in the field of cardiovascular diseases, with special attention to developing countries, held in June by the Organization in collaboration with the International Society of Cardiology, recommended that activities in the developing countries should emphasize prevention and control. Fundamental to this approach are training, education, and research, with particular reference to the community aspects of disease control, and it was suggested that regional research and training centres in cardiovascular disease control be established within existing university departments of preventive medicine, utilizing the available personnel and facilities. The main function of such centres would be the education and training of health personnel at all levels by direct involvement in field projects. The definition of problems, the design of projects, and the carrying out of surveys, pilot studies, evaluation of treatment, and different forms of basic and applied research were considered essential components of the educational and training process. The criteria for selecting these centres on a regional basis were elaborated, and it was further proposed that a steering committee, composed of experts from the developing countries and from WHO, should be formed for the purpose of choosing appropriate locations for the centres and of establishing objectives for their activities, which should be regularly evaluated.

7.45 In the Region of the Americas, assistance was provided during the year to Brazil, Chile, Cuba, El Salvador, Paraguay, Peru and Uruguay in the preparation of cardiovascular disease control programmes. To give guidance to countries in the South-East Asia Region, a regional seminar was organized in New Delhi in December. Other activities in the Region included the promotion of health care services for cardiopulmonary emergencies and the rehabilitation of cardiac patients in Mongolia, and assistance in the strengthening of such services for the management of cardiac emergencies in Nepal.

7.46 At a meeting of the steering committee on the long-term cardiovascular disease programme in the European Region, held in Copenhagen in February, leading experts evaluated the progress of the programme in the context of WHO's worldwide activities and considered priorities in the light of the financial situation. There was unanimous agreement on the priority of the community control approach in the prevention of cardiovascular diseases. The necessity of using this programme for the establishment of standards in diagnostic methods and criteria was stressed in view of its potential worldwide applicability. A consultative group composed of representatives of the Regional Committee for Europe also evaluated the long-term cardiovascular disease programme at a meeting held in Copenhagen in April. The progress achieved was reviewed, and it was proposed that the programme should give special emphasis to the community approach and to scientific evaluation. Member countries have been requested to contribute, through their active participation, to the success of the community control approach.

Ischaemic heart disease

7.47 Investigators from Belgium, Italy, Poland, Spain, and the United Kingdom collaborating in the WHO trial on multifactorial prevention of ischaemic heart disease met in London in February to review the current situation. Approximately 45,000 persons are now involved in this trial and the changes in the risk-factor levels are monitored continuously.

7.48 A meeting of investigators on the cooperative trial of the primary prevention of ischaemic heart disease using clofibrate 1 was held in London in June. The closing down of the trial began at the end of that month and the last follow-up examination will take place in December 1976, by which time information on a sufficient number of events will have been collected to permit a definite conclusion to be drawn.

7.49 As a result of a WHO-coordinated meeting held in Moscow in February, a design based on the experience gained in the Kaunas-Rotterdam intervention study (see paragraph 1.46) was produced for a cooperative comprehensive prevention study on ischaemic heart disease. This is a primary prevention study to test the hypothesis that by amendment of assumed risk factors (such as blood pressure, cholesterol level, smoking, physical activity, and excess weight) the incidence of myocardial infarction and

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1 WHO Official Records, No. 221, 1975, paragraph 7.49.
stroke in middle-aged men (40-59 years) can be reduced. The populations to be involved in this study should be sought through the existing health care systems in the respective areas. At present the study is in the preparatory phase, dealing mainly with methodological problems to ensure the standardization of data collected.

**Comprehensive care systems for cardiovascular diseases**

7.50 At the end of November a meeting of investigators was held in Geneva to discuss the most suitable approaches and methods for establishing comprehensive programmes for the control of all major cardiovascular diseases in the community, through existing health services organizations. The participants were cardiologists and public health administrators from Austria, Bulgaria, China, Cuba, Czechoslovakia, Finland, France, German Democratic Republic, Federal Republic of Germany, Ghana, Hungary, Jamaica, Mongolia, Netherlands, Nigeria, Norway, Romania, Sweden, USSR, United Kingdom, and Yugoslavia. A working protocol based on the findings of the meeting is being developed for use in future studies.

**Rehabilitation of cardiac patients**

7.51 A working group on the effects of rehabilitation and secondary prevention in patients with acute myocardial infarction met in Opatija, Yugoslavia, in September, investigators from 24 collaborating institutions participating. The intake of new patients ended in November, and 2200 patients who have had acute myocardial infarction are now included in the study. A three-year follow-up period for all the patients was agreed upon. On the basis of the experience already gained, a number of procedures to be applied in cardiovascular disease control programmes organized in different countries were proposed. These will be further elaborated jointly by WHO, the International Society of Cardiology, Rehabilitation International, and the European Society of Cardiology.

**Rheumatic fever and rheumatic heart disease**

7.52 Although rheumatic heart disease is a preventable condition, public health application of preventive measures is insufficient in many countries; thus rheumatic fever is still a problem in a large number of developing countries and in some industrialized areas as well. In 1970 the Organization produced a protocol for the community control of rheumatic fever and rheumatic heart disease, initially on the basis of pilot programmes in defined communities, which eventually would serve as a model for wider—possibly countrywide—application of the experience thus gained. In November 1975, a meeting was held in Prague of the principal investigators from the centres collaborating with WHO in the pilot programmes in defined communities; other experts interested in starting similar programmes also attended. The countries represented were Bulgaria, Cyprus, Czechoslovakia, India, Iran, Japan, Mongolia, Nigeria, Romania, Singapore, Uganda, and USSR. The meeting reviewed the progress in the various collaborating institutions, revised the operating protocol, and prepared a project that would be applicable specifically in developing countries. During 1975, an inter-country pilot project of this type was introduced in the Region of the Americas with the participation of Argentina, Bolivia, Chile, Guatemala, Peru and Venezuela.

7.53 Surveys on rheumatic fever were one of the main areas for assistance in the prevention and control of cardiovascular diseases in the South-East Asia Region. An example of such assistance was the promotion of a school health programme for the prevention of rheumatic fever in Burma. In the Western Pacific Region, the Organization provided assistance to Fiji, Singapore, and Tonga in the establishment of rheumatic fever and rheumatic heart disease registers.

**Hypertension**

7.54 The cooperative hypertension control programme, which commenced in 1972, at present encompasses 15 centres. A meeting held in Geneva in November was attended by the principal investigators from the centres concerned, and the latest results of the study were evaluated. More than 21 000 hypertensive subjects had been registered up to mid-September. One half of them were referred to the community programme by their own physician, and 40% were enrolled after having been identified through screening of the population. About one-third of all registered patients had been unaware of their elevated blood pressures, and only half of them had been under medical care before being enrolled in the project. The registered subjects are followed up at regular intervals. During the first year of follow-up, a moderate decrease of blood pressure was observed in those treated. The project is to last five years, and its main object is to show whether a community programme for the control of hypertension in whole population groups is both feasible and effective.

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1 See also paragraphs 7.67-7.69.
7.55 In March WHO and the International Society of Hypertension held a joint meeting in Madrid on the effectiveness of treatment in mild forms of hypertension. This meeting brought together the principal investigators of nine groups that have initiated therapeutic trials in the past few years in Australia, Europe, and the USA to define more clearly the rational management of patients who are known to be mildly hypertensive by generally accepted criteria, as well as investigators in epidemiology and the community control of hypertension, with the aim of reviewing progress in the trials and of considering ways of ensuring that they are so far as possible complementary and that their results are comparable. To this end, a liaison committee representative of the investigators involved and under the general sponsorship of WHO and the International Society of Hypertension was established to collate and disseminate information of common interest. The results of these trials are expected to have a decisive impact on public health programmes for the control of hypertension.

7.56 In the Region of the Americas, a protocol was drawn up for a programme on the community control of hypertension, which was initiated as an inter-country pilot study. The participating countries were Argentina, Brazil, Chile, Colombia, Cuba, Mexico, Peru and Venezuela.

Stroke

7.57 The annual meeting of investigators collaborating in the WHO stroke register project (described in the Annual Report for 1973) was held in November. More than 7900 cases of stroke had been registered by that date in centres in the following countries: Denmark, Finland, German Democratic Republic, India, Ireland, Israel, Japan, Mongolia, Nigeria, Sri Lanka, Sweden, USSR and Yugoslavia. From a preliminary analysis of the results, data are available on the incidence of stroke in various populations, on its natural history, and on health care utilization by stroke patients. Registration within the project began to close down in 1975, and final data will become available after a follow-up period. The information gained from this study will be useful in the planning of health care services for stroke and for further preventive activities.

Standardization

7.58 The previous work of WHO in the field of standardization in cardiovascular diseases has contributed to the development of a common terminology in cardiology, and a number of internationally accepted standards are being used. The International Society of Cardiology has agreed to assist with these efforts and the joint approach should ensure that such activities will have the widest impact. At the present time, the possibility exists of developing standards for the interpretation and nomenclature of arrhythmias for clinical use, and the standardization of clinical terminology in coronary heart disease. Two working groups were therefore established, each to deal with one of these subjects. To ensure the worldwide acceptability of recommended standards, the groups are composed of experts in the respective fields from different parts of the world and different schools of thought, representing various societies or associations of importance in the scientific community.

Trace elements

7.59 Forty laboratories in 24 countries or areas are collaborating with WHO in several research projects (of which two are being carried out in collaboration with IAEA) on the role of trace elements in the etiology, pathogenesis, and geographical distribution of cardiovascular diseases. In the two WHO/IAEA projects—namely, the investigation of trace elements in relation to myocardial infarction and research into the role played by cadmium in the etiology of hypertension—more than 5000 analyses of trace elements have been carried out on 1200 tissue samples collected from about 300 autopsy cases; the information thus derived is being statistically evaluated. Samples of toenails, fingernails, and hair continued to be collected for trace element analysis in autopsy studies, as well as in living population surveys, in industrialized and non-industrialized areas.

7.60 As many studies have shown, mortality from cardiovascular diseases is higher in areas served by soft water than in those served by hard water. The nature and biomedical significance of this association are still unknown, and internationally coordinated studies are being carried out in an attempt to identify the factors in water that may influence cardiovascular health. Under the technical supervision of a WHO Collaborating Centre of Reference on Studies of Cardiovascular Diseases in Relation to Drinking-Water Quality, located in Ottawa, nine institutions (in Canada, Finland, Hungary, Iran, Italy, New Zealand, Papua New Guinea, United Kingdom, and Yugoslavia) cooperated by collecting and analysing drinking-water in areas where there is good information on cardiovascular diseases. In addition, information on water composition was collected from 15 centres in
the WHO network of myocardial infarction registers in Europe.

Habitual physical activity

7.61 It is widely accepted that a certain amount of physical activity is necessary to maintain good health. However, exact information is lacking on how much, and in what way, people should exercise, taking such factors as time and profession into consideration. A new model of the miniaturized heart beat counter developed by the Organization ¹ is now being produced commercially in Norway, where it is used to assess habitual physical activity in a population study. The counter is capable of differentiating eight levels of physical activity.

Cardiovascular disease research team

7.62 The WHO cardiovascular disease research team, based in the Department of Medicine and Therapeutics, University of Ghana Medical School, Accra, continued its study of the blood pressure pattern in schoolchildren as related to that of their parents. Work commenced on a cardiac registry and on studies of salt threshold in hypertension and trace elements in hypertension, and field research began on the prevalence and incidence of different cardiovascular diseases among the urban population of Accra.

Other chronic noncommunicable diseases

7.63 In recent years the Organization has sought to enhance the effect of the efforts being made in most parts of the world to prevent, control or investigate a number of other chronic noncommunicable diseases by helping to coordinate or promote the work as appropriate, in cooperation with the national and international bodies concerned. In particular, attention has been paid to diabetes, connective tissue diseases, chronic nonspecific respiratory diseases, and chronic liver and renal diseases, including endemic nephropathy, with a view to developing clinical and histopathological studies in different population groups and achieving uniformity of terminology, classification and diagnostic criteria.

Diabetes mellitus

7.64 Diabetes mellitus involves the risk of two types of arterial disease. One—an important cause of disability in diabetics—is relatively specific and affects the small blood vessels, giving rise to retinopathy and nephropathy, and perhaps to diabetic neuropathy. The other—the major cause of diabetic mortality—is nonspecific, involving atherosclerosis of the large and medium arteries. A collaborative multinational study of vascular disease in diabetics was initiated by WHO in 1974 and discussed in June 1975 by the WHO Advisory Committee on Medical Research. During the year under review, the activities concerned mainly the establishment of two central laboratories—in Atlanta, GA, USA, and in Moscow—to organize standardized analyses of serum samples for the entire study and the randomized selection of population samples for clinical and serological examination by the participating institutions in 15 countries in five WHO Regions.

7.65 A meeting was held in Port-of-Spain in May to arrange a collaborative study on diabetes mellitus with the participation of Barbados, Dominican Republic, Jamaica, and Trinidad and Tobago, a common system of registry and the use of unified diagnostic criteria being the first aims to attain. The Organization also continued to render advisory services on diabetes in the Caribbean area.

7.66 In April WHO cosponsored with the Medical Faculty of the University of Zagreb, Yugoslavia, and the European Association for the Study of Diabetes, an international postgraduate course on diabetes held at that university. It was attended by practising European physicians and was designed to relate current research to the clinical approach to the daily care of diabetic patients.

Rheumatoid arthritis and related diseases ²

7.67 In May the Twenty-eighth World Health Assembly adopted a resolution (WHA28.59) in which it recommended that, considering the long-term disablement caused by rheumatic diseases and their physiological, social and economic repercussions, WHO should continue its cooperation with national and international programmes for the control of these diseases, and particularly the programmes of the International League against Rheumatism, with a view to intensifying research on epidemiology, etiopathogenesis, prevention and treatment, as well as the rehabilitation of persons suffering from rheumatic diseases. Accordingly, several meetings were held with representatives of the International League

¹ WHO Official Records, No. 221, 1975, paragraph 7.51.

² Rheumatic fever and rheumatic heart disease are considered in paragraphs 7.52-7.53.
against Rheumatism and other governmental and non-
governmental organizations (including ILO and the
League of Red Cross Societies) to consider how to
strengthen cooperation in this field. The discussions
focused on the promotion of increased knowledge
and understanding of the nature and extent of rheu-
matic diseases, the improvement of all types of inter-
vention and care for rheumatic persons, and the
stimulation of research. Efforts are being made to
secure funds from extrabudgetary sources for an
advanced course on rheumatoid arthritis and related
diseases, for which a programme was agreed. Prepa-
ratory work by the International League against
Rheumatism and other agencies for World Rheuma-
tism Year was also discussed.

7.68 In the European Region, the Organization
participated in the VIII European Rheumatology
Congress in Helsinki in June. As a result of discussions
there, a meeting was held in August to elaborate
proposals for a joint programme by WHO and the
European League against Rheumatism for the control
of chronic rheumatic diseases.

7.69 The WHO collaborating centre concerned with
connective tissue diseases, in Paris, has been develop-
ing a model to facilitate the diagnosis of scleroderma,
systemic lupus erythematosus (SLE), periarthritis
nodosa, polymyositis and other conditions. During
the year special attention was paid to the criteria for
the diagnosis of SLE by this computerized system.

Chronic nonspecific respiratory diseases

7.70 Following up a meeting of investigators on
the epidemiology of chronic nonspecific respiratory
diseases in 1974,1 work was begun in 1975 to undertake
international collaborative research into the patho-
morphological aspects of this group of diseases, with
emphasis at the outset on standardizing the method-
ology to be used. In the European Region a working
group was convened in Sirmione, Italy, in April by
WHO and the European Society for Clinical Respira-
tory Physiology to consider the nomenclature and defi-
nitions in respiratory physiology; this was further to
the work of a similar group that had met in 1974. An-
other working group, on the management of respira-
tory diseases in children, met in Rotterdam, Nether-
lands, in March, when it reviewed the methods and
techniques currently used in the diagnosis, treatment
and follow-up of respiratory diseases in children, and
made recommendations for their broader application
with a view to preventing chronic lung diseases. The
possibilities of minimizing the influence of factors such
as air pollution and tobacco smoking on children were
also discussed.

Chronic renal diseases

7.71 The WHO Collaborating Centre for the Histo-
logical Classification of Renal Diseases, designated in
1974 in New York, continued to establish a network
of cooperating institutions in different countries, and
a meeting of investigators took place in Geneva in
June at which a standardized methodology for the
pathodiagnosis of renal lesions was discussed. The
participants particularly considered the definition and
interpretation of glomerular lesions.

7.72 In the field of endemic nephropathy, WHO-
coordinated research into the etiology and patho-
genesis of this condition was continued and further
efforts were made to develop a methodology for
nephrological studies in the community in Bulgaria,
Romania and Yugoslavia. The environmental
factors involved in the etiology of this disease were
also studied.

Chronic liver diseases

7.73 In October the Indian Council of Medical
Research and WHO held a symposium in New Delhi
on chronic liver diseases, including liver cancer, in
countries of the South-East Asia Region. Investigators
from Burma, India, Indonesia, Mongolia, Sri Lanka
and Thailand participated. It was noted that these
diseases—among them carcinoma and cirrhosis of the
liver, including Indian childhood cirrhosis—are of
greater public health concern in the Region than
usually appears. Information based on hospital
records reveals only the florid and fatal stages of liver
diseases; their true frequency in the community should
therefore be taken as two or three times the recorded
figure. Thus there is an urgent need to promote
well-coordinated and well-designed epidemiological
studies on a regional basis to provide better informa-
tion on the incidence and prevalence of these con-
ditions.

7.74 Investigators reported data which indicate
that a significant proportion of cases of chronic liver
diseases are associated with hepatitis virus infection.
On the other hand, evidence was presented that myco-
toxins were involved in an outbreak of jaundice in
Rajasthan and adjoining parts of Gujarat in India,
and particular emphasis was placed on measures that

1 WHO Official Records, No. 221, 1975, paragraph 7.79.
could be adopted to prevent, control or minimize the ingestion of mycotoxins in contaminated food. Immunological factors that could be put to use for screening for chronic liver diseases were also discussed.

**Dental health**

7.75 Funds were procured from extrabudgetary sources (nongovernmental foundations and commercial enterprises) to finance the programme called for in resolution WHA28.64, adopted in May by the Twenty-eighth World Health Assembly. This programme comprises the active promotion of dental caries prevention, using all available methods, especially that of water fluoridation (wherever feasible and appropriate), and collaboration with Member States in the planning and implementation of national caries prevention programmes. It also envisages the development of an information system and coordination of research on aspects of oral disease prevention.

7.76 A WHO Expert Committee on Planning and Evaluation of Public Dental Health Services met in Geneva in November. Practical recommendations for increasing the effectiveness of dental health services and for achieving the most efficient utilization of dental health manpower were made and the preliminary results of the international collaborative study of dental manpower systems in relation to oral health status (carried out with the cooperation of WHO and the Division of Dentistry, United States Bureau of Health Resources) were reviewed. In this study the collection of dental epidemiological and sociological data from the first five participating countries—Australia, the Federal Republic of Germany, Japan, New Zealand, and Norway—was completed and intra-country analyses were carried out. Work continued on intercountry analysis of the data. Some of the results for the above-mentioned countries were presented at the 63rd Annual World Dental Congress of the International Dental Federation, held in Chicago, IL, USA, in October. In the sample of schoolchildren aged 13-14 years clear differences in average unmet need per person were demonstrated between those areas having a comprehensive school dental service and those having only advisory or selective dental services for schoolchildren. It is expected that the final analysis will focus on a number of individual factors pertaining to the various manpower systems and will indicate the levels of effectiveness of those factors on which adaptation decisions can be based. Two more countries are expected to participate in the study in the near future, and replications of the study are in progress in Denmark and the USA.

7.77 Epidemiological studies continued to be focused on obtaining global estimates of the prevalence of the major oral diseases. The WHO computer file now contains information on dental caries in some 80 countries and on periodontal diseases in 50 countries. The main activities in this area included assistance with the analysis and planning of surveys and the development and revision of standard data collection methods and manuals. The Organization provided technical advice or assistance with statistical analysis for dental epidemiology surveys carried out in Australia, Bahamas, Bermuda, Burmah, Cayman Islands, Colombia, Cuba, Ecuador, El Salvador, Hungary, India, Indonesia, Jamaica, Libyan Arab Republic, Mauritius, Mexico, Mongolia, Papua New Guinea, Philippines, Saudi Arabia, Singapore, Sudan, Syrian Arab Republic, and Trinidad and Tobago. Criteria were elaborated for the basic structure of dental health services, including prevention and emergency care for the whole population, specific care for target groups, the provision of manpower, and continuing evaluation of the impact of the service, accompanied by a determination of the areas of priority or emphasis within the programme on the basis of survey data.

7.78 In connexion with the research programme for the development of more satisfactory indices for the measurement of periodontal disease in populations, a comprehensive review and evaluation was made of all existing indices, the corresponding study group of the International Dental Federation was contacted, and an available study population was selected.

7.79 The following countries or areas received the Organization's assistance during the year in planning and strengthening dental health services: Argentina, Australia, Bahamas, Bermuda, Burma, Cayman Islands, Colombia, Cuba, Ecuador, El Salvador, Hungary, India, Indonesia, Jamaica, Libyan Arab Republic, Mauritius, Mexico, Mongolia, Papua New Guinea, Philippines, Saudi Arabia, Singapore, Sudan, Syrian Arab Republic, and Trinidad and Tobago. Criteria were elaborated for the basic structure of dental health services, including prevention and emergency care for the whole population, specific care for target groups, the provision of manpower, and continuing evaluation of the impact of the service, accompanied by a determination of the areas of priority or emphasis within the programme on the basis of survey data.

7.80 The topic for the Technical Discussions at the twenty-fifth session of the Regional Committee for Africa was "Dental health and the development of health services in Africa". In view of the high prevalence of periodontal diseases and the increasing prevalence of dental caries in the Region, as well as the general scarcity of resources, these discussions represented a concerted effort to rationalize the planning of services and provide appropriate training for the various levels of manpower needed in the Region.

7.81 In the Region of the Americas, emphasis was given to programmes for the delivery of dental services
to rural communities in Cuba and Venezuela. Plans to develop a dental health strategy in the Commonwealth Caribbean area were approved at the Seventh Caribbean Health Ministers Conference. The fluoridation programme continued to expand, and eight countries of the Region now have national fluoridation programmes. There was a notable increase in the use of topical application of fluoride in those areas where access to community water supplies is difficult and where the introduction of fluoridation is likely to be delayed.

7.82 Support was provided for a forthcoming epidemiological survey of oral mucosal conditions in Burma. Assistance was also given to the dental public health centre in Indonesia for the development and evaluation of a national oral health service plan. Aid continued to be provided for investigations conducted at the Central Research Institute of Stomatology, Moscow, a WHO Collaborating Centre for Research on Dental Epidemiology.

7.83 Research into caries etiology in Papua New Guinea, supported by the United States National Institute of Dental Research, continued. Statistical analysis and interpretation of the data from the study, which involved chemical analysis of enamel, plaque and saliva, food, soil, and water, were carried out and the findings presented at a dental caries etiology workshop, held at the National Institute of Dental Research, Bethesda, MD, USA, in December. A number of trace and other elements appear to be associated in a complex manner with dental caries, and it is hoped to shed further light on relationships with acid-producing microorganisms. Attempts will be made to relate findings from the biological materials, food, soil, and water to give a complete picture of the factors preventing or promoting caries in this very interesting environment. An additional study of microbiological factors and trace elements in the environment in two Colombian communities continued to receive technical assistance from the Organization.

7.84 Considerable attention was given during the year to the preparation and revision of manuals. The standard manual on basic methods for oral health surveys1 was revised with a view to publication. Major changes included a revised method of periodontal disease assessment and provision for the collection of data required in estimating the need for preventive, restorative, and curative services and in evaluating those services. The manual and survey forms were field-tested during a course in dental public health held in Malaysia and Singapore in May-June. Preparations for the revision of the manual on the application of the International Classification of Diseases to dentistry and stomatology 2 and of the relevant section of the International Classification of Diseases (ninth revision) were completed. The first draft of a manual on the epidemiology of oral mucosal conditions was prepared. It is intended to have the methods field-tested during a forthcoming survey in Burma. Work was in progress on the drawing-up of a guide to dental epidemiological investigations, designed to give assistance to those using more rigorous methods for the collection and analysis of data than is possible in a basic oral health survey. The guide includes standard survey forms, criteria for indices, and details on statistical analysis. Another manual— for the guidance of administrators on the selection of dental equipment for all types of service situations— was prepared for review and testing. (In this connexion it should be mentioned that the simplified dental equipment unit developed by the Organization is now in use in a number of Latin American countries.) Finally, a practical manual on fluoridation was issued in the Americas, in Spanish and Portuguese, together with three other publications on that subject, as well as a manual (in Spanish) on teamwork in dentistry ("four-handed dentistry").

Mental health, drug dependence, and alcoholism

7.85 In resolution WHA28.84, the Twenty-eighth World Health Assembly recognized that mental disorders constitute a major public health problem in all parts of the world and noted that effective methods for reducing mental morbidity and its consequences are now available. The resolution requests the Director-General to assist Member States in strengthening the mental health component of their general health services through (1) research on the epidemiology and biology of mental disorders; (2) development of effective and new methods of treatment and control of such disorders; (3) improvement of the training of personnel working in mental health services and research; and (4) improvement of communication in this field through the development of information systems and the standardization of classification and terminology.


7.86 In pursuance of this and other resolutions related to mental health that were adopted by the Twenty-eighth World Health Assembly, a series of consultations was held with national and regional representatives and experts from different parts of the world to plan for a medium-term mental health programme (including drug dependence and alcoholism). This new programme has three major objectives: to prevent or reduce mental and neurological morbidity and its consequences; to increase the effectiveness of health services through the use of mental health expertise; and to increase the awareness of the mental health implications of social action and develop strategies for intervention in such action. To attain these objectives it is planned to improve mental health services by developing simple and effective methods of treating priority conditions; augment mental health manpower, primarily by imparting mental health knowledge and skills to other health and research workers; contribute to the improvement of the psychosocial aspects of the environment, with particular emphasis on high-risk situations such as urbanization and uprooting; stimulate and coordinate research on the epidemiology and biology of mental disorders and in the neurosciences; and coordinate activities concerned with the improvement of standardization and communication in psychiatry and related disciplines.

Mental health services

7.89 Based on the approaches suggested at a 1973 WHO seminar and the recommendations of the recent WHO Expert Committee on Organization of Mental Health Services in Developing Countries, a number of new activities have been started with the aim of developing simple, economical, and effective methods of mental health care integrated fully into the general health services. One approach used in coordinating advice and assistance to countries is to reduce the waste of resources, for example by minimizing the provision of unnecessary custodial care or the inappropriate use of psychotropic drugs. Another basic approach is to develop services, for patients with priority conditions, that make use of a wide range of health workers. These approaches will be tested and evaluated in a collaborative study that was initiated in four developing countries in 1975 (Colombia, India, Senegal, and Sudan). An integral part of these activities is the development and testing of simple, nontechnical training programmes and manuals.

7.90 These approaches to the provision of mental health care were outlined in position papers presented by WHO at the Fourth Pan-African Congress of Psychiatry in Abidjan in July. In line with efforts to involve a much wider range of health workers and also workers from other fields in active mental health care, preparatory to the Congress information was collected from a number of African countries on the mental health training currently available for such workers.

7.91 Since legislation is one of the determining factors in the provision of mental health care, an international review was begun with the aim of producing guidelines to assess the effectiveness and relevance of existing legislation, to evaluate the way in which such laws function, and to encourage the enactment of needed changes. In the Eastern Mediterranean Region, information on national mental health legislation was collected by a questionnaire and field visits in preparation for a meeting on this subject.

7.92 The programme has been expanded so as to reflect the relationships between mental health and disability prevention and rehabilitation. Emphasis is being laid on rehabilitation as an integral part of

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1 WHA28.50, WHA28.57, WHA28.80, and WHA28.81.


overall mental health care and on the mental health needs of disabled individuals whose primary impairments are physical. In line with resolution WHA28.57 on mental retardation, the needs of mentally retarded children were given particular attention at a consultation held in Geneva in May and through contacts made with lay organizations in developing countries.

7.93 In the African Region, a programme was developed for the integration of mental health services into the general health care system. In this connexion, consultant services were provided to the Government of Seychelles concerning the organization of mental health services.

7.94 The effective incorporation of mental health activities into public health programmes and the utilization of public health personnel as mental health workers were examined in the Region of the Americas by a study group that also reviewed the teaching of mental health in schools of public health. Progress in the extension of psychiatric and mental health services to areas outside of the capitals and big cities was made during the year in Brazil, Chile, Costa Rica, Cuba, and Jamaica with the assistance of the Organization. Guatemala, Honduras, Paraguay, and Uruguay continued to receive assistance for the reorganization and improvement of their psychiatric care systems, particularly inpatient and outpatient services.

7.95 In the South-East Asia Region, attention continued to be focused on training in psychiatry and mental health care, as has been shown in Chapter 3. In addition to assistance provided in regard to training to Burma, Mongolia, and Sri Lanka, an investigation was begun in Sri Lanka on the feasibility of giving further training in mental health care to traditional practitioners.

7.96 The third meeting of a working group on mental health services in pilot study areas in the European Region took place in Trieste, Italy, in September. The group, comprising representatives of the 11 areas now engaged in the study, discussed the analysis and tabulation of the enquiry on mental health service resources, staffing patterns, and patients' use of facilities. This first phase of the study showed that, despite the significant differences from country to country, it is possible to arrive at standardized categories of mental health service data. The results underscore the necessity of indicating clearly whether or not alcoholics, mentally retarded persons, and psychiatric geriatric patients have been included in a given set of mental health statistics. The working group also discussed ways of circumventing problems that had been encountered during the second phase of the study, begun in 1974. In the same Region, a working group on youth advisory services was organized by WHO in Lübeck, Federal Republic of Germany, in May with the support and collaboration of the Government. Participants from 11 countries and representatives of the United Nations and the World Psychiatric Association reviewed and discussed the activities, organization, and staffing of youth advisory services on the basis of the report of a WHO study on the same subject. Emphasis was placed on the preventive, early detection, and care functions of such services and on their role as an alternative to more formal means of contact and referral.

7.97 Mental health was selected for medium-term programming in the Eastern Mediterranean Region. A new programme in the Region calls upon countries to adopt a more dynamic approach to the organization, administration, and provision of community-oriented services in this field, planning them on a countrywide scale to ensure greater coverage. To meet the needs of patients at all stages of their illness and facilitate their earlier return to a normal life, the programme envisages a network of services for emergency, outpatient, inpatient, and rehabilitative care. In all countries the prime need is to develop a cadre of qualified mental health workers that can not only provide such services but also give differential care to special groups, such as drug-dependent persons and the mentally retarded. On the basis of these priorities, discussions were held with health authorities in Sudan on the development of mental health services within the overall health system. Similar collaboration was carried out in Kuwait on the subject of community-based services as an alternative to hospital-based care. In addition to consultations on the development of mental health services undertaken with Bahrain, Pakistan, Sudan, and the Syrian Arab Republic, a technical paper on this subject was discussed at the twenty-fifth session of Sub-Committee A of the Regional Committee in October.

7.98 In the Western Pacific Region, assistance provided to Laos for strengthening the mental health services dealt with the training of personnel in psychiatric care, the improvement of mental health facilities, the extension of the scope of psychiatric care to include drug-dependent persons, epidemiological investigations of drug dependence, and health education of the public.

1 WHO Official Records, No. 221, 1975, paragraph 7.103.
Psychiatric epidemiology and standardization of diagnosis, classification, and statistics

7.99 Epidemiological research on mental disorders should preferably be undertaken at the country level within the general health service system, especially in developing countries, as an aid to the rational planning of effective, low-cost, mental health services. Facilitating such research has been one of the primary objectives of WHO in the field of psychiatric epidemiology. To this end, work on the standardization of psychiatric diagnosis and on alternative methods of classifying mental disorders continued during the year. The trial of the multi-axial classification of psychiatric disorders specific to childhood already completed in the United Kingdom\(^1\) was extended to other European countries. A study of children attending a child-guidance clinic and a psychiatric facility in Lausanne, Switzerland, entered a follow-up phase focusing on the short-term outcome of children’s disorders in relation to socioeconomic factors known to influence parental behaviour.

7.100 The year also saw an expansion of WHO activities aimed at elucidating the role of sociocultural factors in determining the nature, course, and outcome of mental disorders and the acceptability of public health and social measures. A consultation was held in Geneva in July to review current hypotheses and methods for the study of cultural factors in psychiatry and to suggest strategies for WHO-coordinated studies on the relationship between mental illness and culturally determined factors. In addition, investigators from six field research centres in five countries (Colombia, Czechoslovakia, India, Nigeria, and the United Kingdom) are collaborating with WHO in a cross-cultural study to develop a method for detecting and assessing in the general population the adverse psychological side-effects of fertility regulation methods. At a meeting in Nottingham, United Kingdom, in July, they adopted a study protocol that includes plans for the development of means of assessment to be used by nonmedical research workers, rather than, as in the past, by psychiatrists only.

7.101 The study begun in 1974\(^2\) on the standardized assessment of depressive disorders, in which five research centres have been collaborating, entered its follow-up phase. The data obtained from the initial evaluation of the five series of patients were analysed and discussed at a meeting of the collaborating investigators that was held in Basle, Switzerland, in December.

7.102 In the international pilot study of schizophrenia—a transcultural investigation of 1200 patients that is supported by the National Institute of Mental Health in the USA, by WHO, and by collaborating field research centres in eight countries\(^3\)—the five-year follow-up of the original cohort was completed during the year. A comprehensive and standardized reassessment has been made of 75% of the patients and the data analysis has begun. Also during 1975, the data analysis of the two-year follow-up study was completed. The results indicate that schizophrenic patients in the developing countries had a consider-\(^ally\, less\) disabling two-year course of the disease than did patients in some of the developed countries, and that sociocultural characteristics of the patients were strong predictors of the course and two-year outcome of the disease. On the strength of these findings, the collaborating centres are undertaking further research in the role of the family environment and social attitudes towards mental illness in the causation of the disablement associated with mental disorder. The second volume of the pilot study report is being readied for publication. Since the results of this pilot study have important implications for the effective planning and delivery of health care in different sociocultural settings, a short version of the first volume of the report was issued for widespread dissemination to public health administrators and nonspecialists.\(^4\)

7.103 At a consultation held by the Organization in Washington, DC, in December, case-finding methods for epidemiological research and for mental health care planning in different parts of the world were reviewed. Since case-finding is central to the study of mental disorders but is beset with difficulties, the consultants proposed a WHO-coordinated international conference at which technical guidelines to aid researchers and administrators would be developed.

7.104 The need for expertise in epidemiological research is greatest and most urgent in the developing countries, but this expertise will clearly have to be built up in accordance with the specific conditions prevailing there. To facilitate this, three studies relating to methodological problems in psychiatric epidemiology have been coordinated by WHO. One of these has already been completed: the Sri Lanka

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\(^2\) WHO Official Records, No. 221, 1975, paragraph 7.112.

\(^3\) WHO Official Records, No. 221, 1975, paragraph 7.111.

study of the feasibility of long-term follow-up of psychiatric patients in a predominantly rural society, begun in 1974. The results indicated that it was possible to identify, trace, and re-examine a high proportion of such patients who had been discharged from psychiatric care 2, 5 and 10 years previously. This finding has important implications for future studies of mental disorders in rural areas where there are few provisions for institutional psychiatric care.

For the second, WHO organized preliminary consultations and an exchange of case-histories in preparation for a study of acute psychotic disorders in different cultures. Since such disorders reportedly constitute a considerable proportion of all psychiatric admissions in many developing countries, the study is designed to develop a method for their standardized assessment and classification. This will help clarify the role of cultures or subcultures in the precipitation of acute psychotic states, as well as the role of the community and traditional medicine in their prevention and treatment. The third study in this area is designed to yield methods for the measurement and prediction of functional impairment and social disability in patients suffering from psychotic disorders. This study was initiated in Bulgaria and Yugoslavia but is to be expanded to other countries to serve as a basis for disability prevention programmes in the developing world.

7.105 Two projects concerned with the development of national mental health information systems were begun in 1975. By means of a questionnaire, statistical information on admission and discharge rates, length of stay, etc., is being collected from psychiatric establishments in 40 countries in all Regions. In the second project, basic data are being obtained on the resource infrastructure of the national mental health services in eight countries in all Regions, initially by means of a questionnaire. A methodological study of cost/effectiveness analyses in psychiatric services and a second study on mortality patterns of the mentally ill are also in preparation.

7.106 In the Region of the Americas, research projects were initiated or continued on the traditional or "folk" therapy of mental disorders and on the epidemiology of epilepsy, psychiatric morbidity, and suicide in Brazil, Colombia, El Salvador, Peru, and Venezuela.

7.107 Several meetings were held in the South-East Asia Region to encourage epidemiological investigations, the development of community-oriented mental health services, and the training of mental health manpower. At a seminar held in New Delhi in February, psychiatrists from seven countries in the Region reviewed what is currently known about the epidemiology of mental disorders in the Region and identified needs and priorities for research.

7.108 To promote the application of basic epidemiological methods to the planning and evaluation of public health services under the conditions characteristic of the Eastern Mediterranean Region, a seminar on the subject was organized in Khartoum in February. It was attended by participants and observers from nine countries of the Region and by members of a WHO advisory group on psychiatric epidemiology.

**Biological psychiatry**

7.109 The Organization pursued its efforts to acquire further information about the biological basis of and mechanisms involved in mental health and disease. In accordance with previous recommendations by WHO expert groups, seven WHO Collaborating Centres for Research and Training in Biological Psychiatry were established, respectively, in Denmark, Federal Republic of Germany, Netherlands, Switzerland, United Kingdom, USA, and USSR. At a meeting of the collaborating investigators, held in Moscow in May, strategies and methodological approaches were decided on and priority areas for research were identified. Four research projects considered suitable for the network of collaborating centres were outlined: (1) a genetic study on affective disorder linked to colour blindness; (2) a psychopharmacological study on the relationship between plasma levels of psychotropic drugs and therapeutic responses; (3) an immunological study of endogenous psychosis; and (4) a biological variations study to examine seasonal fluctuations in psychiatric morbidity and their relationship to plasma drug levels and other biochemical factors.

7.110 In view of the great need to find effective methods for preventing mental disorders of major public health importance, a working group on primary prevention of schizophrenia in high-risk groups was organized jointly with the National Institute of Mental Health in the USA. Meeting in Copenhagen in June, the participants, from 10 countries and the World Medical Association, reviewed what is now known about the early detection of schizophrenia, examined methods and various possibilities for primary prevention, and discussed the ethical and legal considerations as well as the public health implications of such action.

7.111 The Organization’s collaborative network in psychopharmacology, which comprises 25 institutions, continued to study the efficacy, safety, and mechanisms of action of psychotropic drugs. As the result of special efforts to improve the exchange of information on clinical and experimental psychopharmacology, comprehensive information on effective treatment methods and fundamental research has been made available to 66 countries.

7.112 A book entitled *Advances in the Drug Therapy of Mental Illness*, based on the proceedings of a symposium organized jointly by WHO and the International Task Force on World Health Manpower in 1973, was prepared for publication.\(^1\)

7.113 At a consultation held in Geneva, in June, on the evaluation of psychoactive drugs, experts reviewed existing methods for the testing of these medicaments and discussed the possibilities of developing internationally acceptable guidelines for evaluation. They pointed out that evaluation of a new drug should include a comparison with nonpharmacological treatment as well as with other available drugs. It was emphasized that the testing of psychoactive substances in man should, in both developed and developing countries, be carried out under carefully controlled and supervised conditions, with particular attention to the way the drugs are metabolized in addition to their efficacy and safety. The evaluator must consider such factors as the type of treatment programme for which the drug is intended, the social milieu in which treatment is given, and the costs of drug treatment as against those of other types of therapy. Also to be taken into account are the differences in the responses of different populations, which can result from pharmacogenetic and nutritional differences, differences in the goals of treatment, and individual variation.

7.114 WHO maintained its collaboration with other bodies working in the field of biological psychiatry and psychopharmacology, in particular the World Psychiatric Association and the Collegium Internationale Neuropsychopharmacologicum.

*Neurosciences*

7.115 Two additional WHO collaborating centres for research and training in neurosciences were established, in Washington, DC, and in Moscow. At the collaborating centre in Marseilles, France, a study was initiated on the application of computerized axial tomography to neurological diagnosis. The examination of 500 patients suffering from epilepsy yielded highly encouraging preliminary results, showing that considerably greater precision in diagnosis of intracranial pathology can be achieved with this specialized brain scanner. A similar study has been undertaken by the centre in Montreal, Canada, where data are being collected on a total of 5000 neurosurgical and neurological patients, including 1000 epileptics. Computerized axial tomography represents an advanced method for differential diagnosis in the field of neurology, and steps were taken to extend research on the use of this technique.

7.116 A collaborative study was started in the Marseilles and Montreal centres and in the centre in Strasbourg, France, on the correlation of clinical improvement in epilepsy with the blood level of anticonvulsant drugs. Parallel to this work, preparations began for a study of the homoeostatic functioning of the cell membrane and its alterations in primary epilepsy. In another collaborative study with the University of Geneva and the centre in Strasbourg, the red blood cell model is being adapted for use in assessing the effects of antiepileptic drugs at the cellular level.

7.117 During the year, Part I of the *Dictionary of Epilepsy*\(^2\) was published in Japanese and Russian versions, which makes it now available in five languages. Part II, a multilingual index of the equivalent terms in English, French, Spanish, and Russian, is in preparation.

7.118 In the South-East Asia Region, a seminar on epileptic convulsions in the newborn was held in Bangalore, India, in July.

7.119 In its efforts to strengthen its programme in the neurosciences, WHO maintained close collaboration with the International Brain Research Organization, the International Federation of Multiple Sclerosis Societies, the International League against Epilepsy, and the World Federation of Neurology.

*Psychosocial factors and health*

7.120 In pursuance of resolution WHA28.50, by which the Twenty-eighth World Health Assembly, in May, requested that proposals be made for a programme on psychosocial factors and health, a

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\(^1\) *Advances in the drug therapy of mental illness*, Geneva, World Health Organization (in press).

review of current knowledge and of WHO's past work in the psychosocial area was carried out and a series of meetings and consultations attended by behavioural scientists, public health administrators, and experts in the field were held. Based on the information obtained, three medium-term objectives were defined: (1) the application of available knowledge through education and training of health personnel, the community, and decision-makers, which would lead to increased effectiveness and acceptance of health actions; (2) the development of methods particularly for the definition of psychosocial indicators, the standardization of terminology and measurement techniques, and information systems capable of providing and using psychosocial data; and (3) research concerning the health care needs of high-risk groups, particularly uprooted people, and concerning changes in family functioning under conditions of rapid social change. Protocols were prepared and, although the implementation of some of these activities is subject to the availability of funds, several activities were initiated. For example, in collaboration with the WHO Collaborating Centre for Research and Training in Psychosocial Factors, in Stockholm, a course on the behavioural and social aspects of health and health care was designed for health administrators. Also, the assessment of resources and needs in the behavioural sciences in the African Region continued, with site visits to four countries in West Africa (Benin, Ivory Coast, Senegal, United Republic of Cameroon); means of accelerating the development of training programmes suited to the needs of the communities visited were outlined. In addition, a publication based on the Technical Discussions that took place during the Twenty-seventh World Health Assembly was issued.1

7.121 Work on the project relating to juvenile delinquency2 continued. With the support of the National Institute of Mental Health in the USA and in collaboration with the United Nations Social Defence Research Institute, a workshop was held in Geneva in January on the mental health aspects of juvenile justice systems at which participants from nine countries in five Regions reported on the work done on the pilot project in their countries during 1974. The pilot project was terminated in December and a reassessment of WHO's role in this field is being made. In this connexion, a review of the Organization's work in the field of crime and delinquency was prepared for publication in the International Journal of Criminal Policy.

7.122 As a follow-up to previous activities in the European Region in the field of juvenile delinquency and deviant social behaviour, a working group on forensic psychiatry was convened in Siena, Italy, in October. The group considered the present state of forensic psychiatry under different control and treatment systems. Prevailing attitudes towards forensic psychiatry and its role in crime prevention and in the control and treatment of offenders were also discussed.

**Drug dependence and alcoholism**

7.123 Data on the influence and interaction of alcohol and psychoactive drugs on driver skills and traffic accidents continued to be collected in preparation for the expert meeting on this subject requested in resolution WHA27.59, and in September a consultation was held of experts from governmental, intergovernmental, and nongovernmental organizations to discuss the human, medical, and legal factors involved in traffic accidents. The following were felt to deserve priority: fact-finding on the characteristics and consequences of drug use in countries where prescriptions are not required; a study of physicians' prescribing habits, including cross-cultural differences in the prescription of psychoactive drugs; a comparison of the extent to which self-medication occurs in developed and developing countries; and a study of the attitudes of health professionals, including pharmacists and dispensers, on these and other aspects of psychoactive drug use.

7.124 Research on the dependence liability of drugs and on the neurochemical and pathophysiological consequences of the short-term and long-term use of these substances continued to be supported. The Organization published the report of the recent WHO Scientific Group on Evaluation of Dependence Liability and Dependence Potential of Drugs3 and a bibliography on the detection of dependence-producing drugs in body fluids.4 Significant progress was made during the year on the WHO-assisted comparative study of cannabis smoke and tobacco smoke. These substances were found to differ in their effects on the DNA complement of spermatids in testis enzyme systems and on putative transmitters subserving brain function and behaviour.

7.125 Also in the field of drug dependence, in response to resolution WHA28.80 the Organization gave advisory assistance to governments on developing and

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applying integrated services for prevention, early detection, treatment, and rehabilitation at the community level. In providing assistance, WHO continued to maintain close collaboration with other bodies working in the field of drug dependence, particularly the United Nations Commission on Narcotic Drugs, the International Narcotics Control Board, the United Nations Division of Narcotic Drugs, the United Nations Fund for Drug Abuse Control (UNFDAC), and such nongovernmental organizations as the International Council on Alcohol and Addictions. In this connexion, the seven UNFDAC-supported projects initiated in 1972, 1973, and 1974 were continued, and a manual on the subject of drug dependence was published with UNFDAC support.

7.126 One of the above-mentioned seven projects, namely, the interregional study of the epidemiology of drug dependence, became operational early in 1975. As the result of a review showing that the previously drafted guidelines for reporting information on the nonmedical use of dependence-producing drugs were too complex for pilot testing, it was decided to develop model epidemiological methods and data-management systems, in collaboration with countries having serious drug-dependence problems, as a first step toward improving the quality and comparability of data.

7.127 The Health Assembly, in resolution WHA28.81, called for special attention to be given in the future programme of WHO to the extent and seriousness of the individual, public health, and social problems associated with the use of alcohol and the trend toward higher levels of consumption; and for the development of comparable information systems on alcohol consumption and other relevant data needed for a public-health-oriented alcohol policy. In continuation of activities related to alcoholism and in pursuance of this resolution, the first stage of a series of projects aimed at the assessment and reduction of disabilities related to alcohol consumption was completed. With the support of the National Institute on Alcohol Abuse and Alcoholism in the USA, the social, psychobiological, psychiatric, economic, and legislative aspects of these disabilities were extensively reviewed in preparation for a WHO meeting of investigators to define criteria for identifying and classifying disabilities related to alcohol consumption. At the meeting, held in Geneva in July, it was pointed out that, whereas frequently only the physical, mental, and social disabilities that cluster around the alcohol-dependence syndrome are dealt with, the syndrome itself—criteria for which were defined—constitutes an important disability that should be diagnosed and treated. It was noted, however, that many individuals experience alcohol-related problems without suffering from this syndrome.

7.128 To plan a community’s response to the whole range of alcohol-related problems, research on the patterns of occurrence as well as on the availability and utilization of preventive and treatment measures is required. To this end, protocols were prepared for pilot investigation in one community with a view to developing methods that would be of use in a variety of cultural and socioeconomic settings where it is wished to improve community response.

7.129 The collaborative project of the Finnish Foundation for Alcohol Studies, the Addiction Research Foundation of Ontario, Canada, and WHO concerning alcohol control policies and public health was completed. The primary consideration was the effectiveness of measures to control the supply of alcohol for the prevention of alcoholism. The issue was discussed further at a meeting held in Toronto, Canada, in August for finalization of the report; in view of the inadequacy of available statistics it was suggested that international organizations should take over the task of improving the validity, compilation, and analysis of statistics on both alcohol production and consumption and the public health effects of heavy consumption, with the aim of devising and improving alcohol control policies for public health programmes. WHO is reviewing means of following up this suggestion in collaboration with other bodies.

7.130 In the Region of the Americas, advisory assistance was given to the Government of Mexico in planning treatment programmes and in developing protocols for additional research on the health consequences of the use of cannabis, cocaine, heroin, indigenous hallucinogens, and volatile solvents. Several of these research studies are now in progress.

7.131 In the South-East Asia Region, technical assistance was provided to reduce the increasing problem of drug dependence and alcoholism in Burma, India, Indonesia, and Thailand. A United Nations/ILO/FAO/WHO mission again visited Burma and finalized the plan for the UNFDAC-supported project for crop substitution and health activities related to education, prevention, treatment, and rehabili-

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tation. Documentation services and audiovisual material were provided for a second course, in New Delhi, on narcotics control and enforcement for customs and excise officers in India. Similar technical assistance was provided to Indonesia for the convening in December of a national seminar for officers involved in the prevention and control of drug abuse. The work plan for the UNFDAC-supported drug dependence project in Thailand was revised to strengthen the delivery of treatment and after-care services in the urban areas, and to provide realistic therapeutic and rehabilitative measures for the rural areas.

7.132 In the European Region, a symposium on the planning and organization of services for alcoholism and drug dependence, held in Albi, France, in July, placed emphasis on programme evaluation as an integral part of programme activities and stressed the need to involve in planning and evaluation all community-based institutions.

7.133 Activities relating to drug dependence problems in the Eastern Mediterranean Region were carried out in Egypt, Iran, and Pakistan. In Egypt the Organization collaborated in a review of the current treatment approaches for drug-dependent persons in that country and guidelines were prepared for improving and systematizing the treatment programme. In a continuation of a study in progress for several years in Iran, a comparison of treatment modalities was pursued. This study has already indicated the importance of including the existing services when designing effective management programmes for drug-dependent persons. Assistance was provided to Pakistan for epidemiological studies in Lahore on the long-term effects of chronic cannabis use and for the development of a treatment programme for drug-dependent persons in Karachi. Follow-up visits were made to Pakistan by the United Nations, ILO, FAO, and WHO to complete the work plan for a new integrated UNFDAC-supported country programme in drug dependence.

7.134 The growing concern of countries in the Western Pacific Region with problems associated with drug dependence and alcoholism has been reflected in resolutions adopted by the Regional Committee at its sessions in 1972, 1974, and 1975. In pursuance of these resolutions, a number of activities were initiated during the period under review. The report of the 1974 working group on measures for the prevention and control of drug dependence was sent to all governments in the Region to stimulate their interest and strengthen programmes in this area. At the meeting of a second working group, convened in November to review health education programmes for young people, the importance of integrating preventive education on drug dependence into the school or university curriculum for students of various ages was emphasized, as was the need to provide assistance in developing curricula and teaching materials for this purpose. Such assistance was provided to the University of the Philippines. Assistance was also provided to the Republic of South Viet-Nam in establishing a national centre for the treatment and rehabilitation of drug-dependent persons.

**Radiation medicine**

7.135 During the past few years it has become increasingly clear in many countries that the limited availability of radiation medicine constitutes a serious problem. In most developing countries, for example, the number of X-ray examinations per capita and per year is less than 1% of that in industrialized countries; moreover, the examinations are almost entirely limited to the larger cities. In the Organization's programme, therefore, the biomedical aspects of radiation are treated separately from the environmental aspects, and greater emphasis is being placed on improving the availability of radiological services and the quality of diagnostic and therapeutic results, while at the same time promoting radiation protection to avoid undue exposure of patients, staff and the public as a whole.

7.136 The Organization continued to help promote the establishment and improvement of diagnostic radiological services through the optimization of equipment and facilities in relation to the needs, available resources and trained manpower. Assistance in this respect was given to countries in all the Regions, in particular to Bangladesh, Burma, India, Liberia, Thailand, Uganda, and Zaire. Special attention was given to the development of basic radiological services in rural and district hospitals and health stations. In the Region of the Americas, for example, a meeting was held in Washington, DC, in March, to work out a radiology system that is cheap and easy to operate and can be used in primary health centres under difficult climatic and other adverse conditions.

7.137 The lack of maintenance and repair facilities in developing countries—resulting from a dearth of

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1 WHO Official Records, No. 221, 1975, paragraph 7.132.


4 The environmental aspects are considered in paragraphs 10.91-10.98.
qualified engineers and radiological technicians—constitutes a serious handicap for the functioning of radiological services. From both the technical and the economic point of view it is usually not possible to rely entirely on the suppliers of equipment for maintenance and repair, and governments are showing increasing interest in establishing their own services. WHO continued to assist a number of countries in the African, Eastern Mediterranean and Western Pacific Regions in this respect. By way of example, mention might be made of the assistance provided in the last-named Region for the development of medical engineering services in Laos, the Philippines and Singapore; help was also given to the Cook Islands, New Hebrides, Niue, the Solomon Islands, Tonga, and Western Samoa.

7.138 In an international study on gonad doses and somatic exposure due to diagnostic radiology, data collected in the Federal Republic of Germany, the Netherlands, Romania, and the United Kingdom are being compared, with evaluation of the technical parameters, equipment and working methods used. Preliminary results indicate the need for a new mathematical approach in order to obtain representative data on the exposure of patients to radiation. UNSCEAR and UNEP are collaborating with WHO in this study.

7.139 Radiotherapy services are still completely lacking in some countries and inadequate in many others as regards equipment, methodology and, particularly, accuracy of dosimetry. An atlas of typical treatment plans for fixed-field cobalt-60 teletherapy was finalized, in collaboration with IAEA, which is to publish it in its series of atlases on dose distribution. It gives examples of treatment strategies and plans for the most common cancer sites, the information having been provided by more than 50 radiotherapy centres in Australia, Brazil, Canada, Czechoslovakia, Denmark, France, the Federal Republic of Germany, Hong Kong, Hungary, India, Japan, Peru, Sweden, the United Kingdom, USA and USSR.

7.140 IAEA and WHO collaborated in the organization of an interregional seminar on the use of afterloading techniques in the treatment of gynaecological cancer, held in Hyderabad, India, in February. Afterloading is the most modern and effective method for the intracavitary application of sealed radioactive sources, particularly in gynaecological radiotherapy. It ensures a more accurate application, resulting in better therapeutic results, and reduces the radiation dose to which staff are exposed. This method could be especially valuable in developing countries, where fully equipped and staffed radiotherapy centres are rare and the frequency of cancer of the cervix uteri, in particular, is high. The radiotherapy experts from nine countries who attended the seminar made recommendations on the most appropriate methods for use of the afterloading technique under different conditions, and drew up guidelines for the organization of services.

7.141 During the year the Organization provided advice and assistance to a number of countries in the African, South-East Asia and Eastern Mediterranean Regions regarding the establishment or development of radiotherapy services. The prototype of a radiotherapy contour plotting device was made available to Brazil, so that such devices could be made in the country. The IAEA/WHO postal dose intercomparison service for cobalt-60 radiotherapy was continued, with the participation of 80 institutes in Central and South America, Europe and the Western Pacific Region.

7.142 WHO-assisted research related to radiotherapy covered primarily problems of dose fractionation, time factors, tumour and tumour-bed reaction and fundamental molecular processes.

7.143 A Joint IAEA/WHO Expert Committee on the Use of Ionizing Radiation and Radioisotopes for Medical Purposes (Nuclear Medicine) met in Geneva in October. It examined the most effective ways in which nuclear medicine can be used, making a cost/benefit analysis of nuclear medicine procedures in comparison with alternatives and defining the optimum level and scope of nuclear medicine services in different circumstances—in particular, in countries with medical and public health services at widely differing stages of development. The Committee also outlined the requirements for nuclear medicine services in different types of medical institutions (as regards premises, staff, equipment, radiopharmaceuticals, and funding) and made recommendations on their organization within the health services as a whole.

7.144 The Organization provided advice and assistance on the development of nuclear medicine services, including specifications for premises and equipment, and the organization of laboratories, to a number of countries, particularly in Latin America and in the South-East Asia and Eastern Mediterranean Regions.

7.145 Volumes 2 and 3 of the manual on radiation protection in hospitals and general practice, jointly sponsored by ILO, IAEA and WHO, were published during the year. Volume 2 reviews radiation protec-

tion requirements in hospitals using unsealed radio-
active sources, and discusses the problems associated
with the administration, handling and transportation
of these sources. It also describes the design, con-
struction and management of nuclear medicine de-
partments, and provides guidance on methods of reducing
the exposure of patient, staff and the general public.
Volume 3, on X-ray diagnosis, reviews the organiza-
tion of radiation protection, the choice of X-ray equip-
ment, the siting and construction of radiology depart-
ments, and the conduct of radiation surveys.

7.146 WHO continued to assist countries in the orga-
nization and implementation of radiation protection
measures. In the Region of the Americas, for instance,
Argentina, Brazil, Colombia, Guatemala, Mexico,
Nicaragua, Uruguay, and Venezuela received such
assistance. Particular emphasis was on training; an
example of the Organization's activities in this field
is the interregional course on radiation protection,
supervision, and inspection—the fourth in a series
of biennial courses—held in Denmark (see Table 2).

7.147 The film badge service for the regular moni-
toring of personnel exposed to ionizing radiation was
continued. About 450 film badges were supplied
monthly free of charge by the Central Protection Service
against Ionizing Radiation, Le Vésinet, France, to
countries in the Eastern Mediterranean Region, and
about 400 by the Institute for Radiation Protection
and Environmental Health, Neuherberg, Federal
Republic of Germany, to nine countries in the South-
East Asia and Western Pacific Regions.

7.148 Close collaboration was maintained with the
International Commission on Radiological Protection
(ICRP) on the collection and evaluation of data on
radiation exposure. WHO participated in the biennial
meeting of the ICRP in Brighton, United Kingdom,
in April, when the new basic recommendations of the
ICRP were discussed; these will replace the current
recommendations, which at present serve as guidelines
for almost all radiation protection activities, both at
the national and international level.

7.149 The standardization of dosimetry and of mea-
surements of radioactivity in radiodiagnosis, radio-
therapy and nuclear medicine is an important aspect of
the Organization's work in radiation medicine. The
network of secondary standard radiation dosimetry
laboratories being established by WHO in collabora-
tion with IAEA plays a major role in this respect,
through the improvement of knowledge on dosimetry
and the provision of facilities for training and regular
calibration and recalibration of dosimeters and radia-
tion protection instruments. Their activities are not
limited to metrology and calibration, since they also
include the provision of advice and training in clinical
dosimetry. As an example of their work, mention
might be made of the collaboration of the laboratory in
Buenos Aires in a study carried out to ensure the
efficiency of radiation dosimetry film badge services
in four countries of the Region of the Americas.
During 1975 WHO provided assistance for the develop-
ment or improvement of radiation dosimetry services
in Burma, India, Jordan, Lebanon, Libyan Arab
Republic, Malaysia, Philippines, Republic of Korea,
Singapore, Sri Lanka, Syrian Arab Republic, and
Tunisia. In the Philippines and the Republic of Korea
national reference centres are being established with a
view to overcoming the problems arising from inade-
quate maintenance and calibration of dosimeters.

7.150 The Organization has continued to collaborate
closely in this field with the International Commission
on Radiation Units and Measurements (ICRU), with
the main objective of developing standards and units
for the measurement of ionizing radiation. ICRU's
work is of particular interest to WHO because the
increasing use of high voltage radiation and of neu-
tron-proton and meson-radiation for the therapy of
cancer calls for the development of special dosimetric
methods, and of practical methods for the measurement
of absorbed dose.

Human genetics

Population genetics

7.151 Population genetics is essentially a quantitative
science, and the increasing use of the computer has
permitted analyses of intricate genetic situations at the
population level. Such studies may be useful for the
study of evolutionary processes in human populations
and for genetic counselling. In one WHO-supported
study, carried out by the University of Parma, Italy,
an analysis was made of consanguinity levels in the
whole of Spain retrospectively for the period 1911-
1943. Vatican records of ecclesiastical dispensations
for consanguineous marriages were consulted and the
diocesan figures then related to marriage data from
civil registration sources. The frequency of consan-
guineous marriage was found to be high throughout
the time-span of the study, ranging from 3.80 per 1000
marriages in the subperiod 1935-39 to 6.19 in 1920-24,
and was consistently higher than in Belgium, France,
and Italy (according to published data) for roughly
corresponding periods.
7.152 Study of the genetic constitution of populations should increase knowledge of the susceptibility to diseases and therefore of their distribution. A research project on genetic markers and susceptibility to infectious diseases was initiated by the Organization in 1975 with the cooperation of WHO collaborating centres for human genetics, the main purpose being to extend the use of polymorphic markers in blood components—especially the HLA histocompatibility complex, immunoglobulins, and the complement system—with a view to the study and possibly the control of infectious diseases. Work has already begun on malaria.

7.153 In another WHO-assisted study on population genetics, phenylthiourea-tasting ability was investigated among a sample of about 2000 people in Nigeria by the University of Ibadan. The frequency of non-tasters was observed to be 12% (14% of the men and 10% of the women).

Cytogenetics

7.154 Support was given to the Johns Hopkins University School of Medicine, Baltimore, MD, USA, for the establishment of an international compilation of data on chromosomal variants and anomalies. Up to August, 9066 cases of variants and anomalies had been reported from 17 countries throughout the world. This will facilitate the location of data for karyotype-phenotype relationship studies and genetic counselling.

7.155 Aid continued for the karyotypic study of newborn infants being carried out by the Institute of Medical Genetics in Moscow. Among 4500 liveborn children selected at random, 31 (0.69%) were found to have chromosomal structural or numerical anomalies; in 160 cases of stillbirth or neonatal death the frequency was much higher (6.9%), reflecting the importance of chromosomal constitution as a factor for survival.

7.156 For several years WHO has supported studies on human chromosomal anomalies conducted by the Institute of Genetic Studies in Bangalore, India. During 1975, work was carried out on heterochromatin and the differential regulation of homologous genes in different genetic systems, the aim being to provide a basis for understanding the nature of chromosomal disturbances.

Haemoglobinopathies and allied disorders

7.157 In a WHO-assisted study of the frequency of haemoglobinopathies in Romania, carried out by the Centre of Haematology in Bucharest, an investigation was made of subjects of both sexes between 14 and 65 years of age from various parts of the country, especially the southern areas. The study population comprised 7940 persons selected at random and 1502 who were regular blood donors. The lower frequency of beta-thalassaemia found in the latter group (0.2%) in comparison with the former (0.4%) is attributable to the fact that blood donors are likely to be healthier than the population at large owing to the regular medical screening to which they are subjected.

7.158 WHO is also supporting a study on thalassaemia at the University of Ferrara, Italy. Data on carriers of the thalassaemia gene have been accumulating at the Ferrara Thalassaemia Centre since 1948. An archive has been established which lists more than 1100 families in the Ferrara area that have at least one member carrying the gene. A coding manual was prepared for these data, which are being subjected to computer analysis.

Activities of WHO collaborating centres

7.159 The WHO Collaborating Centre for Reference in Processing of Human Genetics Data, in the University of Hawaii, Honolulu, USA, concentrated its efforts on the study of formal human genetics and population structure, covering investigations of large deviations in the distribution of rare genes, analysis of ABO mating type frequencies, analysis of family resemblance, and a genetic study of cleft lip and cleft palate.

7.160 A summary was made by the WHO Collaborating Centre for Abnormal Haemoglobins, in the University of Cambridge, United Kingdom, of its work on the laboratory detection of haemoglobinopathies, including a description of methods for the detection of sickle-cell haemoglobin, fetal haemoglobin, and haemoglobin H. At the present time about 250 variants of human haemoglobin can be detected.

7.161 The WHO Collaborating Centre for Glucose-6-Phosphate Dehydrogenase in the University of Ibadan, Nigeria, has been working on the clinical and biochemical aspects of glucose-6-phosphate dehydrogenase (G6PD) deficiency. The mechanisms of haemolysis, the role of the spleen, and erythropoietic response were studied for the detection of sickle-cell haemoglobin, fetal haemoglobin, and haemoglobin H. At the present time about 250 variants of human haemoglobin can be detected.
8. IMMUNOLOGY

8.1 In recent years new knowledge on basic immunology has grown very rapidly, yielding discoveries valuable both for understanding the etiopathogenesis of a wide range of conditions of public health importance—from the bacterial and parasitic diseases to the collagen diseases—and for improving methods of treatment. In leprosy, the understanding of the basic immunological defect responsible for the development of the lepromatous form of the disease has made it possible to undertake research on means of correcting this defect by the use of such substances as transfer factor or other immunological adjuvants. In parasitic diseases (e.g., malaria, schistosomiasis, trypanosomiasis) the role played in pathogenesis by the deposition in the tissue of antigen-antibody complexes has been established. These findings provide a guide to better treatment and to prevention and constitute part of the foundation for the work of the task forces in the special programme for research and training in tropical diseases, to which reference has been made in paragraphs 5.8-5.12. The network of WHO Immunology Research and Training Centres now operating in all Regions has been instrumental in carrying out much of this research, in close cooperation with local institutions.

8.2 Immunological techniques are now commonly used for the diagnosis and treatment of a number of clinical conditions, and this implies the standardization of the reagents and methodology to ensure that the results are comparable and reliable. The Organization's programme for the standardization of some of the most common reagents was continued during the year in cooperation with the International Union of Immunological Societies and with the financial support of the Governments of Canada, Federal Republic of Germany, and Sweden. Two collaborative studies for the assessment of fluorescein-labelled anti-immunoglobulin sera were completed during the year and preliminary tests were carried out on a fluorescein-labelled anti-IgM serum. In an effort to establish a suitable standard for serum protein, preliminary testing was done on eight preparations. The national standard of carcinoembryonic antigen that was provisionally accepted in December as an international reference preparation (see paragraph 9.26) was also derived in part from studies in a number of immunological laboratories collaborating with WHO.

8.3 Alpha-chain disease and its relation with lymphoma of the small intestine presents an interesting clinical model by which to study the relationship between infection, environmental factors, and the development of malignancy. With the financial help of the National Cancer Institute (USA) a meeting was held in November to plan a multidisciplinary study of this condition, and protocols for the investigation of patients in several countries were prepared.

8.4 Recent advances in immunology have made possible the preferential stimulation or inhibition of either cell-mediated or humoral immunity. This ability to manipulate the immune response has many important implications, ranging from the production of better vaccines to, possibly, the immunotherapy of tumours. The use of immunological adjuvants represents one way of stimulating the immune response; in October a WHO scientific group reviewed the present state of knowledge in this field and considered how newly discovered adjuvants can be used in the preparation of vaccines.

8.5 Although it has long been known that complement is necessary for the lysis of infectious organisms, the role played by the different components of this very complex system remains undetermined. However, the identification of persons with specific deficiencies of one or another of these components and serological investigation of them should help to elucidate the role of these components. The Organization designated institutions in the United Kingdom and the USA as WHO collaborating centres for the study of complement deficiencies, and the centre in Lausanne, Switzerland, concerned with immunoglobulins will also take this work within its compass.

8.6 In recent years the importance of genetic factors associated with HLA histocompatibility antigen in increasing susceptibility to certain autoimmune diseases, ankylosing spondylitis, and the like has been established. To ensure the comparability of research results, however, it is necessary to have a standard nomenclature and standard reagents. The problems involved were discussed by the investigators at the
WHO collaborating centres concerned with leucocyte antigens on the occasion of the Sixth International Histocompatibility Workshop Conference, held in Denmark in July. At a meeting arranged by WHO they prepared for publication an agreed nomenclature for newly discovered specificities.

8.7 The WHO collaborating centre concerned with tumour-specific antigens, in Moscow, continued investigations into the nature of the cells producing α-fetoprotein and the possibility of the development of autoimmunity against that protein. A study of the nature of the antigens on virus-induced leukaemia cells that was completed during the year showed that in some cases the antigenic components of the virus and of the diseased cell were identical; this suggests the possibility of immunization against leukaemia by killed or attenuated virus (see also paragraph 4.202).

8.8 The WHO collaborating centre dealing with the serology of autoimmune disorders, in London, devised a simplified test for the routine clinical detection of antiglobulin. The results accorded with those obtained earlier at this centre with the more cumbersome test previously required; those had shown raised antiglobulin in seropositive and seronegative rheumatoid arthritis patients and in patients with other collagen diseases.

Immuno1ogy Research and Training Centres

8.9 The WHO Immunology Research and Training Centres provide an essential service in training research scientists, particularly from developing countries, in both basic and advanced immunology either on an individual basis or through organized courses; the courses held in 1975 are shown in Table 2. The paragraphs below describe some of the research activities conducted by the centres during the year.

8.10 The WHO immunopathology laboratory in Geneva and the WHO Immunology Research and Training Centre in Lausanne were integrated in 1975 to make for improved training facilities and closer cooperation in research.

8.11 In Geneva the immunopathology of rheumatic disease and particularly of immune-complex diseases, such as rheumatoid arthritis and systemic lupus erythematosus, was studied in order to develop better immunological methods for diagnosis and the evaluation of severity. The monitoring of patients with systemic lupus erythematosus showed that the level of immune complexes increases a few weeks before the exacerbation of the clinical state. This finding should permit more timely treatment. In the course of these investigations new methods were developed for the detection of immune complexes in serum and other biological fluids and of the catabolism of complement components; the detection of the breakdown products of complement in synovial fluids was shown to be of value in the diagnosis of rheumatoid arthritis. Investigation in experimental animals of the mechanisms by which renal lesions are produced by immune complexes suggested that bacterial endotoxins may play a very important role. It was also shown that autoimmune reactions against DNA occur in human leukaemia, a finding that may prove important for understanding the etiology of leukaemia.

8.12 Immunological methodology developed at the Geneva centre has been applied to communicable as well as chronic diseases. In studies to evaluate the role of immunopathological mechanisms in African trypanosomiasis the presence of the immune complex in the lesions in muscle, including the heart, was clearly demonstrated. Further confirmation was obtained of the role of a particular toxin in the pathogenesis of the haemolytic anaemia associated with trypanosomiasis and the toxin was isolated in a purified form. Injection of this toxin to elicit antibody in experimental animals is now under study as a step towards developing an immunization procedure in trypanosomiasis (see also paragraph 5.78). A collaborative project for the evaluation of methods for the detection of immune complexes in both communicable and noncommunicable diseases is also under way; 11 centres in 7 countries are participating.

8.13 The Lausanne centre, applying an immunofluorescence technique developed there for the study of antigens present on the membranes of endoparasites, showed that exposure of Trypanosoma to specific antibodies causes the membrane antigens to “cap” at one pole of the cell and then disappear for some time, just as is the case with Leishmania and with lymphocytes. The capping phenomenon is optimal at 37°C. The same technique was used to investigate the sequence of appearance of different antigens on the parasite membrane with the aim of clarifying the mechanism of antigenic variation that may allow the parasite to escape the immune mechanism of the host.

8.14 Research at the centre in Singapore showed that the frequency of hepatitis B antigen in patients with hepatocellular carcinoma and in Chinese blood-donors without known carcinoma was 70% and 15% respectively; this investigation is linked with the hepatitis B survey mentioned in paragraph 4.54. A technique of

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radio electrocomplexing developed at the centre was applied for the characterization of antigen in seminal plasma; several antigenic fractions were characterized that will be used to look for antibodies present in the serum of infertile women in an attempt to elucidate the cause of their infertility. Reference was made in paragraph 7.31 to Singapore 2 histocompatibility antigen and its association with nasopharyngeal carcinoma in Singapore; the WHO collaborating centres concerned with leucocyte antigens that are working with the Singapore centre have found this antigen to be present also in populations elsewhere in the South-East Asia and Western Pacific Regions, and its frequency and possible association with other diseases are under investigation. During the year the centre also assisted in the establishment of a department of immunology in the Institute of Medical Research, Kuala Lumpur.

8.15 The centre in New Delhi, continuing its research on the relationship between immunology and malnutrition, confirmed that rats with protein-calorie malnutrition and vitamin A deficiency suffered a more severe infection with *Plasmodium berghei* than did adequately nourished rats and died within 3-4 days of parasite challenge. However, rats with protein-calorie malnutrition but with normal vitamin A intake recovered from the infection. Other research at this centre concerned the enhancing effect of some polynucleotides on the immune response to several antigens; the demonstration that one of these substances, poly A. poly U, has a greater effect on bone-marrow-derived (B) cells than on thymus-derived (T) cells may prove of importance for the preparation of vaccines against those diseases for which humoral (B-cell) immunity is required. It was shown as well that in patients with lepromatous leprosy phytohaemagglutinin induces transformation of lymphocytes and inhibits the formation of T-cell rosettes; this defect is reversible by therapy. The centre also organized a service for tissue typing in support of a kidney transplant programme in Vellore, India.

8.16 At the Beirut centre research was conducted to assess the role of cell-mediated immunity in resistance to *Salmonella typhimurium* in experimental animals; better understanding of the basic immunological mechanisms operating in *Salmonella* infections would contribute to improved immunizing agents for human use.

8.17 The centre in Nairobi, in cooperation with the Wellcome Trust Research Laboratory and the Kenyan National Public Health Laboratories, has continued research on the immunology of schistosomiasis. The demonstration of immune complexes in the granulomatous lesions in the liver and gut of infected baboons raises the possibility of their interference with cellular reactions; this may throw new light on the immunopathology of hepatosplenic schistosomiasis. The centre also provided facilities for local and visiting scientists who were studying the epidemiology and immunology of schistosomiasis and helped in the development of a clinical immunological service at the University Hospital in Nairobi.

8.18 The centre in São Paulo, Brazil, has pursued its research on the mechanisms regulating the production of homocytotropic antibodies, which are responsible for the clinical manifestation of allergy. It was shown that the association of antigen with a characterized fraction of *Bacillus pertussis* potentiates the production of this type of antibody in experimental animals. In experimental Chagas' disease the injection in mice of *Leptomonas pessoai* was found to decrease the severity of the disease after inoculation with a mildly virulent strain of *Trypanosoma cruzi*, but the effect was negligible when a fully virulent strain was used.

8.19 At the centre in Mexico City, it was found that mice infected with *Mycobacterium lepraemurium* when challenged with *T. cruzi* showed a more acute form of leprosy, apparently due to depression of cell-mediated immunity. Patients with different forms of leprosy were also studied at this centre, and it was shown that the levels of immune complexes and C-reactive protein are elevated in patients with lepra reaction. Encouraging therapeutic results were obtained by the use of transfer factor in patients with disseminated coccidiodomycosis, mucocutaneous candidiasis and lepromatous leprosy.
9. PROPHYLACTIC, DIAGNOSTIC AND THERAPEUTIC SUBSTANCES

9.1 Following the adoption by the Twenty-eighth World Health Assembly of resolution WHA28.66, a consultation of experts from both developed and developing countries was convened in Geneva in July to advise on ways in which the Organization can assist Member States in the formulation of national drug policies. They emphasized that a clear formulation of such policies is particularly important in developing countries for the optimal use of available resources and for health development. The basic aims of a national drug policy are to ensure that drugs are available to cover the health needs of different communities, and to establish priorities. The formulation of policies is the responsibility of the countries themselves, and requires expertise in the various aspects of drug problems such as research, production, evaluation, quality control, distribution, utilization and cost; implementation of the policy requires an effective national drug control system. Stress was laid on the importance of the leadership and guidance of WHO in assisting countries in the formulation and implementation of policies and in the stimulation of international cooperation and regional activities in this field. In the light of these considerations the Organization's programme was reviewed in an attempt to provide Member States with a service that will better answer to their individual needs in this sector, and a new sub-programme on drug policies and management was instituted towards the end of the year.

9.2 Rationalization in the supply, control and utilization of drugs had been the subject of the Technical Discussions at the 1974 session of Sub-Committee A of the Regional Committee for the Eastern Mediterranean, and the Sub-Committee had adopted a resolution emphasizing the need for well-planned national policies, and the importance of regional cooperation. A working group on rational drug therapy therefore met in Alexandria in March 1975 to consider the questions of efficacy, safety and economy. It recommended that studies be undertaken in the Region on factors determining the physician's prescribing pattern and the drug-taking behaviour of the population; it stressed the need for improvements in undergraduate and postgraduate training in therapeutics and for a drug information service, controlled by the health authorities, for both practising physicians and medical auxiliaries.

9.3 Pharmacology and drug control received priority attention in the work of WHO in the European Region, where a series of annual symposia on clinical pharmacological evaluation in drug control has been organized with the collaboration of the Ministry of Youth, Family Affairs and Health of the Federal Republic of Germany. These symposia, the fourth of which was held in Deidesheim in November, provide an opportunity for clinical pathologists and responsible drug control officers from Member States, as well as representatives of a number of nongovernmental organizations, to discuss current problems and strengthen collaboration. Items discussed at the 1975 symposium included problems related to rational drug therapy, such as the selective and nonselective registration of drugs, the responsibility for providing drugs for rare diseases and for diseases prevailing outside the country of origin, and the assessment of herbal and traditional remedies.

Drug evaluation and monitoring

9.4 Experience has shown that neither exhaustive preclinical investigations nor even properly conducted clinical trials can ensure complete protection against the unpredictable and sometimes serious adverse effects of drugs that may occur in the course of widespread and prolonged medical use. The monitoring of drugs that are used in medical practice in differently constituted populations who have varying disease patterns and are subject to different systems of health care is therefore an essential task—and one that only an organization such as WHO is in a position to undertake. The systematic collection and analysis of reports on adverse reactions to drugs has become a matter of great importance in the reassessment of marketed drugs. While effective drug monitoring systems are already in operation in many developed countries, it is recognized that there is a great need to establish simplified procedures and promote this activity on a wider scale in developing countries. Details of all drugs reported to the WHO centre for the international monitoring of adverse reactions to drugs are made available to all Member States, but resources in many developing countries are at present inadequate to evaluate the information in relation to their own situation. In accordance with resolution WHA28.66,
the method of exchange of information under the international system for drug monitoring is being optimized so that it will be of greater use to both developed and developing countries; studies are being undertaken to determine the methods by which information received from drug monitoring centres can be selectively reviewed and meaningfully communicated to developing countries to inform them of potential drug hazards.

9.5 During 1975 the number of monitoring centres systematically contributing data to the WHO centre increased to 21. As at 1 November 1975, altogether 101,775 reports of adverse reactions to drugs under 9700 different names were included in the centre’s files.

9.6 As part of the medical and scientific investigation of suspected adverse reactions reported to the centre, WHO-assisted studies aimed at identifying patients receiving certain drugs and determining the pattern of drug-induced diseases were continued in centres undertaking intensive monitoring. Efforts were made to stimulate research in developing countries despite the difficulties in finding suitable institutions to carry out this work. Thus, in addition to the continuation of research in Bombay, India (where the results of a pilot study for intensive hospital monitoring of adverse reactions to drugs are being evaluated with a view to determining priorities for research), a pilot project was started in Indonesia, in Jakarta. In this connexion, mention might also be made of WHO-assisted research on criteria for drug safety, being carried out at the University of Ibadan, Nigeria. It includes pharmacological evaluation of individual drugs (antiparasitic and chemotherapeutic drugs in general), and studies on approaches by which clinical pharmacological methods can improve the evaluation of safety and efficacy of marketed drugs in a developing country.

9.7 The feasibility study on the establishment of an international information system on the registration of drugs in Member States, started in 1974 in accordance with resolution WHA26.30, was continued. WHO collected data on the registration and evaluation systems and on the new products registered in the 26 countries participating in this study, and forwarded to them the results of the accumulated data, for their comments. Methods of drug recording developed by the WHO centre for international monitoring of adverse reactions to drugs are being used in this study.

Pharmaceuticals

9.8 In May the Twenty-eighth World Health Assembly, in resolution WHA28.65, adopted the revised version of the requirements for “Good practices in the manufacture and quality control of drugs” recommended by the WHO Expert Committee on Specifications for Pharmaceutical Preparations in November 1974.

9.9 The Assembly also adopted a revised certification scheme on the quality of pharmaceutical products moving in international commerce. For products imported under this scheme, the health authorities of the exporting countries would provide a certificate that the product is authorized for sale in the exporting country, and that the plant in which it is produced is subject to regular inspection to ensure that it conforms to the above-mentioned “Good practices in the manufacture and quality control of drugs”. Under the scheme, the importing country may also request from the authorities of the exporting country additional information on the controls exercised on the product.

9.10 The WHO Expert Committee on Nonproprietary Names for Pharmaceutical Substances, at its meeting in April-May, revised the general principles for guidance in devising the international nonproprietary names in the light of recent developments in the pharmaceutical field. The report discusses present policies and trends, which are mainly towards producing names that are short but at the same time indicative of the nature and properties of the substance. The text of the revised general principles is given in an annex to the report.

9.11 The thirty-third and thirty-fourth lists of proposed international nonproprietary names for pharmaceutical substances were published in the WHO Chronicle. The lists, containing 94 and 82 names respectively, bring the total of such proposed names to 3478. The fifteenth list of recommended international nonproprietary names, consisting of 169 proposed names to which no objection had been filed or in respect of which objections had been withdrawn, was also published in the WHO Chronicle. To supplement the third cumulative list of proposed names, comprising all those published in lists 1-25, computer printouts listing alphabetically all names from lists 1-33 in Latin, English, French, Russian, and Spanish, together with references to national nonproprietary names, were made available on request to national committees on nonproprietary names and other interested parties.

4 WHO Chronicle, 29, No. 3 (Suppl.) and No. 9 (Suppl.) (1975).
5 WHO Chronicle, 29, No. 10 (Suppl.) (1975).
9.12 Work on the new edition of the International Pharmacopoeia proceeded in accordance with the recommendations made by the WHO Expert Committee on Specifications for Pharmaceutical Preparations. After consultations with experts active in regional and national pharmacopoeia commissions, a list of 596 pharmaceutical substances meriting inclusion was drawn up and general guidelines for the selection of pharmaceutical substances for inclusion in the International Pharmacopoeia were suggested. The list was circulated subsequently to regional and national pharmacopoeia commissions and to members of the WHO Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations for comment. Simultaneously, the revision process was initiated on the general tests and analytical methods in the International Pharmacopoeia. Over 30 general methods of drug analysis were produced in draft form and subsequently revised in view of comments obtained from national pharmacopoeia commissions and other interested parties.

9.13 One of the main difficulties in the utilization of international drug control specifications arises from the disparity between developed and developing countries with regard to drug manufacture and distribution. In the course of consultations on the general format of monographs of the International Pharmacopoeia, it was proposed that for well-established drugs used in general health care basic tests should be developed for use at the country level where properly equipped and staffed drug control laboratory facilities are not available. Such a test would be primarily designed to confirm the identity of pharmaceutical substances and to ensure that gross degradation has not occurred. This recommendation is being followed up in the revision of drug quality specifications for publication in the new edition of the International Pharmacopoeia.

9.14 During 1975 the WHO collaborating centre for chemical reference substances, in Sweden, provided government control agencies, pharmaceutical manufacturers, and other interested laboratories in 36 countries with 2200 samples of 71 different reference substances. The centre has further expanded its work on chemical reference substances for antibiotics, establishing standard substances for active and inactive forms of chloramphenicol palmitate, and continuing work on the validation of some semisynthetic penicillins.

9.15 WHO collaborated with the International Federation of Pharmaceutical Manufacturers Asso-

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Health laboratory technology

9.17 With a view to the further implementation of the programme on standardization of diagnostic methods and materials, three consultations were held in 1975 on specific aspects of clinical chemistry, haematology and microbiology. The 32 experts in laboratory science from 13 countries who participated in these consultations assisted WHO in establishing priorities for the development of reference materials and methods; they stressed the need for international guidelines for the labelling of laboratory reagents and dissemination of technical information, and the importance of training, particularly in quality control, as an integral part of the programme.

9.18 The promotion of quality control continued to be an important aspect of the Organization's work in the field of health laboratory technology. Activities included the international glucose and urea standard-
9. PROPHYLACTIC, DIAGNOSTIC AND THERAPEUTIC SUBSTANCES

9.21 The WHO collaborating centre for reference and research in blood grouping, in London, continued to lend support to national blood services, circulating lists of special blood grouping reagents available free of charge as well as a list of available donors of rare blood groups.

9.22 The development of health laboratory services was assisted in Argentina, Bolivia, Botswana, Burma, Chad, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Laos, Nepal, Nicaragua, Panama, Papua New Guinea, Peru, Tonga, Upper Volta, Uruguay, and Venezuela. Assistance for the production and control of vaccines was given to a number of these countries and to Brazil, Cuba, Egypt, Guinea, India, Indonesia, Iran, Iraq, Jordan, Mexico, Mongolia, Nigeria, Philippines, Sri Lanka, and Thailand. Emphasis was also placed on developing peripheral laboratory services as an integral part of basic health services; assistance was given in the selection of tests suitable for use in laboratories at the peripheral level, and in the definition of educational objectives for the training of staff.

9.23 The training of laboratory staff remained a high priority: courses were given at country, regional and interregional level and a handbook for tutors of medical laboratory technicians was published (see Chapter 3).

9.24 Close collaboration was maintained with non-governmental scientific societies such as the International Federation of Clinical Chemistry, the International Committee for Standardization in Haematology, and the World Association of Societies of (Anatomic and Clinical) Pathology, particularly with regard to the standardization of diagnostic methods and materials.

Biological standardization

9.25 In the Organization's activities leading to the establishment of international standards and international reference preparations for biological substances used in human medicine, more emphasis was placed on the standardization of products used in endocrinology: the need for these substances has always been recognized, but the accurate assay of hormones has become possible only recently, with the development of radioimmunoassay techniques. Work was also continued on the formulation of requirements for biological substances.

9.26 At its meeting in December the WHO Expert Committee on Biological Standardization considered the establishment of a number of new international standards and reference preparations and the replacement of some established preparations, the stocks of which were running low. The emphasis was on bringing the antibiotics programme up to date. The following international standards, reference preparations and reference reagents were established or replaced: neomycin, doxycycline, minocycline, diphtheria toxoid (adsorbed), thrombin, α-fetoprotein, Clostridium welchii (perfringens) beta toxoid and epsilon toxoid, anti-echinococcus human serum, and the fifth opacity reference preparation. A preparation of spectinomycin that had been obtained and dispensed was considered suitable for a collaborative assay, which has begun. The current situation with regard to thromboplastins
was reviewed and it was decided that standards are required. There has been further development, as a result of the progress in radioimmunoassay techniques, in the standardization of carcinoembryonic antigen; a national standard offered to the Organization was provisionally accepted as an international reference preparation.

9.27 The Committee adopted revised requirements for yellow fever vaccine (taking into account the experience and technical advances since the requirements were formulated in 1959) and also adopted requirements for meningococcal polysaccharide vaccine prepared from *Neisseria meningitidis*.

9.28 The Organization provided assistance to countries wishing to begin production of poliomyelitis vaccine, and three laboratories meeting the necessary standards were supplied with WHO seed viruses. Studies were begun with combined diphtheria/tetanus/pertussis vaccines, standardized to meet the WHO requirements, to test their ability to produce an adequate antibody response after different immunization schedules, using only one or two doses of vaccine.

9.29 Advice was given to Member States on the development of national control laboratories for biological substances. The Organization also made available to interested developing countries a design for a control laboratory that can be built up in three stages; this permits a gradual development as skills and experience are acquired, starting with the control of those vaccines and other biologicals for which only relatively simple facilities are needed.
10. ENVIRONMENTAL HEALTH

10.1 During 1975 the environment issue remained one of priority throughout the world, although there was some change in the approach to it as a sharper focus on human needs and on development created greater awareness of the relationship between health and the environment and brought about a more vigorous appreciation of health and a better quality of life as objectives to be pursued by means of environmental action. This can be observed in many ways. The provision of basic sanitary services and particularly water supply and sanitation to underprivileged populations is emerging as one of the most important objectives in environmental health, reflecting a shift of attention to rural and poor urban-fringe populations. Furthermore, the present economic situation has led to a more careful analysis of both the risks and benefits of technological development, including its many financial, institutional, technical, political, and motivational aspects, and to a new emphasis on the protection of workers and the general public against environmental hazards related to the process of urbanization and industrialization. Major constraints upon the development of satisfactory environmental conditions are the lack of national resources for environmental health, and the lack of adequate national machinery and policy, a situation that has been aggravated by the current energy crisis. While there are few countries that have experienced no improvement in environmental health, there is none without environmental health problems.

10.2 Within the context of the Second United Nations Development Decade, a mid-decade review of community water supplies undertaken for consideration by the Twenty-ninth World Health Assembly has shown that for more than a thousand million people of the developing countries, safe water supply and waste disposal facilities are absent or inadequate—leading inevitably to high rates of mortality and morbidity. The rate of provision of community water supply and waste disposal, although encouraging, is uneven and is too slow to enable present targets to be reached by the end of the Development Decade, but the momentum that has developed holds the promise of ultimate success provided that the present efforts are sustained, provided that governments are determined to allocate the additional resources required, and provided that more attention is given to underprivileged rural and urban populations.

10.3 Progress has been made in the early detection of environmental hazards to human health, and much has been learned about the adverse effects of specific chemical and physical hazards in the general and working environment and about their control. Governments are planning and implementing national programmes for the control of environmental hazards, with the health dimension added on the basis of scientific risk evaluation. But the integration of such preventive programmes within overall national health efforts often remains inadequate; health planners still have to learn how to introduce such preventive measures into health programmes as well as into other development programmes.

10.4 In 1975 the Organization placed great emphasis on collaboration with Member States in the provision of basic sanitary measures, a subject of high priority in all Regions and one that receives the support of UNDP. To this end, efforts were made during the year to make available better technical information, particularly on water supply and waste disposal. Simultaneously, in collaboration with IBRD, the Organization strengthened its cooperation with Member States in investigating and analysing the water supply and sanitation sector in order to establish priorities and identify the major impediments to development. In a number of States, this analysis led to significant decisions concerning policy and investment. In making a new effort towards the development of community participation and self-reliance as regards basic sanitary measures, towards the education of the public, and towards the training of personnel at all levels, the Organization collaborated with a number of agencies as well as with the developing countries.

10.5 WHO also continued to collaborate with Member States in dealing with the health aspects of national programmes for the control of the quality of the general and the working environment and ensuring food safety, often with the participation of UNDP and UNEP. The momentum of this activity increased in 1975, and occupational health, food control, and environmental pollution programmes.
came into being in a number of countries. The WHO environmental health criteria programme successfully completed most of its first phase, receiving support from an increasing number of Member States and from UNEP. Satisfactory progress was made towards the harmonization of methods of research and in the analysis of adverse effects on health of conditions in the environment. The review of past experience in this field and the early detection of hazards and of health impairment were the subject of several large international conferences cosponsored by the Organization. The health of both the general public and working populations received attention. With WHO’s participation, some progress was also made in the monitoring of human health and of the environment, emphasis being given to high-risk population groups and to potential risks in air, water, and food and at the place of work.

10.6 The betterment of environmental health is part of the total national development effort and therefore tied in with other health activities, with programmes for social and economic development, and with other programmes in the field of the environment, particularly those for the improvement of human settlements, pollution control, and the regular control of chemicals. The Organization has therefore coordinated its efforts with those of other international agencies (particularly UNICEF, UNDP, UNEP) and various specialized agencies of the United Nations system (notably ILO, FAO, UNESCO, and the World Bank), as well as regional development banks and bilateral finance agencies. A cooperative programme was initiated with the African Development Bank for the promotion of water supply and waste disposal. Scientific collaboration with Member States also increased, particularly as regards the assessment and monitoring of the health effects of environmental agents, the identification of environmental hazards resulting from new technological development, the transfer and adaptation of technology for basic environmental sanitation in developing countries, and the development of methods for environmental health planning and management.

Community water supply and waste disposal

Collaboration in national programme development

10.7 Sector surveys for national planning. Assistance was given to governments in carrying on nationwide technical and organizational studies of their water supply and waste disposal facilities. These “sector surveys”, as they are known, are not intended to discover new basic data, but rather to assemble the relevant records of ministries, municipalities and private water undertakings, and to analyse them in order to reveal where current and future demands are not being met, the constraints likely to impede the satisfaction of such demands, and actions which should be considered by governments and international agencies to deal with these constraints. The results of such a survey are intended to form a foundation for decisions by the governments relating to the level of government action in the sector, medium and long-term targets as to the population to be served and the level of service in keeping with health and socioeconomic objectives, the distribution of resources as between rural and urban populations and as between water supply and sanitation, and guidelines for the selection of specific programmes and projects.

10.8 In most developing countries improvements in the water and sanitation sector are piecemeal. In the absence of long-term and medium-term targets and plans the government agencies in this sector are at a disadvantage when financial resources are distributed among the various public sectors in the national development planning. Aid programmes in the form of technical assistance and capital input from bilateral and multilateral agencies are also in many cases given on an ad hoc basis. Government requests for external assistance are usually based on a crisis that has already developed. When priorities and constraints have been established, the available resources can be channelled to areas where they may be expected to have the greatest impact.

10.9 The sector surveys completed to date have, as expected, shown certain regional problems. For instance, in many oil-producing countries, finance is available but the lack of skilled manpower seriously impedes the improvement of basic sanitary services, which are generally poor in the urban areas and very poor in the rural areas. In much of the Indian subcontinent, on the other hand, there is an abundance of professional engineers but a severe shortage of funds; sanitary services are poor in both urban and rural areas. In most African countries south of the Sahara the combined shortage of finance and manpower results in slow progress of sector development; the services in urban areas are relatively good but the rural areas lag behind. The Latin American countries have reached a higher level of economic development than most of the rest of the developing world and have also made more progress in the water and sanitation sector.
10.10 In 1975 water supply and sewerage sector studies were carried out with WHO support in Algeria, Argentina, Bermuda, India (Madhya Pradesh), Indonesia, and Nepal.

10.11 As a follow-up of previous sector studies, missions also visited Kenya, Oman, Pakistan, Sudan, Turkey, and United Republic of Cameroon. In the last named, the proposals made in the sector survey were adopted in the Government's national five-year development plan. Among other tangible results of these or earlier studies, mention may also be made of the following. In Ethiopia, pre-investment studies for water supply were being planned in 10 cities. In India, IBRD appraised a US $78 million water and sewerage project that will provide water to 1.2 million rural people and improve the service to 5 million urban dwellers in Uttar Pradesh. In Oman, a UNDP-assisted water supply project costing US $435 000 was formulated. In the Republic of Korea, a UNDP project was formulated for sewerage in the city of Seoul. The study in Turkey resulted in an increase of US $1 million in the UNDP indicative planning figure. Pre-investment studies were initiated in six cities in Zaire.

10.12 Review by Regions. While sector surveys provide the basis for policy decisions and general planning, many other actions are needed to pave the way for implementing national programmes and projects. On WHO's part these actions include making appropriate socioeconomic and epidemiological surveys, studying alternative means of satisfying demand and solving identified problems, helping to develop long-term technical and management plans consistent with national economic plans and with regional and local physical development plans, identifying viable investment projects and informing potential donors and lending agencies (in some cases assisting the latter in the technical appraisal of proposed investment projects), helping to create or strengthen the appropriate technical institutions, and helping to develop the national manpower resources needed.

10.13 In the African Region, some 26 health service development projects that included basic sanitary measures were being undertaken in 1975 in Burundi, Chad, Congo, Gabon, Guinea-Bissau, Lesotho, Mali, Niger, Nigeria, Rwanda, Sierra Leone, Swaziland, Togo, Uganda, United Republic of Cameroon, United Republic of Tanzania, Upper Volta, Zaire, and Zambia. In addition, large-scale activities were undertaken in Burundi (sewerage and storm water drainage study and appraisal), Chad (storm water drainage appraisal), Gabon (sewerage study, Libreville), the Gambia (survey of basic environmental problems), Ghana (rural water supply study), Guinea (sewerage study, Conakry), Kenya (sewerage and ground water study, water supply and sewerage study), Madagascar (water supply and sewerage study), Mali (water supply study, appraisal of water supply scheme, formulation of pre-investment study for 4 urban centres), Mauritania (appraisal of water supply and sewerage tariff), Rwanda (water supply study), Senegal (water supply study, phase II), Zaire (appraisal of water supply scheme).

10.14 The total investment in programmes of water supply and sewerage in the Region of the Americas for the period 1961-75 reached approximately US $5000 million. The close collaboration maintained with the Inter-American Development Bank, IBRD, and CIDA resulted in the implementation of a number of projects and activities in which the Organization is acting as executing agency. CIDA is collaborating in projects in Belize and Jamaica and in a comprehensive Caribbean Water Management Programme. During the year the Organization implemented UNDP projects in Bahamas, Barbados, Dominican Republic, Guyana, Leeward Islands, and Trinidad and Tobago. Close contact was maintained with IBRD in projects in Bahamas, Guyana, and Mexico and with the Inter-American Development Bank in projects or feasibility studies in Barbados, Dominican Republic, Jamaica, Haiti, Honduras, and Nicaragua. An interagency/ intergovernmental ad hoc advisory committee met at the Pan American Centre for Sanitary Engineering and Environmental Sciences to formulate recommendations for strengthening and improving national activities in the provision of water supplies in rural areas. A conference on water quality control, attended by representatives from all countries in South America, was held in Sào Paulo, Brazil. Sector studies for water supply and sewerage were conducted in Argentina and Bermuda.

10.15 Numerous solid wastes projects were assisted in the Americas. Among these was the completion of the first phase of a UNDP-assisted project in the Bahamas that included detailed technical and institutional studies for five towns. On the basis of these studies a second-phase study was planned. A UNDP-financed project was approved for Barbados, concerned with the technical and administrative aspects of solid waste collection and disposal in the capital. Four large-scale UNDP projects under way in Brazil (Guanabara and Sào Paulo), Mexico, and Venezuela have important components concerning the management of solid wastes. WHO provided advisory services to Ecuador for the development of a national plan for
dealing with solid wastes, to Guyana in connexion with the improvement of services in the city of Georgetown, and to Peru in connexion with the study and implementation of programmes in the metropolitan area of Lima and one medium-sized city.

10.16 Although community water supply and sanitation continued to be the main sphere of activity in the environmental health programme of the South-East Asia Region, progress towards achieving the national targets for urban and rural water supplies set for the Second United Nations Development Decade was in general still not encouraging, largely owing to financial, manpower, and material difficulties. However, in their efforts towards the attainment of these targets, most governments were assessing the requirements for providing water supply to the entire rural community and identifying problem areas in this field. With material aid from UNICEF, WHO assisted Bangladesh in the planning and implementation of the community water supply programme. Assistance was given in the preparation of a short-term plan for developing rural water supply in Burma. In India, the rural water supply situation was studied and assistance given in the preparation of a project document for UNDP funding, and WHO/IBRD missions visited various parts of the country to study water supply and sewerage problems. Assistance was provided for the formulation of a water supply and sewerage study in Madras. Studies were also carried out on the development of deep-well and shallow-well handpumps in India. In Indonesia, technical services were provided in the WHO/UNICEF-assisted community water supply and sanitation programme and the UNDP-assisted project on the strengthening of health services in Irian Jaya province. In Maldives, a water supply and sewerage study in Male received assistance. Mongolia was assisted in the planning and implementation of a rural water supply and sewerage project. In Sri Lanka, a WHO/UNICEF-assisted community water supply project was continued. WHO gave further technical aid to Nepal and Thailand in their community water supply and sanitation programmes. With respect to solid wastes, assistance was given to study the existing system for their disposal in Dacca, and national workshops on disposal were supported in India.

10.17 By and large, countries in the European Region are technologically advanced as regards basic sanitation, but deficiencies persist in some rural areas, in depressed industrial areas, and in the suburbs of rapidly expanding cities, mostly in the southern part of the Region. UNDP and WHO assisted the National Water Supply Authority in Algeria to tackle various management and technical problems, and a master plan was completed for water supply in the western region, which covers 39 cities including Oran. In Greece an appraisal was made of the Thessaloniki and Volos sewerage projects. The Turkish Ministry of Health, with technical assistance from WHO, made improvements in the field of basic sanitation, mostly in rural and suburban areas. A water supply study was carried out in Kosovo, Yugoslavia. Intercountry activities relating to solid wastes management continued, including work on the preparation of a glossary and a manual on the subject.

10.18 In the Eastern Mediterranean Region additional WHO advisory services were provided during the year to assist in the emergency measures for providing water to the drought-affected population in Ethiopia, as well as for the development of community water supply and environmental health services in Democratic Yemen. The participation of WHO in an advisory assistance project in Saudi Arabia led over the year to a well-planned and well-executed water supply and sewerage project, and thus helped to contribute to national development; 20 cities and towns are being provided with water supply and sewerage systems, which are already available in densely populated areas. During 1975 master plans were completed for water supplies for Greater Kabul, Afghanistan, and for a countrywide rural water supply programme in Iraq. Assistance from CIDA and from the International Development Association has been made available for the Afghanistan project, while the Iraq project is financed primarily from national resources. Other large-scale activities were undertaken in Bahrain (sewerage study), Lebanon (national wastes management plan), Pakistan (water supply study, Peshawar), Yemen (water supply and sewerage study, Sana'a and Hodeida, phase II).

10.19 Considerable progress was made in the provision of basic sanitary facilities in the Western Pacific Region. In Malaysia, planned targets for rural water supply were achieved in Sabah and Sarawak, while the programme in Peninsular Malaysia increased in momentum. In the Republic of Korea the nightsoil disposal problem was reviewed, and assistance continued to be provided in the development of provincial water supplies and sewerage to complement the assistance of UNICEF and WFP in the construction of simple water supplies and rehabilitation of wells. In Singapore a master plan for the development of closed storm-drainage facilities was completed. In the Republic of South Viet-Nam a national water supply and sewerage study received support. In Cambodia it was necessary to suspend
the studies concerning water supply, sewerage, and drainage for Phnom-Penh, which had attained 15% completion. In the Philippines, drinking-water quality control and the latrine construction programme were pursued and a UNDP project document was drafted for updating the first-stage feasibility study and preparing final designs for the sewerage system for Manila. In the Cook Islands, bilateral aid was negotiated for the construction of a water supply system designed with WHO assistance. Various countries and areas in the South Pacific continued to implement their rural water supply and sanitation programmes with material assistance from UNICEF and technical assistance from WHO.

10.20 During 1975 loans were negotiated for the following projects, representing the provision of new water supply or sewerage facilities for some 4.5 million people:

<table>
<thead>
<tr>
<th>Country</th>
<th>Investment resulting in US $ (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain</td>
<td>10.0</td>
</tr>
<tr>
<td>Guyana</td>
<td>7.0</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>3.5</td>
</tr>
<tr>
<td>Kenya</td>
<td>8.0</td>
</tr>
<tr>
<td>Maldives</td>
<td>1.0</td>
</tr>
<tr>
<td>Mali</td>
<td>1.3</td>
</tr>
</tbody>
</table>

10.21 The above-mentioned large-scale planning activities were financed in whole or in part by extra-budgetary funds totalling US $4.7 million in 1975 and emanating from UNDP, IBRD, the African Development Bank, and various bilateral organizations. The expenditure is governed by WHO's basic agreements with these bodies and specific project agreements with the countries concerned. The basic agreements were reconfirmed during the year, but there was a considerable evolution of the policies of assistance that should lead to new types of collaborative activity in the future. For instance, a memorandum of understanding with the African Development Bank was signed in 1975 for a cooperative programme including not only the identification, formulation, and technical appraisal of investment projects but also the technical supervision of studies and direct assistance (e.g., training national personnel or undertaking leakage surveys).

**Technology development and transfer**

10.22 A draft guide on community water supply and wastewater disposal was distributed to Member States as part of the Organization's programme of assistance in developing national information systems for planning, programming, and evaluation in this field. The guide was also used as a training document for a course held at Voorburg, Netherlands, in October (see Table 2). Field testing of the guide in a pilot project was initiated in the State of Maharashtra, India, as well as at the national level in that country. The objective of the project is to evolve an information system in a selected area, adapting the WHO guide to suit local conditions, and also to develop aspects of the accumulation and presentation of information at national level. Data obtained in a global survey of water supply and excreta disposal in developing countries in 1971 and 1972 were published in a book that reviews the progress made in the urban sector between 1962 and 1970 and considers prospects for reaching the Second United Nations Development Decade targets in this sphere. The book also reviews the amount and distribution of international assistance. A further publication appeared in the series of WHO guides on waste disposal and basic sanitary facilities: *Community Wastewater Collection and Disposal* describes the fundamental principles and practices that are likely to be most appropriate for wastewater collection and disposal in developing countries. Directed specifically to public health engineers and others responsible for planning, designing, and constructing the appropriate facilities, it provides guidance on the adaptation of current technology in accordance with local conditions and resources in funds, manpower and equipment. In order to make information available to professional workers concerned with norms and standards in basic sanitation in various parts of the world, a translation into English and French of certain sections of the Sanitary Norms and Standards for Planning Industrial Undertakings (SN 245-71) of the State Committee for Construction of the Council of Ministers of the USSR was also widely distributed.

10.23 With the cooperation of the WHO Collaborating Centre for Community Water Supply at The Hague and with the financial assistance of UNEP, a considerable amount of information was collected on certain types of handpumps and other methods of extracting water with a view to the preparation of guidelines. Also, guidelines for the surveillance of drinking-water quality were finalized. A tentative project extending up to 1977 for the monitoring of deleterious substances in drinking-water was agreed...

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3 Available on request to the Division of Environmental Health, World Health Organization, 1211 Geneva 27, Switzerland.
upon at a meeting held at the WHO collaborating centre concerned with water supply at Medmenham, United Kingdom, in September-October, attended by representatives of institutions in 13 countries that had expressed interest in collaborating in the project.

10.24 In 1974, WHO joined with UNICEF, UNDP, UNEP, IBRD, the Organization for Economic Co-operation and Development, and the International Development Research Centre of Canada in an ad hoc Working Group on Rural Potable Water Supply and Sanitation, for the purpose of promoting the improvement of these services in rural areas of developing countries through concerted international effort by means of investigations, demonstration, evaluation, training and education, community motivation, health education, and the dissemination of information. As a first step, proposals were prepared for regional programmes in collaboration with the Pan American Centre for Sanitary Engineering and Environmental Sciences, in Peru; the Pan-African Institute for Development, in the United Republic of Cameroon; and the Inter-African Committee for Hydraulic Studies, in Upper Volta. It was also proposed that the WHO Collaborating Centre for Community Water Supply at The Hague should be restructured to serve as an international centre for a possible network of cooperating centres in other Regions.

10.25 A preliminary international programme was studied by representatives of governments having bilateral programmes and a special interest in this field (Belgium, Canada, France, Netherlands, Sweden, Switzerland, United Kingdom, USA, and USSR), of the Commission of the European Communities, and of the United Nations and FAO. Representatives of developing countries in the six WHO Regions participated in the review, which took place in November. The meeting expressed general interest in the programme and recommended that full details be elaborated for consideration by interested donor countries.

Environmental health criteria and monitoring

10.26 The WHO environmental health criteria programme, which in 1975 was in its third year of implementation, aims at providing Member States with information on environmental health hazards as a basis for the formulation of national health-related environmental quality standards and for other action to control and improve the quality of the human environment. The programme, which is carried out in close cooperation with some 30 national institutions and with the support of UNEP, made significant progress in 1975. Six task group meetings were convened to evaluate the health risks from exposure of both the general population and specific occupational groups to mercury, lead, cadmium, manganese, polychlorinated biphenyls, and nitrates, nitrites and nitrosamines. Draft environmental health criteria documents were prepared for mycotoxins, carbon disulfide, asbestos, oxides of nitrogen, nitrosamines, sulfur oxides and suspended particulate matter, ozone and oxidants, methylmercury, nickel, vanadium, fluorine and fluoride ion, polychlorinated biphenyls, and benzo[a]pyrene. An institute in Poland prepared, on behalf of WHO, a review of work on the health effects of arsenic and chromium in selected countries. Preparatory work was completed on the definition of basic terms used in the environmental health criteria programme. One objective of the programme is to identify and assess the potential health hazards from substances that are likely to be increasingly used in industry and/or chemical consumer products, and thus to contribute to preventive health measures; in 1975 task group meetings were convened to make a preliminary evaluation of the toxicological and other relevant data on germanium, titanium, and tin and organotin compounds, and draft preliminary reviews were completed for bismuth, antimony, selected petroleum products, and some vegetable dusts.

10.27 During the year two WHO collaborating centres on environmental health effects were designated—at Sofia, on environmental toxicology and epidemiology; and at Research Triangle Park, NC, USA, on the effects on health of environmental agents. Preparations were also made for the designation of four other collaborating centres to deal respectively with the toxicology of environmental chemicals, environmental hygiene and toxicology, the toxicology of metals, and the biomedical aspects of environmental pollution. The centres will, inter alia, assist in the formulation of a WHO research programme on the biomedical aspects of environmental pollution, and much work is indeed already being done in this field, notably by IARC (see Chapter 7) with whose programmes collaboration is being intensified.

10.28 In order to promote the harmonization of toxicological testing techniques, the preparation of a guidebook on principles and methods for evaluating the toxicity of chemicals was initiated in collaboration
with 50 experts from 13 countries, and with financial support from UNEP. A meeting of the principal contributors to the guidebook was convened in July and a revised draft was reviewed by a WHO scientific group that met at IARC, Lyons, France, in December. That scientific group also discussed current problems and needs in the methodology of toxicity testing; chemobiokinetics and metabolism; functional studies of organs; neurological and behavioural tests; carcinogenesis, mutagenesis and teratogenesis; inhalation exposure; and ecotoxicology.

10.29 Considering the large number and variety of chemicals used for various purposes, the major problem facing both scientists and regulatory agencies on a national and global scale is how to extract the relevant information from the published literature and make it available to those who need it for the assessment of potential health and environmental problems. In order to facilitate the interchange of information, UNEP initiated an International Register of Potentially Toxic Chemicals, which will collect, systematize, retrieve, and disseminate information on chemical agents pertinent to the understanding of their impact on man’s health and his environment. WHO agreed with UNEP on close scientific collaboration in all aspects of the register that are relevant to human health.

10.30 Together with the University of Toronto, Canada, the National Research Council of Canada, the Environmental Protection Agency of the USA, and the Scientific Committee on Problems of the Environment of the International Council of Scientific Unions and some other organizations, WHO cosponsored an International Conference on Heavy Metals in the Environment, in Toronto in October. Health effects and epidemiology were discussed, including the toxicity of specific metals, pathways and cycles of heavy metals in the environment, analytical techniques and problems, and the setting of standards.

10.31 In order to review present knowledge on environmental monitoring techniques and approaches, WHO cosponsored with the Environmental Protection Agency of the USA and the University of Nevada an international symposium on environmental monitoring which took place at Las Vegas, USA, in September. The discussion covered the technology for monitoring the presence and health effects of fine particulates, pesticides, heavy metals, and organic and inorganic compounds, the requirements for monitoring networks, and data quality systems and modelling.

10.32 In response to recent resolutions of the World Health Assembly, particularly resolution WHA26.58, the Organization in October convened a study group on epidemiological methods applied to the establishment of environmental health criteria; the group discussed and formulated the basic principles for carrying out such studies, including their design, choice of population groups, assessment of exposure, indices of response, conduct of surveys, and evaluation of results. The group also prepared a detailed plan for the preparation of a guidebook on the principles and methods for epidemiological studies as applied to environmental health problems.

10.33 A scientific group on methods of monitoring carcinogenic chemicals in the environment was convened in Geneva in December to examine approaches to the monitoring of chemicals and other environmental factors in relation to the incidence of cancer in man; the subjects reviewed included methods currently used in cancer epidemiology, the value and limitations of monitoring specific chemical carcinogens, the application of laboratory bioassay screening techniques to environmental samples, and the principles for the evaluation of the carcinogenic risk of chemicals from epidemiological information and from laboratory animal data. The scientific group made a number of recommendations aimed at the improvement of current programmes for monitoring potential carcinogenic chemicals in the environment and the cancers they may cause.

10.34 The WHO collaborating centre on environmental health effects at Sofia mentioned in paragraph 10.27 initiated in 1975 an epidemiological study on the effects of environmental pollution by lead on different segments of the population. The objective of the study is to test in a field project the methods for integrated environmental monitoring (air, water, food, soil, and work environment) for linking environmental levels to true exposure as reflected by the levels of lead in body tissue and fluids, particularly in the blood, and to compare the sensitivity and reliability of various indicators of the biological effects of lead. A new Pan American Centre for Human Ecology and Health was established in Mexico, and an advisory panel on the centre met in Mexico City in January with the support of UNEP. The major purpose of the centre is to formulate methods for the identification, definition, and control of human health problems related to environmental change and to establish priorities. The centre will assist the countries of the Region by means of direct technical cooperation and by distributing technical information and collaborating in research and training programmes.
Measures directed at specific problems and population groups

Air, water, and soil

10.35 The WHO air monitoring programme has been in operation for over three years and aerometric data have been obtained from monitoring stations located in major urban and industrial stations in 13 Member States. Sulfur oxides and suspended particulate matter have been measured as indicators of air quality. The Pan American Air Pollution Sampling Network now includes 88 stations in 30 cities in 15 countries, and a further 12 stations are being set up in 8 cities. The Pan American network is now being integrated with the more widespread WHO air pollution monitoring programme.

10.36 In addition to providing direct technical assistance to national agencies responsible for the protection of health from the effects of air pollution, the WHO air monitoring programme aims at the harmonization of measurement methods and data reporting procedures. A manual on selected methods of measuring air pollutants was prepared in 1975 with financial aid from UNEP and the technical assistance of the WHO collaborating centres on air pollution at Research Triangle Park, NC, USA, and London. The manual presents detailed procedures for measuring oxides of sulfur, suspended particulates, carbon monoxide, oxides of nitrogen and photochemical oxidants: in addition, for each pollutant one method is indicated that may serve for comparisons of air quality monitoring data obtained with different but acceptable methods.

10.37 In cooperation with five collaborating centres on air pollution, the first of a series of interlaboratory comparison studies was completed, providing information on the quality of the air pollution monitoring data. The study involved the analysis, by each participating laboratory, of samples that simulate sulfur dioxide concentrations. Ten countries participated in this study, the results of which will assist national laboratories in evaluating their analytical techniques. WHO will provide assistance, as required, to national laboratories to improve their analytical capability. Similar studies will be carried out for other pollutants and with other national laboratories.

10.38 Technical assistance in air pollution control was provided to a number of countries, including the provision of small amounts of equipment for training and for the calibration of instruments and methods.

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activities; and data collection on waste disposal practices and on the environmental pollution situation was begun in seven countries of the Region. The collected information will be evaluated for three different types of environment: large metropolitan areas, other urban settlements, and rural areas. This regional survey will be followed by the preparation of detailed source inventories at local or country level, similar to the surveys in progress in Maharashtra, India, and in Indonesia.

10.45 Promoting further cooperation among European riparian countries for safeguarding waterbodies, WHO organized three meetings in that Region to discuss draft chapters on the radiological, biological, bacteriological, and virological examination of water for a manual on analysis for water pollution control that is in preparation. This is one of a series of manuals which, although originally planned for use in the European Region, should prove useful to governments and scientific communities in other Regions; the series includes manuals on urban air quality management (completed in 1975), solid waste management, air pollutants from industrial sources, and coastal pollution control. A UNEP/WHO workshop on the water quality of the Danube was held in Copenhagen in March, attended by participants from six riparian countries, and an action plan was approved for a surveillance programme.

10.46 Activities in the Western Pacific Region in 1975, in addition to the seminar on water pollution in Manila already mentioned, included advice on the establishment of information systems through the development of monitoring activities; recommendations on control programmes; identification of general water and air pollution problems in Guam; and formulation of phased water and air pollution control programmes in the Republic of Korea. In the Philippines, following the conclusion of the Laguna de Bay water resources development project late in 1974, a comprehensive UNDP-assisted water quality management project for this lake began in 1975 with WHO as executing agency.

10.47 Microbiological standards and other health criteria for the quality of coastal waters were discussed at a meeting convened by FAO as a part of the inter-sessional working programme of the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), of which WHO is one of the sponsoring agencies. The seventh session of GESAMP, held in London in April, reviewed harmful substances in the marine environment, the dumping of wastes into the sea, the impact of oil on the marine environment, and the levels and effects of marine pollutants.
lished three years ago in Bratislava, Czechoslovakia, under a UNDP/WHO project, is now playing an important role in shaping environmental pollution investigations in the country. A number of studies are in progress, including investigations into the effects of air and water pollution in Prague, Ostrava and Bratislava, an investigation of air, water, and soil pollution in the Upper Nitra catchment area, and a water pollution control programme relating to the Danube and its tributaries within Czechoslovakia. A seminar on animal wastes was held in Bratislava in September-October, attended by experts from Czechoslovakia and other countries.

10.52 A UNDP/WHO comprehensive environmental project being undertaken with the Greek Government in the metropolitan area of Athens includes air, water, coastal areas, soil, and noise pollution control. In 1975 the Government initiated the preliminary design of a sea-outfall scheme for sewage from the city area and its environs. A detailed investigation into industrial wastes within the metropolitan area is in progress as well as an intensive study of air and noise pollution levels in Athens.

10.53 In Romania, the field activities of the UNDP/WHO-assisted air and water pollution control project were finalized and the results reviewed. The water pollution control component has already made it possible for the Government to improve its water resources management, while the air pollution control component, resulting in control of industrial pollution sources, has improved the conditions of the environment in the two pilot areas involved.

10.54 Two closely interrelated environmental pollution control projects were pursued in Spain with UNDP support—one for air pollution control relating to industrialized areas, particularly Bilbao, and the other to control the pollution of rivers and coastal waters in Guipúzcoa Province.

**Food safety**

10.55 During its twenty-first session, held in Geneva in June, the Executive Committee of the Codex Alimentarius Commission, which is the principal organ of the Joint FAO/WHO Food Standards Programme, agreed to the establishment of a Coordinating Committee for Asia. In connexion with the campaign to encourage the acceptance of Codex Standards, which has been given high priority by the Commission, the Executive Committee recognized that member countries of the Commission were at different stages of development as regards their food laws and regulations and would therefore proceed at different paces in the matter of giving acceptance to the standards, notwithstanding that both national regulatory agencies and the food industry considered the Codex standards to be very valuable. Most developed countries have sophisticated food legislation and need to make a full assessment of the impact on agriculture, industry, and trade before accepting Codex standards. A major problem for many countries, particularly those in the African Region, when they are considering acceptance of food standards, is the lack of appropriate food laws, regulations, and machinery for enforcement. This problem will be one of the major concerns of the newly formed coordinating regional committees. The second session of the Coordinating Committee for Africa was convened in Ghana in September, and the Joint FAO/WHO Food Standards Conference for Asia was held in December in Bangkok.

10.56 Awareness by Member States of the need for assistance in planning and implementing food safety measures is reflected by the large number of countries which have or are planning a food regulatory service or agency as part of their public health infrastructure. Weaknesses exist, however, in such areas as food law, which is often inadequate as regards both content and implementation. The assistance given by WHO at the international level in 1975 continued to be directed mainly towards the provision of guidance material and criteria; however, much more remains to be done to develop and strengthen activities at the country level. A joint FAO/WHO expert consultation, held in Geneva in April-May, reviewed and finalized two draft documents. The first, on guidelines for developing an effective national food control system, is intended to assist developing countries in particular by providing guidance on the infrastructure and methodology required to develop national food control services. The second document, on food hygiene in catering establishments and the role of legislation, includes model regulations.

10.57 In the South-East Asia Region, WHO-assisted studies were made on the priority needs in food control services in Indonesia, and on the training of food handlers in Thailand. In the European Region, assistance was provided to Member States in improving methodology in food control laboratories, as part of the programme for developing laboratory services in general. Consumer protection through adequate food control systems is especially important in food-importing countries; in the Eastern Mediterranean Region, a joint mission of experts was sent by FAO, WHO, and the Arab Organization for Standardization and Metrology to Egypt, Iraq, Kuwait, Libyan Arab
Republic, Saudi Arabia, Sudan, and Syrian Arab Republic to study problems in this connexion and recommend action. Activities in the Western Pacific Region continued as part of the overall environmental health programme, assistance being given to Malaysia in developing a code of practice for food hygiene, to the Philippines in studying priority needs in food control services, and to the Republic of Korea in developing methods and staff in order to improve the national food programme.

10.58 During the year, nine Recommended International Standards on processed fruits and vegetables were sent by the Codex Alimentarius Commission to Member States for acceptance. In addition, Recommended International Methods of Analysis for Processed Fruits and Vegetables (second series) were despatched, and for the first time a Code of Principles concerning Milk and Milk Products and nine Recommended International Standards for Milk Products were distributed, together with five Recommended International Standards for Cheese. Information on the Codex Alimentarius Commission's activities in the field of food hygiene has been given in paragraph 4.192.

10.59 To elaborate further international tolerances for pesticide residues in food, the eighth session of the Codex Committee on Pesticide Residues was held in The Hague, in March. The delegates emphasized that the health implications of the agricultural use of pesticides should receive greater attention from WHO, especially since the World Food Conference in 1974 had called for the increased use of these chemicals in order to augment food production.

10.60 The tenth session of the Codex Committee on Food Additives, meeting in The Hague in June, considered the health aspects of intentional and unintentional food additives proposed for inclusion in food standards by the many Codex commodity committees and concurred with the recommendations of the Joint FAO/WHO Expert Committee on Food Additives (see below). This Codex Committee re-emphasized the importance of calculating potential daily intakes of food additives for the assessment of consumer hazards and stressed the need for obtaining from the Member countries up-to-date and reliable food consumption figures, which are important for these calculations. A working group with participants from nine countries was set up to collaborate directly with WHO in this matter.

10.61 The Joint FAO/WHO Expert Committee on Food Additives met in Geneva in April, when it evaluated the available toxicological data on some food colours, thickening agents, smoke condensates and liquid smoke, as well as a number of other additives. Some of the additives were considered for the first time, while others were re-evaluated in the light of new toxicological data. Acceptable daily intakes were allocated for those on which adequate information was available. The continuing increase in the world population without a comparable increase in the available amount of conventional foodstuffs is stimulating the development of new sources of food. Not only the safety of new and unfamiliar foods but also their acceptability to the consumer has to be ensured, and food additives will be required to preserve, texture, flavour, and colour them. The task of the Committee is to provide guidance to those responsible for ensuring the availability of wholesome, nutritious food. Some of the compounds considered by the Committee are associated with impurities of toxicological importance. Amaranth, a food colouring substance used extensively in many countries, varies considerably in its content of impurities in different parts of the world. This fact may account for the conflicting results of studies; the Committee recommended that international cooperative studies be undertaken with standard samples to elucidate the reason for the reported discrepancies. Aspartame, an artificial sweetener, contains about 0.5% of diketopiperazine as a manufacturing impurity and this proportion may be increased through cyclization during storage; further study is required to evaluate the toxicity of this compound.

10.62 The Joint Meeting of the FAO Working Party of Experts on Pesticide Residues and the WHO Expert Committee on Pesticide Residues was held in Geneva in November-December. The Joint Meeting evaluated 6 new pesticides and re-evaluated 19 pesticides in the light of new information, allocating acceptable daily intakes (ADI) for man where sufficient information was available and recommending limits for the residues of these pesticides in specific foods consistent with good agricultural practices and the toxicological evaluation. The ADIs and the residue limits are of assistance to national authorities in formulating regulations and are the basis on which the Committee on Pesticide Residues of the Codex Alimentarius Commission recommends international tolerances for pesticide residues. The Joint Meeting also dealt with a number of items referred by the Codex Committee on Pesticide Residues (see above). In addition, it made a number of recommendations on further research required to ensure the protection of the health of the consumer and to ensure safety in the use of pesticides in agriculture.

10.64 In furtherance of integrated environmental health monitoring, the Organization, together with FAO, proceeded with the preplanning phase of an international food contamination monitoring programme with financial support from UNEP in the context of GEMS. On the basis of information obtained from visits made to 13 countries where such monitoring is done, the priority contaminants (both chemical and biological agents) were identified and methodology and sampling plans were formulated. Recommendations were made for the development of a system for the processing, appraisal, and storage of data, a network plan for development activities was prepared, and a feasibility study was recommended for some contaminants and food commodities.

10.65 The value of certain sex hormones in promoting the growth of farm animals, especially their protein, is well established. However, the significance for human health of the residues of these hormones contained in the meat from the treated animals remains uncertain. A joint FAO/WHO symposium on the use of anabolic agents and its public health aspects was convened in Rome in March with extrabudgetary support. The following topics were discussed: sex hormones present in animals from endogenous sources and from exogenous sources such as certain plants, their levels in man, the increased incidence of certain tumours in treated animals, and the possible difference between synthetic and natural hormones, especially with respect to their carcinogenicity. In addition, the areas in which further research was required were defined and FAO and WHO were requested to promote and, where desirable, coordinate the necessary studies.

10.66 Several bodies—the USA-based Society of Toxicology, some national societies of toxicology, and the International Union of Pharmacology (a non-governmental organization with a section on toxicology)—undertook to disseminate to their members information on food safety subjects of interest to WHO and to communicate to WHO the results of any research carried out on those subjects. Steps were taken to designate two national institutes, in Denmark and the Federal Republic of Germany, as WHO collaborating centres to deal with food toxicology.

Health of working populations

10.67 WHO's activities to promote the health of working populations in 1975 were mainly oriented towards formulating guidelines to assist developing countries in providing effective preventive occupational health services, comprising appropriate placement of workers, early detection of disease, detection of hazardous exposures at work places, and adaptation of work places and tools to human capacities and limitations. Member States were also assisted in planning and implementing occupational health programmes at a national level and in developing an occupational health information system.

10.68 In a wide variety of industrial and agricultural work, workers are exposed to an ever-increasing number of toxic substances and there is evidence that large numbers of workers are affected by occupational poisoning as a result of exposure to these toxic agents. Often workers are exposed to more than one toxic substance at a time, as well as undergoing other physical occupational exposures that may potentiate the harmful effects of these substances. The report of the WHO Study Group on the Early Detection of Health Impairment in Occupational Exposure to Health Hazards recommended the development of a programme to review the available information on methods for the biological monitoring of workers exposed to toxic substances and physical hazards and the stimulation of research in areas where insufficient information is available. As a follow-up, a meeting held in December considered the early detection of health impairment in occupational exposure to selected industrial solvents that are commonly encountered in industry and are known to induce major occupational diseases. Guidelines were produced for the detection of early biological changes resulting from exposure to occupational solvents. A publication was issued containing papers presented at a 1972 WHO meeting on criteria used in the USSR for determining safe levels of toxic substances.

10.69 Man's reaction to repeated exposure to certain chemical agents at low concentrations varies depending on intrinsic and extrinsic factors as well as on the nature of the substances in question. In certain instances repeated minimal exposure may increase the ability of the body to cope with exposure to higher concentrations more effectively. The information available on human adaptation to exposure to toxic agents in the work place was reviewed at a meeting organized by WHO in Copenhagen in September-October.

10.70 WHO undertook or stimulated research on exposure to a number of toxic agents (including lead and industrial solvents) in Colombia, Egypt, and Yugoslavia, and continued its research programme on the effects of occupational exposure to combined physical and chemical hazards, at the Research Institute of Occupational Hygiene and Industrial Safety, Sofia, and the Department of Occupational Toxicology at the National Institute of Health, Łódz, Poland.

10.71 Study of the effects of simultaneous exposure to heat stress and to certain pesticides encountered in agricultural work began in 1975 with experimental trials in Kiev, USSR, and epidemiological studies in Sudan. Studies were also started to investigate the exposure of agricultural workers in Algeria to agricultural chemicals and other work hazards. Institutions of occupational health in Czechoslovakia, German Democratic Republic, Poland, Switzerland, and USSR were designated as WHO collaborating centres for various aspects of occupational health and hygiene.

10.72 Occupational health programmes need to take into account both the environmental control of occupational hazards and the practice of preventive occupational medicine. WHO has embarked upon a programme to promote occupational hygiene sciences, aimed at the detection and evaluation of harmful exposures in places of employment and the development of guidelines for their control. Guidelines on occupational hygiene and on simplified methods for the detection and evaluation of physical and chemical risks in places of employment are being prepared, and assistance was provided in carrying out occupational hygiene investigations in Bahrain, Guinea, Indonesia, Kenya, Liberia, Sierra Leone, Singapore, Sudan, and Thailand.

10.73 WHO organized a meeting in June on the application of ergonomics in developing countries which made recommendations relevant to occupational health practice in countries undergoing rapid industrialization. The Institute of Labour Hygiene and Occupational Diseases, Kiev, USSR, is continuing its work on the development of guides for the adaptation of agricultural machinery, from the ergonomics point of view, to conditions prevailing in developing countries.

10.74 In both industrialized and developing countries, shift work has increased in most branches of industry and involves an important proportion of manpower. The influence of shift work on workers' health and its effects on the accident rate, professional and social activities, and family life was reviewed by a meeting in Geneva in November; health criteria for optimal shift schedules and for pre-employment and periodical medical examinations of shift workers were recommended.

10.75 Research in occupational health was reviewed by the WHO Advisory Committee on Medical Research in June. Particular emphasis was given in 1975 to the study of health problems of workers employed in small-scale industries and to the discovery of health effects from exposures that are prevalent in work establishments in developing countries and about which little information is available—particularly exposure to organic and agricultural vegetable dusts in agricultural industries. The results of WHO-assisted field investigations of health problems in small industries in Colombia, Guinea, Iran, Kenya, Republic of Korea, Sierra Leone, Singapore, and Sudan show a wide variety of occupational health problems. The results of these studies were reviewed by a meeting on the organization of occupational health care for small industries, held in Geneva in July. The meeting agreed on approaches to deal with the health problems of the workers concerned and to provide guidelines for the establishment and delivery of health care programmes to small industries operating under different organizational, social, and economic conditions.

10.76 Studies on exposure to vegetable dusts continued in Indonesia and Sudan and began in Sri Lanka. Earlier investigations in Sri Lanka had shown that coconut fibre dusts inhaled during the manufacture of mats and other fibrous products produce chronic obstructive lung diseases, and a tentative maximum permissible level was suggested that could be considered nonhazardous to the health of workers in the manufacturing plants.

10.77 In addition to the pilot health centres for seafarers in Gdynia, Poland, and Auckland, New Zealand, WHO designated a collaborating centre on the health of seafarers in Hamburg, Federal Republic of Germany. The pilot health centre in Gdynia studied psychological and mental disturbances among seamen from different countries resulting from their type of work and their limited identification with family and homeland. Advice was provided to several other health centres dealing with seamen in different parts of the world, account being taken of the experience acquired in the WHO collaborating centres.

10.78 The occupational health and safety problems of migrant workers and their psychological and social difficulties were considered by the seventh session of the Joint ILO/WHO Committee on Occupational Health in August, which recommended health measures that should be carried out by the countries of origin of migrant workers and by the host countries.
10.79 In all the Regions WHO expanded its programmes of assistance to Member States in the development of occupational health care programmes and institutions. In the African Region, assistance was provided to Guinea, Kenya, Liberia, Sierra Leone, Togo, and Zambia, where investigations of occupational health problems were carried out and recommendations put forward for a basic infrastructure to deal with the health problems of workers and their families.

10.80 The Organization gave assistance to the Latin American countries in several occupational health projects. In Bolivia, a long-term UNDP/WHO project started in March to assist the Ministry of Health in the development of the Institute of Occupational Health in La Paz and the establishment of centres that will deal with health problems affecting agricultural workers and miners in other parts of the country. The project includes a systematic epidemiological investigation of the health problems and services available to industrial workers with a view to expanding the activities of occupational health services to deal not only with the specific occupational health hazards but also the general health problems of the workers. A new project in Argentina is currently in preparation, with UNDP assistance, and a regional project among the Andean Pact countries, aiming at the standardization of legislation in occupational health, started operation in 1975 following proposals by the Organization in 1974. The Pan American Centre for Sanitary Engineering and Environmental Sciences continued to provide an advisory service on industrial and occupational health problems for the countries of the Region.

10.81 In South-East Asia, a UNDP-assisted project in occupational hygiene to develop a laboratory in the Department of Occupational Health in Burma started in 1975, WHO acting in a consultant capacity. In Indonesia the long-term project entered a new phase aimed at the development of occupational health centres in different regions of the country and the establishment of research and training units in industrial toxicology, occupational health nutrition, work physiology, accident prevention, and analytical methods in occupational health. Programmes were also assisted in Bangladesh, Democratic People's Republic of Korea, India, and Mongolia.

10.82 In the European Region, the relation of occupational health to public health services was the subject of the Technical Discussions held at the session of the Regional Committee in September. In Poland, the Organization continued to provide assistance, partly with UNDP funds, for the establishment of an Institution of Industrial Toxicology, mainly concerned with carrying out experimental and epidemiological studies on the harmful effects of new toxic substances and the effects of combined exposure to chemical and physical hazards. WHO reviewed the means of carrying out periodic medical examinations in industry in nine European countries. Other assistance in occupational health was provided to Algeria, Greece, and Turkey and close cooperation was established with occupational health services in Czechoslovakia, German Democratic Republic, and Spain.

10.83 In the Eastern Mediterranean Region, WHO provided assistance in developing a Department of Occupational Health and establishing legislation in this field in Bahrain; in connexion with ergonomics at the Institute of Occupational Health in Alexandria, Egypt; in occupational hygiene and related matters at the Department of Occupational Health of the University of Teheran; in developing an occupational health section in the Ministry of Public Health in Iraq; in strengthening the Department of Occupational Health of the Ministry of Public Health in Sudan by the development of occupational hygiene laboratories and training; and in coordinating work in occupational health carried out by the Ministries of Health and Labour in the Syrian Arab Republic.

10.84 In the Western Pacific Region, short-term and long-term assistance was provided to several countries. In Singapore, the Department of Preventive Medicine and Public Health established, with the assistance of WHO, a course leading to the degree of Master of Sciences in Occupational Medicine. WHO also assisted with administration, supervision, and teaching in the occupational health nursing service in Singapore. The Organization collaborated with the Ministry of Public Health in Malaysia to help in developing a national programme, and with various countries or areas in the Region on the development of occupational health services for small-scale industries.

10.85 The Organization has developed an information data sheet on occupational health for the collection, and dissemination to Member States, of systematic and uniform information on the health problems prevailing in different occupational sectors in all countries and the kinds of service available. It also serves to collect data on training and research activities and aims at the development of national “inventories” on occupational health that would be of use, particularly to developing countries, in the planning and implementation of occupational health programmes and the identification of priorities.
In most of the activities described above close collaboration was continued in 1975 with ILO, which was invited to participate in the meetings and many of the field operations organized by WHO in this sphere.

**Housing and human settlements**

The Organization took an active part in the preparatory work for Habitat, the United Nations Conference on Human Settlements, to be held in Vancouver, Canada, in June 1976. A WHO report, "Health and environment in human settlements", which assesses the interaction between man and human settlements in terms of health, was prepared at the request of the Habitat secretariat for distribution as a background document. Also as part of the preparations for the Conference, the Technical Discussions to be held during the Twenty-ninth World Health Assembly in May 1976 will have as their subject "Health aspects of human settlements".

Liaison was continued with the United Nations Centre for Housing, Building and Planning on the mutual review of documents. Following discussions with UNEP, a project proposal was formulated on the development of health criteria for human settlements. With the financial assistance of UNEP, second drafts were prepared of guidelines on minimum requirements for basic sanitary services in human settlements and on planned prevention of health hazards in transitional settlements.

Work continued on the pilot project initiated by the Inter-Agency Committee on Housing and Urban Development (on which WHO is represented together with the United Nations, the Organization of American States, the Inter-American Development Bank, and USAID) for the betterment of slums on the outskirts of cities in Colombia, Ecuador, El Salvador, Mexico, Peru, and Venezuela. Through the Pan American Centre for Sanitary Engineering and Environmental Sciences, the Organization assisted several countries in the development of physical planning programmes, including the colonization of several underdeveloped areas in eastern and western Peru, and in a multisectoral plan of rural area development in the Dominican Republic.

**Noise**

To provide guidance to Member States on the design and organization of systems for monitoring noise in urban areas, the WHO collaborating centre on environmental health effects at Sofia prepared guidelines for noise monitoring, which are being tested in the metropolitan area of that city.

"Health and environment in human settlements", and on planned prevention of health hazards in transitional settlements.

**Radiation hygiene**

The assessment of radiation exposure depends on an understanding of the basic mechanism of its action at molecular and cellular levels, including recovery and repair processes. Better information is also needed on the dose-response relationship in low-level, long-term exposure. In order to review recent research advances in this field, WHO cosponsored with IAEA an international symposium on the biological effects of low-level radiation pertinent to the protection of man and his environment, which was held in Chicago, USA, in November. More than 70 papers were presented by experts from 11 Member States, covering somatic and genetic effects, internal exposure, human studies, theoretical and experimental models, and risk assessment.

Expanding nuclear energy programmes throughout the world have increased the need for practical guidance on how to deal with accidents involving radioactive contamination of man. WHO and IAEA cosponsored a seminar on the diagnosis and treatment of incorporated radionuclides, in Vienna in December. The seminar reviewed the metabolism of some of the more important radionuclides, the assessment and medical treatment of deposited radionuclides, and post-treatment care.

Work on chromosome aberration analysis continued in 1975 in collaboration with the three WHO collaborating centres at Ottawa, Glasgow (United Kingdom), and Moscow. The activities of the collaborating centre at Ottawa were expanded to include mutagenesis in relation to environmental pollution in general, rather than restricted specifically to radiation.

The survey of high natural background radiation in countries of the Western Pacific Region (Malaysia, Philippines, Republic of Korea, and Singapore) was continued in 1975, in collaboration with the Institute for Radiation Protection and Environmental Health, Neuherberg, Federal Republic of Germany. The survey covers radiation dose measurements of individual members of the public as well as of places outside and inside buildings in different geological areas. The aim is to establish an inventory of natural background radiation that may serve as a basis for the risk evaluation of man-made radiation sources in the future. WHO also collaborated in an international symposium on areas of high natural radioactivity, held at Poços de Caldas, Brazil, in June, which considered the geology of radioactive

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1 Radiation medicine is considered in Chapter 7.
anomalies; epidemiological considerations on health effects; investigations made in areas of high natural radioactivity in Brazil, India, and the USA; dosimetric implications and physical methodology for environmental surveys; and applied epidemiology.

10.95 The collection and evaluation of data on the strontium-90 content of human bones from tropical, rice-diet countries continued, in collaboration with UNSCEAR and the Health and Safety Laboratory of the US Energy Research and Development Administration, New York.

10.96 The WHO collaborating centre on environmental radioactivity, established in 1969 at the Central Protection Service against Ionizing Radiation, Le Vésinet, France, completed its second interlaboratory comparison on tritium in samples of rain and ground water, in collaboration with 16 national laboratories.

10.97 As part of the European long-term programme on environmental pollution control a working group was convened with the support of the Belgian Government in Brussels in December to discuss the health implications of nuclear power production. The group focused on radiation risks but also considered other environmental hazards related to nuclear power production.

10.98 The Organization began the preparation of a draft criteria document on microwave radiation jointly with the two WHO collaborating centres on non-ionizing radiation established late in 1974 in Poland and the USA. The centre in the USA also published documents concerned with health protection from radiation emitted by lasers and marine radars.

Health and sanitation in international traffic

10.99 WHO's policy on the health aspects of tourism was presented at the Preparatory Committee of the ACC in New York in October. At a conference on hygiene and sanitation in aviation in London in June, jointly sponsored by the Department of Health and Social Security (England and Wales) and the Royal Society of Health, WHO outlined the health criteria that are being incorporated in the revised and updated version of the Guide to Hygiene and Sanitation in Aviation currently in preparation. A guide to sanitation for tourist accommodation was also being prepared. In the European Region, problems continued to arise from international migration in the form of tourism, migrant labour, and pilgrimages. The study of specific sanitation problems relating to tourist areas was undertaken in Morocco. WHO entered into an agreement with the National Environmental Engineering Research Institute, Nagpur, India, to review sanitation problems connected with travel by rail.

The Organization continued its close collaboration with other international organizations concerned with international traffic, notably ICAO, IMCO, the International Air Transport Association, the International Civil Airport Association, the International Hotel Association, and the World Tourism Organization.

Health hazards of technological development

10.100 Assessment of the impact on human health of new or emerging technological developments requires the attention of health authorities to ensure that adequate safeguards are incorporated before new technology is applied on a large scale. A WHO technical collaborative project was initiated with IAEA and the International Institute of Applied Systems Analysis in Vienna on the assessment of alternative energy options. This is a three-year project aimed at developing methods of comparing different technologies for power production, in which WHO will be concerned with the health aspects.

10.101 Close collaboration or contact with industry is indispensable for assessing the health impact of technological development. WHO actively participated in a symposium on petroleum and environmental conservation organized in Teheran in April by the International Petroleum Industry Environmental Conservation Association, and in two symposia organized by UNIDO with UNEP support, one (in March) on the environmental impact of the pulp and paper industry, and the other (in October) on the aluminium industry.

10.102 Different compositions of fuels and fuel additives affect emissions from the combustion process and the performance of emission control systems, either to the benefit or the detriment of public health. In collaboration with the WHO collaborating centre on air pollution control in the USA the Organization prepared a review of the toxicology of fuels and fuel additives, evaluating the potential public health effects of the compounds arising from the various fuel additives, including organic and inorganic lead compounds, and a large number of trace elements (nickel, antimony, manganese, molybdenum, titanium), oxides of nitrogen, and a variety of hydrocarbons and aldehydes. A systematic effort is required to evaluate the public health risks that may arise from the various fuel additives, so that human health protection can be ensured through appropriate legislative mechanisms.

10.103 In view of the need to prevent further environmental degradation and resulting health hazards in developing nations undergoing industrialization and
urbanization, WHO has initiated two collaborative research projects. The first is directed towards developing methodologies for assessing the impact of industrial development projects on those features of the environment that directly affect public health. The second aims at developing methods and procedures for incorporating environmental health considerations into land use planning. Arrangements were made in 1975, as part of the first stage of both projects, for the collection and synthesis of information on methods and procedures that have already been developed and applied in some Member countries.

**Environmental health planning**

10.104 In its work with ministries of public health in the African Region, WHO placed emphasis on the creation or strengthening of sanitary engineering activities and on the establishment of an infrastructure for close coordination between different departments or public agencies that play a role in the implementation of national environmental health plans. A few countries in the Region have already achieved a high level of self-sufficiency in terms of the numbers and quality of their environmental health personnel, most of whom have been trained under WHO auspices. New collaboration mechanisms, involving an increased participation by nationals, will enable the Organization to reorient its activities in these States.

10.105 Following the interregional symposium on environmental planning and management which took place in Geneva in 1974, steps were taken for the preparation of guidelines on planning national environmental health services. In the effort to develop practical guidelines, an analysis must be made of actual environmental planning cases and experience gained from them. Thus, a study was conducted in 1975 on recent experience in Ecuador and Colombia and a paper was produced on the evaluation of national environmental health planning in those countries.

1 This paper, entitled *Experience in environmental health planning*, is available from the Division of Environmental Health, World Health Organization, 1211 Geneva 27, Switzerland.

The Health Ministers of the Caribbean Community requested the assistance of the Organization in undertaking a study to define the components of the environment that are important from the health point of view in the Caribbean context and to determine priorities.

10.106 In the South-East Asia Region, the first regional seminar on planning of environmental health services, held in New Delhi in December, provided an opportunity to planners and administrators from seven countries to exchange views and experience on the subject and to consider proposals for overall environmental health programmes within the national health plans.

10.107 In the context of the European long-term programme in environmental pollution control, a study of the role of public health in environmental pollution control is being made in cooperation with the Belgian Government. A preparatory meeting was held early in 1975 to discuss the implementation of this two-year study, which will elucidate the environmental pollution problem and record the administrative and legislative pattern in European Member States.

10.108 In the Eastern Mediterranean Region, a number of projects were initiated during 1975 to deal with the many problems related to the environment. In Iran, projects financed by UNDP aim at undertaking nationwide surveys of the present extent of industrial and agricultural pollution. Similar studies were carried out in the Libyan and Syrian Arab Republics.

10.109 General advisory services projects in environmental health were operational in six countries of the Western Pacific Region and on an intercountry basis in the South Pacific area; environmental health was also a component of seven multidisciplinary projects. Continued progress was made in the setting up of environmental health institutions in Malaysia. The environmental health manpower situation in the Philippines was reviewed and recommendations were made on possible courses of development.
11. HEALTH STATISTICS

11.1 International statistics tend to comprise data that are heterogeneous in terms of definitions and collection procedures used, scope and coverage, and degree of accuracy. Crude statistics may therefore be misleading if they are not accompanied by a proper analysis. For this reason increased attention was given to providing processed, analysed, and interpreted information. In particular, a critical review of the Organization's statistical publications was undertaken in 1975 with the help of comments and suggestions obtained in response to a questionnaire addressed to the users of these publications. This will guide the Organization in adjusting its policy on statistical publications to meet changing needs.

11.2 There is a growing awareness that traditional health statistics systems often do not fulfil the information requirements of health services and fail to respond to changing needs. Efforts were made to render the health statistics programme more user-oriented than in the past. The scope of the methodological support provided to the other programme sectors of the Organization was also widened to incorporate mathematical and systems methodology.

Development of health statistical services

11.3 Determination of the health needs of a population, comprising an evaluation of the current state of health, an assessment of existing health facilities, and ascertainment of the distribution and accessibility of manpower resources, is not possible without appropriate and reliable statistical information. Furthermore, decision-making, the setting of objectives, and the formulation of projects and programmes have to rely on adequate statistical data on the inputs and expected future outputs of the health services. Similarly, information on the progress of programme activities should be fed back to the decision-makers so that targets and ways of attaining them can be adjusted. During the past decades, a variety of unconnected specific information systems have evolved in a number of developed countries, whereas developing countries find it difficult to establish basic responsive information systems. A "responsive" system implies the provision of adequate, timely information—that is to say, information that is user-oriented and related to objectives and outputs. The information systems in many countries do not meet these requirements, the main reasons being shortage of qualified personnel, lack of coordination between statistical subsystems, and inadequate training of users.

11.4 WHO has been assisting countries to reorganize and reorient their health information systems. Very often, the concomitant reorganization of health statistical services requires the retraining of personnel at various levels, through seminars, workshops, and fellowships, as well as through inservice training and statistical projects. To this end, WHO is at present giving direct assistance in the implementation of more than 60 statistical projects and through the granting of fellowships. (See Chapter 3 for further information on training activities.)

11.5 On the basis of the findings of field studies undertaken in 1973 in nine developing countries, two pilot projects were set up in Tunisia and Pakistan to analyse and design model health statistics information systems. Emphasis was placed not only on the reorganization and extension of the central health statistics services, but also on the development of peripheral statistical services properly coordinated with the services at the national level.

11.6 In the African Region, assistance was given in planning improvements in the vital and health statistics systems of Botswana, Central African Republic, Congo, Guinea, Kenya, Liberia, Mauritius, Sierra Leone, and Swaziland. Through projects for the development of epidemiological health services, the Organization demonstrated the value of health statistics in the control of disease and for promoting health in Burundi, Ivory Coast, Kenya, Nigeria, Rwanda, Sierra Leone, United Republic of Tanzania, Upper Volta, and Zaire.

11.7 In the Region of the Americas, the Regional Advisory Committee on Health Statistics, at its meeting in January, discussed the role and relationships of health information and health statistical systems. Recommendations made by the Committee included: (1) the initiation of a study of the implementation of health information systems and the organizational problems involved, including the improvement of existing vital and health statistics programmes; (2) the development of standard definitions and methodology for determining data components and indicators;
(3) research into priority setting and cost/benefit analysis; and (4) the preparation of a series of manuals on computer use, basic statistics, and data sets. In Costa Rica, the findings of a working group established to determine the information needs of the health services have resulted in the adjustment of health statistical production to meet those needs. Advisory services were provided to Colombia on the redesign of its health system and information subsystems, particularly medical records, computer science, and statistics of health care delivery. Information activities were initiated in Brazil in relation to the maternal and child health programme. A census of health resources was carried out in Ecuador as a first step in establishing an information system. Medical records continued to receive increasing attention throughout the Region. Sixteen countries were provided with advisory services in this field during the year, both for the development of training courses and for the reorganization of hospital medical records departments. A project on operational research in medical records was initiated with a seminar on applied research techniques.

11.8 In the South-East Asia Region, assistance was made available through 15 projects on health statistics and related disciplines. Advice was given on the information aspects of country health programming in Nepal and Thailand. In Bangladesh, assistance was provided in reviewing and consolidating the work of the newly established Vital Statistics and Epidemiological Services Unit in the Directorate of Health Services, and in establishing a procedure for information flow in respect of admissions to and discharges from the Dacca Medical College Hospital. In India, help was provided with the development of a model health information system in selected districts, for the planning, management, and evaluation of health services. Assistance given to Mongolia related to the use of computers in the health field, especially for analysing hospital morbidity based on discharges, and also for extending the existing health information system to a computer-based one. Projects for the strengthening and development of national health services were continued in both Indonesia and Nepal. In the former country aid was provided in evolving a design for health care services based on the health centre; staff/activity schedules were worked out and estimates of additional requirements were made. In Nepal, work was in progress on the development of a recording and reporting system for use in districts with integrated basic health services.

11.9 In the European Region, a study was carried out on the requirements of an environmental pollution information system, with initial emphasis on water pollution. Specific information on current projects in various fields, on the organization of services, or on the health situation was supplied to countries on request. Direct assistance was provided through country projects, particularly in the medical use of computers. Bulgaria was assisted in organizing a national symposium on computer application in communicable disease control, held in Gabrovo in September. Advisory services were provided to Iceland in the setting up of a health data bank covering the entire population. In connexion with the strengthening of maternal and child health services in Morocco, assistance was given in establishing a master frame for sampling the health status of the population, among other activities. A survey particularly concerned with the use of computers in the processing and storing of data contained in hospital discharge summaries was conducted in Member countries throughout the Region; a report on the findings is in preparation.

11.10 An increasing interest was noted in the development of health statistical services in the countries of the Eastern Mediterranean Region. A large number of projects were in operation, and a record number of fellowships were awarded in the field of vital and health statistics. In a few countries, population censuses were taken for the first time, and more countries are now publishing annual reports on general statistics or vital and health statistics. Advisory services in medical records were provided through an intercountry project, and guidelines for medical record practice were prepared and distributed to all countries in the Region. A revision of the complete set of basic country information documents was issued in January. These documents were widely distributed to the appropriate national authorities and to other interested organizations.

11.11 Similar information was also compiled in the Western Pacific Region in the form of "country health information profiles", which are now available for 22 countries and areas and in preparation for another 10. Assistance in improving or establishing medical records systems was provided in Malaysia and New Hebrides. In the first-named country and the Republic of Korea the Organization collaborated in the development of monitoring systems for the prompt detection of any unusual incidence of communicable diseases, as well as, in Seoul, in strengthening the data processing capabilities of the central statistical unit of the Ministry of Health. In the Republic of South Viet-Nam assistance was given for the improvement of the collection and processing of health statistics with particular reference to rural areas.
Dissemination of statistical information

11.12 Beginning in 1975, all requests to countries for national health statistical data were routed through the regional offices as part of the Organization's effort to coordinate and rationalize the use of questionnaires by WHO for collecting health information from governments and other sources. At present, data on causes of death are made available on magnetic tape by 28 countries which have the requisite facilities. The information thus solicited, together with figures from official country publications, is processed and analysed and provides updated input for the WHO statistical data bank. Consolidated statistics are published in the World Health Statistics Annual. The first volume (pertaining to 1973) in an annual series on vital statistics in the Americas was prepared. In addition, two issues in the series Notifiable Diseases in the Americas—one for the period 1970-72 and the other for 1973—were printed. Among the articles on subjects of public health interest appearing in the World Health Statistics Report, the following analytical studies were published during the year: mortality from hypertensive disease; cancer of the female breast; cancer of the uterus; methodological studies on mental health and family planning; syphilis and its sequelae, and gonococcal infection; mortality and hospital morbidity among school-age children; and trends in the development of hospital facilities in Europe. A users' guide to standardized computer tape transcripts was also published in the World Health Statistics Report to facilitate access to the information stored in the WHO data bank and thus to contribute to a wider and speedier dissemination of information.

11.13 An information subsystem on cancer statistics is being set up in collaboration with IARC. This worldwide information network will include data not only on mortality and morbidity but also on health facilities and resources used by countries for their cancer control programmes, thus promoting the Organization's efforts to provide guidelines and advice on how to establish national cancer statistics information systems. A mental health information subsystem has also been set up to furnish the data required for planning and evaluating mental health care and services (see paragraph 7.105). A study group on statistical indices of family health met in Geneva in February. The group produced a glossary of selected terms for health studies of the family and made suggestions as to future studies that WHO might carry out on the subject.

Health statistical methodology

11.14 Because of the close relationship between all forms of quantitative analysis, activities in health statistical methodology are not confined to statistics, but include support in the fields of general mathematics, computerized simulation, epidemiological modelling, operational research techniques for dealing with health service delivery and the optimum allocation of resources, systems approaches relevant to multidisciplinary and multisectoral studies, and assistance in policy analysis and the practical choice of intervention strategies.

11.15 In the area of communicable diseases the main statistical activities related to the evaluation of disease control programmes by longitudinal surveys and of large-scale controlled trials. Specific examples are the epidemiological studies of trachoma, as part of the prevention of blindness programme in six countries; research into the most cost/effective methods for WHO's expanded programme of immunization; vaccine trials designed to test the efficacy of BCG against leprosy, covering about 28,000 children in Burma; the assessment of treponematosis transmission in tropical areas (e.g., Senegal); evaluation of the impact of house spraying with insecticides on malaria transmission in Kenya; research on effective and economical methods of control of schistosomiasis in the man-made Lake Volta in Ghana; and epidemiological and entomological studies on onchocerciasis in the Volta River basin area. Statistical and mathematical support, especially involving mathematical models and computer simulation, was provided in connexion with specific diseases such as rabies, cerebrospinal meningitis, diphtheria, malaria, and filarial infections, with a view to helping public health administrators to evaluate the effects of alternative control programmes.

11.16 In the area of noncommunicable diseases, emphasis was placed on ascertaining the magnitude of health problems in the community, elucidating the natural history of the diseases in question, analysing a spectrum of etiological factors, and evaluating intervention measures. A variety of statistical techniques, such as multivariate analysis, discriminant analysis, cluster analysis, and regression methods, were used to handle the large numbers of variables involved. Applications included several multicountry projects concerned with cardiovascular diseases; an investigation of nutritional status in 10 countries, involving anthropometric characteristics, patterns of breast-feeding, and acceptable daily intake of food additives and pesticide residues; and the establishment of international standards for human urinary follicle-stimulating hormone and luteinizing hormone.

11.17 Support to multidisciplinary programmes within the Organization included the planning of an information system in medical computing sciences, the
planning of a health alert system based on a statistical quality control approach for indicating dangerous trends in various indicators of health status, an exploratory study on the use of a systems approach to the coordination by WHO of cancer management activities, and continued liaison with the International Institute for Applied Systems Analysis, Laxenburg, Austria, to promote multisectoral systems studies having a major health component and aiming to provide greater integration between the technical and policy levels of WHO's overall programme of work.

11.18 Advice was provided to governments in the African Region on the preparation of statistical questionnaires and record forms and on the analysis and interpretation of the data. Assistance was also given in utilizing the countries' available health statistics for the planning and evaluation of health services.

11.19 The inter-American investigation of mortality in childhood and the associated study of children in a sample of households in each of 13 project areas have been subjected to continuing analysis; a multiple regression analysis of determinants of infant and child mortality, particularly birth weight, maternal age, and birth order, was carried out in one selected project. Tabulation of the data on a survey of smoking habits in eight Latin American cities was completed, and an analysis was made for a census of health care establishments in Ecuador.

11.20 In the South-East Asia Region, assistance was given to the Indian Council of Medical Research on the application of mathematical models to epidemiological data from the Council's various studies and research projects, particularly those relating to rabies and cervical cancer. In Sri Lanka statistical assistance continued to be provided, including the evaluation of a family health project.

International Classification of Diseases

11.21 The International Conference for the Ninth Revision of the International Classification of Diseases was held in Geneva in October. It was attended by 95 delegates from 46 Member States and by representatives from the United Nations, ILO and 11 nongovernmental organizations. The Conference approved the proposals for the ninth revision, subject to the Organization's consideration of a number of minor modifications submitted by delegates. The final drafts of these proposals, based on the recommendations of the WHO Expert Committee on Health Statistics that had met in 1974, had been circulated to Member countries during the first half of 1975. Other documents distributed for consideration had included supplementary classifications of diagnostic, therapeutic, and prophylactic procedures in medicine and of impairments and handicaps.

11.22 Recognizing the need of national authorities to have both the volume containing the Classification and the index volume in their hands at least one year before the Classification is applied so that coders may be fully trained, the Conference recommended that the revised Classification should come into effect as from 1 January 1979. It also recommended that the classifications of procedures in medicine and of impairments and handicaps should be published as supplements to, and not as integral parts of, the ninth revision. The Conference approved, with some amendments, a series of proposed definitions and recommendations concerning perinatal and maternal mortality, including a form of certificate of cause of perinatal death different from the international form currently recommended for use at all ages. It recognized that many countries might find difficulties in introducing such a certificate but urged that it should be used wherever practicable.

11.23 Attention was given to the question of securing badly needed morbidity and mortality statistics in countries still suffering from a lack of sufficiently qualified personnel, and it was recommended that WHO should become increasingly involved in the attempts of a number of developing countries to find a solution to this problem.

11.24 After the Conference, a meeting was held with the heads of WHO collaborating centres for classification of diseases to discuss methods of familiarizing coders with the revised Classification. The need to hold regional courses for national coding supervisors was stressed; the supervisors would be supplied with teaching material to enable them to run similar courses in their own countries. The meeting agreed on the content of a training course, made arrangements for the collection of suitable material, and drew up a tentative plan for a series of regional courses to be held in 1977 and 1978.

11.25 A series of meetings, held in collaboration with IARC and attended by cancer specialists from France, Italy, USSR, United Kingdom, and USA, resulted in the preparation of a field trial edition of an adaptation of the International Classification of Diseases to oncology. Versions in English, French, Portuguese, Russian, and Spanish were tested in cancer registries, cancer reference centres, hospitals, and vital statistics offices in many parts of the world. Amendments shown to be necessary by the field trials will be incorporated into the final version, to be published at the same time as the ninth revision.
12. COORDINATION OF BIOMEDICAL RESEARCH

12.1 The Executive Board at its fifty-fifth session, in January 1975, examined a progress report on WHO's role in the development and coordination of biomedical research and endorsed the steps taken or envisaged by the Director-General to implement resolutions WHA25.60 and WHA27.61 of the World Health Assembly, notably with respect to: (a) the special programme for research and training in tropical diseases and its further formulation (see paragraphs 5.8-5.12); (b) the greater involvement of the WHO Advisory Committee on Medical Research (ACMR) and the WHO regional organizations in research activities; and (c) increased coordination and planning of biomedical research and exchange of research information. This was the first time the ACMR was represented at a session of the Board.

12.2 In May the Twenty-eighth World Health Assembly, by resolutions WHA28.51, WHA28.53, WHA28.70 and WHA28.71, called for an acceleration of work on the formulation of a comprehensive long-term WHO programme for the development and coordination of biomedical research. Particular attention was drawn to the special programme on research and training in tropical diseases and to the coordination of research in environmental health, cancer, cardiovascular diseases, virus diseases, and other priority problems. The Health Assembly requested an evaluation of work accomplished or in progress in association with WHO collaborating centres and called for intensified cooperation with national research institutions having the appropriate facilities and manpower to collaborate with WHO on problems of particular importance to the Organization. The role of the ACMR in formulating and evaluating the Organization's research activities was reaffirmed by the Health Assembly, which also supported the promotion of research in the major tropical diseases and requested the Director-General to undertake measures to coordinate various programmes for the control of parasitic diseases and to stimulate further research in schistosomiasis.

12.3 In pursuance of these, and of previous resolutions, special efforts were made to upgrade the research capabilities of the developing countries and WHO's research policy was reviewed to determine how best the Organization might encourage greater regional participation in research (see paragraph 12.7).

12.4 A systematic compilation of all WHO-supported research was undertaken and a synopsis of all research activities in 1974 was made. The findings were used to improve the management of research and to ensure closer correlation between research activities and the stated priorities of the Organization. A detailed plan of action was prepared for research management over the next five years, taking into account progressive regional involvement in research. The plan includes: (a) the development and analysis of a data base for WHO's research activities in relation to research policies and the Organization's overall priorities; (b) the development and implementation of methods and mechanisms to identify regional and global research needs; and (c) the establishment of research development committees at headquarters and in the Regions to make recommendations concerning research policy, objectives, priorities, resource allocation, and funding.

12.5 During the year several members of the ACMR acted as temporary advisers on various WHO research activities in addition to participating in the annual meeting of the ACMR in June. Prior to that meeting, subgroups of the ACMR met to work on the development of the tropical diseases research programme and to consider, along with outside consultants, the problem of ensuring the safety of research on DNA recombinants in microorganisms so that new pathogens are not inadvertently produced. These subjects were examined at the June meeting of the ACMR, which made recommendations upon them. Among other topics reviewed were the role of WHO as a clearing-house for information and advice on safety measures in laboratories dealing with pathogenic or potentially dangerous agents; research approaches at the molecular level to major problems in parasitic diseases; the WHO position on research involving human subjects; the use and supply of nonhuman primates for research; problems of strategy, policy, and choice of programmes for the support of biomedical research at the national and international levels; and WHO research activities in radiation medicine, rabies, strengthening of health services, occupational health,
influenza, sexually transmitted diseases, endemic nephropathy, diabetes and vascular disease, and the association of genetic markers and susceptibility to diseases.¹

12.6 In the Region of the Americas the Advisory Committee on Medical Research of the Pan American Health Organization (PAHO) reviewed research activities in the Region and studied reports on a number of subjects including the present status of Venezuelan encephalitis research, the seroepidemiology of typhus in Bolivia and progress in attenuated typhus vaccine field trials, the organization and development of a multidisciplinary research programme in the trans-Amazon area, collaborative studies on hepatitis B virus, and the preservation of nonhuman primates and their utilization in biomedical research.

12.7 In the other Regions, there were significant developments towards greater regional involvement in research. A meeting on the coordination of biomedical research held in Brazzaville in June-July discussed the role of such research in Africa, criteria for determining research priorities, manpower needs, and training of research workers. Later, in September, the Regional Committee for Africa adopted a resolution requesting the Regional Director to promote biomedical research in the Region, and preliminary steps were taken to this end. The promotion of biomedical research was the subject of the technical discussions during the meeting of the Regional Committee for South-East Asia in late August, and the need to develop the research capabilities and activities of countries in the Region was emphasized. A Regional Advisory Committee on Medical Research for South-East Asia has been established. The development and coordination of biomedical research in the European Region was discussed in September by the Regional Committee, which decided to intensify regional involvement in this field and as a first step to convene a consultative group. A Regional Advisory Committee on Biomedical Research was also established for the Eastern Mediterranean Region, and updating of information on research resources and potentials in countries in the Region was begun. The promotion of biomedical research was also given special attention at the meeting of the Regional Committee for the Western Pacific in September, when it endorsed proposals to strengthen and broaden the Region’s role in research, including the establishment of a regional advisory committee on the subject.

12.8 Steps were also taken to increase contacts and collaboration with national medical research councils and similar bodies; for example, a meeting was held in June with the heads of European national medical research councils on research in schistosomiasis.

12.9 The greater part of the research with which WHO is concerned is conducted collaboratively through the award of grants to research institutions and workers performing specific functions related to the WHO research programme. The institutions officially designated as “WHO Collaborating Centres” are shown in Annex 5 according to the field of work with which they are concerned.

12.10 Under the WHO research training programme, 42 grants were awarded in 1975 to enable research workers to widen their research experience abroad with a view to increasing their contribution to the research activities of their own countries on their return home. In addition, 33 grants were awarded to promote the exchange of scientific knowledge by enabling investigators working on subjects of interest to WHO to visit scientists in other countries working in similar or related fields. The research grants awarded for training and exchange are shown in Annex 6.

12.11 Six scientific groups were convened by WHO during the year on the following subjects: developments in malaria immunology; epidemiology of infertility; virus diseases; immunological adjuvants; methods of toxicity evaluation of chemicals; and methods of monitoring carcinogenic chemicals in the environment. Reference is made to these meetings in the relevant sections of this report.

13. HEALTH LITERATURE AND INFORMATION

Library and health literature services

13.1 Following the initiation in 1974 of a global health literature programme for the improvement of medical library services and, particularly, the development of regional medical libraries, a provisional service was started to respond especially to the needs for assistance of developing countries, while efforts were made to obtain extrabudgetary financial support for extension of the new programme. Major components of the service included the WHO MEDLINE facilities, the expansion of services for providing copies of articles in journals and other publications, and various specialized information projects.

13.2 The WHO MEDLINE centre in Geneva, which has direct communication links with the United States National Library of Medicine computer data base, has carried out some 5000 searches since it began operating in April 1974. Health workers in the developing countries have benefited particularly from this biomedical information service, although most Member States have submitted requests for a MEDLINE search. The MEDLINE system is also in use at the PAHO/WHO Regional Library of Medicine and Health Sciences in São Paulo, Brazil, servicing Brasilia, Rio de Janeiro and Recife, based on terminals located in the biomedical or university libraries in those cities. The MEDLINE services from both the Geneva and São Paulo centres have been received very favourably.

13.3 The importance of local responsibility for the effective execution of the health literature programme was further emphasized by intensifying efforts to provide appropriate technical and administrative services, through various types of training. The collection of data relevant to training needs and facilities, document delivery and the planning of regional networks was started on a continuing basis.

13.4 Surveys of health libraries were conducted in several Regions to identify the existing health literature resources. In the South-East Asia Region the updating of an earlier 1968-69 survey was initiated; the Eastern Mediterranean Region completed a similar study during the year.

Health information of the public

13.5 As global eradication of smallpox entered its final phase in 1975, providing an outstanding example of the constructive results nations can achieve when they work together towards the common cause of better health for all, the theme chosen for World Health Day 1975 was “Smallpox—point of no return”. On this occasion WHO distributed some 30,000 information kits and posters together with about 5000 photographs, mostly on request from the Regions and various national bodies. Daily newspapers throughout the world carried editorial comment on the significance of smallpox eradication, most of the articles being based on, and illustrated with, material supplied by WHO. On 4 April, three days before World Health Day, a three-continent satellite communication link-up lasting 45 minutes was established between Washington, New York, London, Geneva, and New Delhi, and a press conference was held on the smallpox eradication programme. Stories based on this press conference appeared in major newspapers and were transmitted throughout Asia, Europe, Latin America and the Caribbean area by news agencies. A 15-minute colour film entitled “Point of no return” was produced specially for World Health Day by Visnews Productions, London, in English, French and Spanish versions. Twenty-two requests for the film from television stations were met. Two other films made by WHO for the smallpox eradication programme in the South-East Asia Region—“Smallpox: Focus India” and “Smallpox: Last-ditch struggle in Bangladesh”—proved helpful in motivating people concerned with the programme in the field and were also used for World Health Day showing in that Region.

13.6 A number of original ideas for publicizing World Health Day and encouraging public participation in the celebrations were put into practice in the African Region. In Uganda, for instance, all assistant health visitors in the country were asked to give talks in primary schools in their areas on the subject of immunization, and essay competitions were held in all secondary schools on the effect of immunization on common diseases. In Liberia, a special poster was designed for World Health Day and special activities were suggested for elementary and high school students throughout the country. In Brazil, the country
that waged the last massive campaign against smallpox in the western hemisphere, World Health Day was commemorated by the Brazilian Congress at a special ceremony in Brasilia. The World Health Day theme was of special relevance for the South-East Asia Region, where it provided an excellent opportunity to draw attention to WHO's role and contribution in the fight against smallpox, and to seek support for the final efforts in the struggle. National leaders of countries in the Region participated in World Health Day television and radio programmes and in public celebrations. In addition, many thousands of information kits were distributed in the Burmese, English, Hindi, Mongol, and Thai languages. In some countries in the Western Pacific Region, smallpox was felt to be of only limited interest and the theme was changed to that of environmental health. An increase in the number of cases of dengue haemorrhagic fever prompted Fiji and Tonga to use World Health Day celebrations to emphasize the importance of environmental health. An increase in the number of cases of dengue haemorrhagic fever prompted Fiji and Tonga to use World Health Day celebrations to emphasize the importance of environmental health.

13.7 In the Region of the Americas, steps were taken to enliven the quarterly magazine Gazette, the name of which was changed to Pan American Health and the presentation completely revised. In the European Region, a newsletter—Euro Information—was launched for governments and cooperating organizations. The newsletter summarizes the main WHO activities in the Region throughout the year. Since interest in WHO activities in the European Region is generated particularly through numerous working groups, conferences, and symposia, more frequent analysis of results was begun to reinforce the impact of these meetings and to ensure regular follow-up and coverage by the press, radio and television.

13.8 World Health, the WHO illustrated monthly magazine, also introduced some innovations, including brief news specifically about WHO and a section addressed to the young. Special issues on women's role in society, marking the opening of International Women's Year in January, and on sexually transmitted diseases, timed to coincide with the World Health Assembly Technical Discussions on that subject in May, were much in demand and widely reported, and many articles and extracts were reproduced in other publications. The August-September issue contained a pictorial “Guide to family health” and the November issue a tear-out section on self-examination for the early detection of breast cancer. The thirtieth anniversary of the United Nations was also specially featured. The magazine continues to be published in eight languages. The Italian edition, published by the Italian National Committee for WHO, had to be discontinued for reasons of cost.

13.9 Interest in the work of WHO was fostered among professional groups such as the Italian Union of Medical Science Writers (UNAMSI), which launched a prize competition for the best article on WHO-supported projects during the year.

13.10 One of the most important activities in keeping the public informed on health matters is responding promptly to requests for information from journalists, students, research workers, other organizations, and members of the public, and, if necessary, arranging visits to the WHO Library or technical units. Some 35 000 items of information were provided by the Regional Office for the Americas alone. Numerous requests for information were received in Geneva from teaching institutions and press agencies following the launching in 1974 of the fact-sheet series “In point of fact”. The volume of interest in health matters in the Western Pacific Region may be gauged from the fact that almost 17 000 column centimetres of news clippings on WHO activities were collected from newspapers published in various countries in the Region.

13.11 The Organization collaborated in the production by a firm in the United Kingdom of a series of paramedical and first-aid audiovisual programmes based on the International Medical Guide for Ships, issued by WHO in collaboration with ILO and IMCO. Assistance was given to the National Film Board of Canada in preparing a series of 40 films intended for the training of health workers in Africa. Over 300 prints of WHO films were sold during the year and two films, “Point of no return” and “Family plan”, were screened hors concours at the Sixth International Festival of Red Cross and Health Films held in Varna, Bulgaria.

13.12 Two innovations were introduced in the regular monthly WHO radio programme. Interviews and round-table discussions were added to enliven programmes that previously consisted only of news items. In addition, the programmes were designed for specific audiences: for example, “WHO Around the World” for English-speaking listeners in Africa and Asia, “l'OMS Autour du Monde”, for French-speaking listeners in Africa, and “Dichos y Hechos de la OMS” directed to Latin America. Two programmes were produced in English and French on the World Health Day theme—smallpox eradication—and were widely distributed, together with a message from the Director-General in three languages.

13.13 A booklet entitled Contraception explained was published with financial assistance from UNFPA as a follow up to World Population Year, and eight special radio programmes on family planning and family
health problems in Botswana, Colombia, Gabon, Jamaica, Malaysia, Singapore, Thailand and Turkey were produced and distributed.

13.14 Requests for more than 40,000 photographs were met during the year and a number of special photographic exhibits on smallpox were mounted for World Health Day in Geneva, the World Health Assembly, and the Moscow International Book Fair (at which WHO also exhibited publications). Other exhibits included one on primary health care for the World Health Assembly, and one in Abidjan on onchocerciasis.

13.15 Some 150 groups of visitors, comprising approximately 5000 people, were conducted around WHO headquarters during the year. These included entire classes from primary or secondary schools, and professional health groups from many countries. These visits are arranged to provide the maximum amount of information about WHO.
14. CONSTITUTIONAL, LEGAL, FINANCIAL AND ADMINISTRATIVE DEVELOPMENTS

Legal Matters

Constitutional and legal

14.1 On 26 February and 9 December 1975 respectively, the Republic of Botswana and the Comoros, already Members of the United Nations, became Members of the World Health Organization by depositing formal instruments of acceptance of the WHO Constitution with the Secretary-General of the United Nations. The Kingdom of Tonga, the People's Republic of Mozambique and the Democratic Republic of Viet-Nam were admitted as Members of WHO by the Twenty-eighth World Health Assembly on 14 May 1975 and deposited instruments of acceptance on 14 August, 11 September and 22 October 1975, respectively, dates on which their membership became effective. At the end of 1975 WHO had 146 Members and two Associate Members. A list of Members and Associate Members is given in Annex 1.

14.2 During 1975 Bahrain and Cuba deposited instruments of acceptance of the amendment to Article 7 of the Constitution, adopted by the Eighteenth World Health Assembly in 1965 (WHA18.48), relating to the possible suspension or exclusion of a Member ignoring the humanitarian principles and the objectives laid down in the Constitution; this brings the total number of acceptances to 52.

14.3 The amendments to Articles 24 and 25 of the Constitution adopted in 1967 by the Twentieth World Health Assembly (resolution WHA20.36), increasing the membership of the Executive Board from 24 to 30, entered into force on 21 May 1975 after instruments of acceptance had been deposited by 12 further Members since the beginning of the year, bringing the total number of acceptances to 95 and thus meeting the requirement of acceptance by two-thirds of Members in accordance with Article 73 of the Constitution. Noting the entry-into-force of this amendment the Twenty-eighth World Health Assembly, in its resolution WHA28.22, requested the Director-General to propose for the consideration of the Twenty-ninth World Health Assembly draft amendments to the Constitution to permit a further marginal increase in the membership of the Executive Board. In compliance with this mandate the Director-General, in June 1975, transmitted to all Members of the Organization a number of alternative drafts for a constitutional amendment which would further enlarge the Executive Board by one, two or three members.

14.4 The amendments to Articles 34 and 55 of the Constitution, which were adopted by the Twenty-sixth World Health Assembly in 1973 (resolution WHA26.37) and which would permit a transition to full biennial programme-budgeting, were accepted in the course of 1975 by 42 further Members (Afghanistan, Australia, Bahrain, Benin, Bolivia, Burma, Cyprus, Dominican Republic, Ecuador, El Salvador, France, Federal Republic of Germany, Greece, Guinea, Guinea-Bissau, Iceland, Ireland, Kuwait, Malaysia, Maldives, Mali, Mexico, Monaco, Morocco, Netherlands, Nigeria, Norway, Panama, Portugal, Qatar, Singapore, Somalia, Spain, Swaziland, Syrian Arab Republic, Thailand, Togo, Trinidad and Tobago, Uganda, United States of America, Venezuela, and Yugoslavia). By the end of the year a total of 62 instruments of acceptance had thus been deposited; at least 36 further instruments will be necessary in order to meet the requirements for entry-into-force of the amendments in accordance with Article 73 of the Constitution. The Twenty-eighth World Health Assembly, in its resolution WHA28.74, urged Members that have not yet notified their acceptance to the Secretary-General of the United Nations to do so within the shortest possible time.

14.5 One Member—Zambia—declared in 1975 that it considers itself bound, as a result of State succession, by the Convention on the Privileges and Immunities of the Specialized Agencies together with its Annex VII, which relates specifically to the World Health Organization.

1 The associate membership of one of these, Southern Rhodesia, is regarded as being in suspense. Papua New Guinea, a former Associate Member, attained independence on 16 September 1975 but continues, in accordance with resolution WHA14.45, to enjoy the rights and privileges of associate membership during the transitional period which must necessarily elapse before the country can become a full Member.
Health legislation

14.6 The twenty-sixth volume of the International Digest of Health Legislation was published in 1975, together with an index covering the five years 1970-74. This quarterly publication continues to constitute the main vehicle for informing health ministries and public health workers of changes and developments in health legislation throughout the world.

14.7 A survey of recent legislation on venereal disease control, also published in 1975, was included in the background material for the technical discussions at the Twenty-eighth World Health Assembly. Work was started on the preparation of an international review of mental health legislation (see paragraph 7.91).

14.8 A comparative study of legislative measures to combat smoking—an updated version of a document considered by the WHO Expert Committee on Smoking and its Effects on Health at its meeting in December 1974—was presented by WHO at the Third World Conference on Smoking and Health, held in New York in June 1975.

14.9 In connexion with the large-scale project for protection of the Mediterranean against pollution (see paragraph 10.48), WHO prepared an analysis of pertinent national legislation on water-pollution control in the Mediterranean States, a document on relevant international conventions, and guidelines and associated technical annexes for a draft protocol for the protection of the Mediterranean against pollution from land-based sources. This was undertaken at the request of UNEP in preparation for an impending intergovernmental meeting and involved close collaboration with a number of other international bodies.

14.10 There is increasing reference to the Organization on matters of bioethics. In this connexion, the redrafting of the Declaration of Helsinki was extensively discussed with the World Medical Association and the Council for International Organizations of Medical Sciences. A revised version of the Declaration of Helsinki was adopted by the Twenty-ninth World Medical Assembly in Tokyo in October. A study on the health aspects of human rights in the light of scientific and technological developments, prepared in response to a request of the Twenty-third World Health Assembly, was considered by the Executive Board at its fifty-fifth session. It summarizes briefly the main situations in which interventions, compulsions or restraints performed or imposed on human beings for preventive or curative therapeutic purposes, or with a view to advancing knowledge of health and disease, have implications for the rights of the individual. The study was submitted to the thirty-first session of the United Nations Commission on Human Rights, held in Geneva in February-March 1975.

14.11 Assistance was given to Algeria in reviewing proposed legislation relating to water supply organization, including a draft water code, in the context of a general survey of the water supply and sewerage sector. Malaysia received assistance in reviewing and updating its food and drug legislation.

The Financial Position

Budget for 1975

14.12 The effective working budget approved by the Twenty-seventh World Health Assembly for 1975 amounted to US $115,240,000, which was an increase of US $6,440,200 over the revised effective working budget for 1974.

14.13 As a result of the decision of the General Assembly of the United Nations to adjust the salaries and allowances for professional and higher categories of staff with effect from 1 January 1975, it became necessary to present supplementary estimates for 1975 totalling US $4,070,000. In resolution WHA28.8 the Twenty-eighth World Health Assembly, on the recommendation of the Executive Board, approved these supplementary estimates, to be financed from available casual income, resulting in a revised total effective working budget for 1975 of US $119,310,000.

14.14 The approved budget for 1975, including the supplementary estimates, was US $136,734,620. The difference of US $17,424,620 between the effective working budget and the approved budget level is accounted for by a transfer to the Tax Equalization Fund of US $14,333,750 and the Undistributed Reserve of US $3,090,870.

14.15 The continuing international monetary instability and inflation created grave budgetary problems

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throughout the year. It was mainly through the introduction of various types of economies and other measures that it was found possible to meet the resulting additional budgetary requirements within the approved budget for 1975. The economy measures included delays in filling vacant posts, fewer appointments of consultants and temporary advisers, and reductions in the purchase of supplies and in headquarters common services. Other measures included the nontransfer to the Terminal Payments Account of the approved budgetary provisions for this purpose, charging the service and support costs of various extrabudgetary activities to the Special Account for Servicing Costs, and transferring part of malaria and smallpox activities from the regular budget to the Voluntary Fund for Health Promotion.

14.16 The Director-General, in view of the gravity of the situation, addressed a special appeal to all Members for additional voluntary contributions to the Voluntary Fund for Health Promotion for the purpose of implementing activities included in the regular budget for 1975 which otherwise would have to be reduced or cancelled. In response to his appeal some US $700 000 were received in the Voluntary Fund for Health Promotion.

14.17 The distribution of the approved 1975 effective working budget among the appropriation sections, taking account of the adjustments referred to above, is shown in Annex 11.

**United Nations Development Programme**

14.18 Under the UNDP system of country planning, projects are planned, approved and implemented within “indicative planning figures” (IPF) established for individual countries for a five-year period. As of 1 January 1975, an amount of US $18 617 799 was available for the execution of UNDP-financed health projects. During 1975, WHO received new financial authorizations in an amount of US $12 188 246, bringing to a total of US $30 806 045 the amount approved by UNDP for 1975.

**United Nations Environment Programme**

14.19 A total amount of US $135 892 was allocated to the Organization in 1975 by the United Nations Environment Programme for the purpose of carrying out project activities in the field of environmental health.

**United Nations Fund for Population Activities**

14.20 During 1975 the Organization received a total of US $12 411 968 from the United Nations Fund for Population Activities to carry out projects relating to health aspects of human reproduction, family planning and population dynamics (see Chapter 2) in accordance with the policy established by the Health Assembly.

**United Nations Fund for Drug Abuse Control**

14.21 A total amount of US $74 500 was allocated to the Organization in 1975 by the United Nations Fund for Drug Abuse Control to carry out projects of assistance in the field of drug dependence (see Chapter 7).

**Voluntary Fund for Health Promotion**

14.22 Contributions in cash and in kind received in 1975 for the Voluntary Fund for Health Promotion amounted to US $32 365 549, bringing the total of contributions credited to the Fund since its inception to US $110 471 820 as at 31 December 1975. These contributions related to the following sub-accounts:

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<tr>
<th>Sub-account</th>
<th>1.1.1975-31.12.1975</th>
<th>Total from Inception</th>
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<tr>
<td>Special Account for Medical Research:</td>
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<td>Unspecified activities</td>
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<td>2 019 554</td>
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<tr>
<td>Expanded programme on human reproduction</td>
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<td>28 955 085</td>
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<tr>
<td>Specified activities—other</td>
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<tr>
<td>Special Account for Community Water Supply</td>
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<td>Malaria Special Account</td>
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<td>Special Account for Smallpox Eradication</td>
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<tr>
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<tr>
<td>Special Account for the Expanded Programme on Immunization</td>
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<tr>
<td>Special Account for Miscellaneous Designated Contributions</td>
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<td>9 165 142</td>
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<tr>
<td>General Account for Undesignated Contributions</td>
<td>7 328</td>
<td>69 179</td>
</tr>
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</table>

1 Includes adjustments.
2 This special account was disestablished in 1975 by resolution EB54.R14.
3 This special account was established in 1975 by resolution EB55.R62.
Working Capital Fund

14.23 The obligations incurred in 1975 and the status of the Working Capital Fund at the end of 1975 are shown in the Financial Report,1 which is published as a supplement to the Annual Report of the Director-General for submission with the Report of the External Auditor to the Twenty-ninth World Health Assembly.

14.24 The Twenty-eighth World Health Assembly reviewed the Working Capital Fund and decided by resolution WHA28.25 that as from 1976 Part I of the Fund, composed of advances assessed on Members and Associate Members, should be established in the amount of US $5 114 000, to which should be added the assessments of any Members or Associate Members joining the Organization after 30 September 1974. Part I amounted to US $5 120 000 at 31 December 1975. The Assembly decided also that Part II of the Fund, consisting of transfers of casual income, should remain established at US $6 000 000. It was indicated during the discussion that took place on this subject at the Health Assembly that the established level of the Fund could meet the needs for which it had been established provided that there was no major crisis affecting the financing of the Organization’s regular budget operations or a substantial shortfall in the collection of the assessed annual contributions.

Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training

14.25 The status of the Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training is shown in the Financial Report.1 During 1975, 52 requests, amounting to US $730 057, were accepted (see also paragraph 14.39).

Real Estate Fund

14.26 The status of the Real Estate Fund, which was established by the Twenty-third World Health Assembly, is shown in the Financial Report.1 In addition to the US $1 120 085 available in the Real Estate Fund at 31 December 1974, a sum of US $2 185 915 was appropriated to the Fund from casual income by the Twenty-eighth World Health Assembly by resolution WHA28.26 and a construction programme to be financed from the Fund at an estimated cost of US $3 306 000 was authorized for a 12-month period beginning in June 1975. The programme included construction of a prefabricated building at the Organization’s headquarters (US $2 208 000), an extension of the building of the Regional Office for Africa (US $933 000), and improvements to the premises of the Regional Offices for Europe and South-East Asia.

Structure and staff

14.27 During 1975 the following changes were made in the organizational structure at headquarters. The Office of Publications and Translation became the Division of Publications and Translation, and the unit of Vector Biology and Control became the Division of Vector Biology and Control. In order to strengthen headquarters’ functions for programme development, the Headquarters Programme Information group in the Headquarters Programme Committee was integrated into that Committee’s secretariat. A programme manager for Staff Development and Training, attached to the Division of Personnel and General Services, was appointed to coordinate activities relating to the overall programme for staff development and training (see paragraph 14.30). This programme incorporates the activities of the former Staff Training unit, which was disestablished. A programme secretariat—composed of technical officers from different units of the Organization acting as members of a team—was created to coordinate the activities of the Special Programme for Research and Training in Tropical Diseases.

14.28 Organizational changes were also made in some of the regional offices. Thus, in the Region of the Americas, technical departments were grouped in six divisions, and a Programme Committee along the same lines as that of headquarters was established. Also, the Department of Management and Personnel was restructured into the Department of Conference and General Services and a separate organizational entity for personnel activities. A new programme classification structure for the Region was adopted, taking into account the Ten-Year Health Plan for the Americas and the WHO Classification Plan. In the South-East Asia Region, the Office of Public Health was renamed Organization of Medical Care, and the European Region reorganized the health services into four major technical services.

14.29 On 30 November 1975, the total staff (excluding staff of the Pan American Health Organization) was 4338 as compared with 3980 on 30 November 1974.

14. CONSTITUTIONAL, LEGAL, FINANCIAL AND ADMINISTRATIVE DEVELOPMENTS

14.30 A new programme of staff development and training was introduced in 1975. It is aimed at the coordination of activities relating to the planning of staff training programmes, the counselling of staff and supervisors on training needs and possibilities, and the establishment of a faculty of staff members able to assist with specific training within the Organization to meet programme needs.

14.31 Emphasis was placed during the year on training in management for all levels of supervisory staff: administrative assistants to divisional directors, WHO representatives, major programme managers, and senior staff at regional offices. In all, 12 training programmes were developed during the year and a total of 204 staff members, of whom 34 were from regional offices, participated.

14.32 The programme of study leave for individual members continued throughout the year and involved a total of 35 staff. Three study leaves were granted for periods of 4 months or more while 32 were for shorter periods of refresher training.

14.33 In addition to the general programme of speed-reading, drafting, précis-writing and shorthand, special training programmes for administrative assistants and secretarial staff were initiated during the year. They are aimed at providing staff on entry, and throughout their service, with better briefing and guidance on the Organization's general policies and technical programmes as well as on its administrative procedures. To start with, these training programmes have been developed and centred at WHO headquarters, although with the active participation of regional staff.

14.34 During the year, courses in five official languages (Chinese, English, French, Russian and Spanish) were organized at headquarters with a total attendance of 345 staff members. Language tuition was also provided in the Regions as required.

14.35 In the Region of the Americas, a Staff Development Committee composed of representatives of the administration and of the Staff Association was established with a view to formulating recommendations on current and future requirements to meet the Region's manpower and career development needs as well as the needs of individual staff members. As part of a series of administrative workshops on modern management techniques for country representatives' offices in the Region of the Americas, a meeting was held in Caracas in July and was attended by country representatives from Barbados, Guyana, Jamaica, Surinam, and Trinidad and Tobago.

Headquarters and regional office accommodation and related matters

14.36 To accommodate WHO headquarters staff 119 modules of office accommodation were rented in the new ILO headquarters building as from 1 January 1975. The Twenty-eighth World Health Assembly in resolution WHA28.24 authorized the payment of the rental from the Casual Income Account. Construction of a new prefabricated building containing about 138 offices for WHO headquarters staff was authorized by the same resolution and work started in July. The building is scheduled for occupancy in 1976.

14.37 In the Region of the Americas, the construction of the new zone office building in Brasilia, started in 1973, was completed in September 1975, with the exception of conference facilities. Also, the main building for the Pan American Centre for Sanitary Engineering and Environmental Sciences, Lima, was completed.

14.38 Following the decision of the Twenty-eighth World Health Assembly, as embodied in resolution WHA28.26, work was started on phase II of the extension to the building of the Regional Office for Africa, on the enlargement of the document production services of the Regional Office for Europe, and on the installation of fire-fighting equipment and an emergency generator at the Regional Office for South-East Asia.

Supply services

14.39 The value of supplies and equipment purchased through headquarters during 1975 approached a total of US $19 000 000, not including approximately US $2 280 000 required to cover freight and insurance charges. Line items ran to 40 000. Some 8000 purchase orders were placed in some 45 countries with over 1800 different suppliers for shipment to approximately 1700 projects, institutions and receivers in 143 countries or areas throughout the world. The above figures

1 Supplies for emergency operations are discussed in paragraphs 15.41-15.44.
include purchases made on a reimbursable basis for 38 countries and for the United Nations, UNICEF, UNHCR, IARC, the International Computing Centre, and governmental and nongovernmental organizations in official relations with WHO, amounting to US $5 288 700. Of this total, US $408 700 were for purchases made out of the Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training. Purchases from research grants awarded to individual investigators or institutions amounted to US $939,000. The proportion of supplies and equipment provided from funds other than the regular budget ran to 80% of the total.

14.40 Procurement operations during 1975 reflected little change in the trend established in the wake of the energy and economic crisis of 1973-74 which, with inflation proceeding apace, has created a seller’s market with no ready remedy. It is gratifying to note some modest declines from recent price levels in, for example, paper, insecticides, and certain pharmaceutical products. On the other hand, supplier delivery capabilities and willingness to return to fixed-price contracts have not improved for the kinds of supplies and equipment called for by the Organization’s programmes.

14.41 The general impact of price rigidity, coupled with budgetary stringency, is apparent from central purchasing statistics; the dollar volume continued to increase but without corresponding increases in line items procured and shipped for programme support. Any gap in programme demands for supply support was, however, taken up by continuing requirements for ongoing disaster relief and procurement of medical supplies and equipment for some of “the most seriously affected” countries receiving assistance through the Secretary-General’s Special Account for the United Nations Emergency Operation (UNEO). The value of UNEO supplies contracted for on behalf of recipient governments was approximately US $2 713,000.

14.42 Considerable progress was made in decentralized the purchase function from Geneva headquarters to regional and country levels. At the same time the hoped-for gains in speedier delivery of project supply requirements were more than offset by the increased cost of local and direct purchases. WHO continued to work with UNDP and other United Nations bodies towards an agreed, but elusive, goal of greater standardization of common user items and establishment of a global procurement operation to serve all agency requirements to the extent feasible.

14.43 The International Civil Service Commission, established by the General Assembly of the United Nations for the regulation and coordination of the conditions of service of the United Nations common system and whose statute the Twenty-eighth World Health Assembly accepted in resolution WHA28.28, met twice in 1975. The first meeting, held in New York, was of an organizational nature. At the second meeting, held in Geneva, the Commission began its review of the salary and allowances system and mainly considered reports presented by the Administrative Committee on Coordination (ACC). It made no recommendations on an ACC proposal for revising the maximum amount of the education grant and deferred consideration of a proposed staff assessment scheme to its next session. On the basis of a further proposal by ACC, it recommended to the United Nations General Assembly, for application in January 1976, an interim arrangement whereby the post-adjustment rate for staff without dependents, at that time equal to two-thirds of that applicable to staff with dependents, would be increased to 85% of the latter from class 8 onwards.

14.44 The final results of the implementation of phase I of the cost measurement system developed on an interagency basis to determine, inter alia, the reimbursement to executing agencies of overhead costs for the execution of UNDP-financed programmes were considered by the Governing Council of UNDP at its nineteenth session, held in January 1975. Consequently, the Governing Council decided to authorize the reimbursement of programme support costs incurred by the agencies for the execution of UNDP-financed projects at the rate of 14% for the years 1974-1977. The Consultative Committee on Administrative Questions (CCAQ) continued its study on the cost measurement system, taking into account the discussions and decision of the UNDP Governing Council as well as a report prepared by the Joint Inspection Unit on this subject.

14.45 The future accommodation of the International Computing Centre (ICC), which has been located in the WHO headquarters building on a rent-free basis since its inception in 1971, was the subject of a study undertaken by the Joint Inspection Unit at the request of the ICC Management Committee, in agreement with ACC. The study revealed that, owing to the unavailability of suitable alternative accommodation...
14. CONSTITUTIONAL, LEGAL, FINANCIAL AND ADMINISTRATIVE DEVELOPMENTS

and the undesirability of constructing a new building exclusively for the ICC, the best arrangement was for the ICC to retain the whole of the space occupied in the WHO building against payment of a rent and defraying certain indirect costs, as far as these could be identified and assessed. ACC, endorsing this view, believed that such an arrangement had the advantages of allowing ICC to continue to function in its present premises and avoiding the disruption and expense of a complete or partial transfer, while compensating WHO financially for the space and other facilities that hitherto were provided free of charge. It was agreed that these new arrangements would become effective on 1 March 1976.

14.46 In order to achieve uniformity by all organizations of the United Nations system and to simplify extremely complex payroll procedures in connexion with the payment of salaries and allowances of professional and higher categories of staff in different currencies, agreement was reached on an interagency basis for a new single set of criteria in this regard. The new arrangements, which came into force in the second half of 1975, were as follows: (a) base salary and dependency allowances: a minimum of 25% in the currency of the duty station and a maximum of 75% in a single other currency; (b) assignment allowance and post adjustment: 100% in the currency of the duty station.

14.47 The Organization actively participated in the interagency task force established to deal with the harmonization of programme budget presentation; in particular, progress was made in connexion with uniform programme budget terminology and compatible budget annexes.

14.48 Three formal reports received from the Joint Inspection Unit were considered, together with the Director-General's comments, by the Executive Board at its fifty-fifth session in January 1975. Two of these reports concerned more than one organization and dealt respectively with the activities of the Joint Inspection Unit for the period July 1973 to June 1974 and medium-term planning in the United Nations system. The third report concerned WHO alone and related to the use of travel funds in WHO. In accordance with agreed procedures, the Director-General's comments and the decisions of the Board on these reports were transmitted to the designated bodies and organs concerned.

14.49 In addition, another report prepared by the Joint Inspection Unit on the utilization of office accommodation at WHO headquarters was transmitted for information to the Twenty-eighth World Health Assembly in connexion with its consideration of future requirements for headquarters accommodation.
15. COOPERATION WITH OTHER ORGANIZATIONS

15.1 By a continuous procedure of cooperation with other organizations and institutions, both within and outside the United Nations system, WHO seeks to ensure that health concerns are put into their proper context in relation to the broader efforts being undertaken for socioeconomic development. In 1975, WHO collaborated with such organizations, either bilaterally or collectively, on a multitude of questions pertinent to the fulfilment of the Organization’s programme objectives, as well as to meeting the responsibilities and obligations to the United Nations system that flow from its position as a major specialized agency.

15.2 In 1974, the Sixth Special Session of the United Nations General Assembly adopted the Declaration and Programme of Action on the Establishment of a New International Economic Order (resolutions 3201 and 3202 (S-VI)), which were of major importance for all organizations in the United Nations system. They were considered by the Executive Board in January 1975 and by the Health Assembly in May. The Declaration and Programme of Action were taken into account in the preparation of the report on the WHO mid-term review and appraisal of the international development strategy for the Second United Nations Development Decade; the Executive Board in January requested that this be transmitted to the United Nations for use in the background documentation for the Seventh Special Session of the General Assembly in 1975, devoted to development and international economic cooperation. The World Health Assembly adopted a number of related resolutions (WHA28.75, WHA28.76, WHA28.77) which call upon the Organization to assure increased assistance and a greater transfer of resources to the developing countries, particularly those most seriously affected by the present world economic crisis.

15.3 On the basis of the resolutions of the Executive Board and the Health Assembly, WHO policy statements, indicating the important role of health and health promotion in the development process, were forwarded to the Secretary-General of the United Nations in preparation for the Seventh Special Session. Coordination of the preparations for that session, which was done mainly through ACC, allowed WHO to obtain a clearer idea of the trends in other organizations of the United Nations system, and at the same time gave those organizations an opportunity to study WHO’s position, particularly regarding the need to integrate health programmes more closely with other sectoral programmes, so that the entire system may work collectively towards the implementation of the New International Economic Order.

15.4 In September, at the Seventh Special Session, the General Assembly adopted resolution 3362 (S-VII), which is of fundamental importance to the Organization by reason both of its direct call upon WHO to intensify the international effort to improve health conditions in developing countries and of its implications regarding the relation between development and health promotion. A first analysis of the measures to follow up this resolution, made by the ACC in October, showed that most of the resolution’s provisions call for joint action by two or more specialized agencies or United Nations institutions working in concert over a long period. Accordingly the ACC is taking measures to ensure the closest continuing collaboration between all the organizations of the United Nations system. It is felt that this will require a series of ad hoc arrangements, by which representatives of the United Nations and the specialized agencies can measure the progress of each individual organization towards meeting the provisions of resolution 3362 (S-VII).

15.5 In addition to contributing to the Seventh Special Session of the General Assembly, WHO continued to explore other questions in cooperation with other bodies, notably the Economic and Social Council, with a view to harmonizing the United Nations system’s endeavours aimed at social and economic wellbeing. At its fifty-eighth and fifty-ninth sessions the Council adopted 19 resolutions that have direct implications for the work of WHO. These concern such subjects as rural development, uses of the sea and coastal area development, drug abuse, drought relief, migrant workers, activities in the field of population and childhood, prevention of disability, and popular participation and its practical implications for development.

15.6 While policy coordination, with exchanges of views and related position papers, is one fundamental feature of overall interagency coordination, the coordination of programmes and the activities arising
from them is no less important. This may involve a greater or lesser number of United Nations bodies according to the type of activity. Among the main questions reviewed during the year, either through ACC coordination machinery or through ad hoc interagency arrangements, were science and technology, water resources development, marine sciences, statistics, population matters, environment questions, manpower development, rehabilitation of the disabled, youth policies, and drug abuse control. The development of arid zone areas received considerable attention in 1975 and provides a good example of collective effort within the United Nations system to develop a multidisciplinary, coordinated plan of action in which the programmes of individual agencies and organizations are integrated. UNDP, UNEP, ILO, FAO, UNESCO, WMO, and WHO were those principally involved in this joint endeavour. WHO was concerned with the relationship between epidemiological elements and the degradation of the environment in arid zones and sought to identify the major health obstacles and problems that these zones present.

15.7 Considerable attention was devoted by WHO and other bodies in 1975 to preparatory work for the United Nations Water Conference,¹ to be held in Argentina in 1977. A number of documents were prepared by WHO and submitted to the conference secretariat, which is provided by UNEP;² two special areas on which WHO focused its attention were the global assessment of water demand by category of consumer and requirements for water quality improvement. A series of papers being prepared by other secretariats were scrutinized by WHO so as to ensure a comprehensive approach in which health matters receive due emphasis. It should be noted, too, that the preparations for the United Nations Conference on Desertification, which will also be held in 1977, are being coordinated with those of the Water Conference, since many of the subjects and problems are closely related. The above-mentioned activities related to the arid zone areas are also associated with the preparations being undertaken for the Conference on Desertification.

15.8 WHO engaged in consultations with ILO and other United Nations bodies regarding the Tripartite World Conference on Employment, Income Distribution, Social Progress and the International Division of Labour, scheduled for 1976. A draft of the basic working document for the conference was reviewed by WHO to ensure that health concerns were properly balanced with the other elements that will be before the conference; health matters related to international migration are of particular importance in this connexion.

15.9 FAO initiated in 1975 a proposal for a World Conference on Agrarian Reform and Rural Development. This is a matter of importance for WHO, especially in view of the implications for rural development of WHO’s primary health care programme, and the Organization therefore held consultations both directly with FAO and, through ACC at its October session, with other organizations.

15.10 In connexion with resolution 3300 (XXIX) of the General Assembly, on the implementation of the Declaration on the Granting of Independence to Colonial Countries and Peoples, WHO continued to provide assistance to certain national liberation movements recognized by the Organization of African Unity in cooperation with that Organization and with such United Nations bodies as UNDP, UNDRO, and UNICEF; and direct assistance to Portugal was resumed in accordance with the Health Assembly’s resolution WHA28.49. In pursuance of resolution EB55.58, the Organization continued to explore ways and means of implementing a programme for the United Nations Decade for Action to Combat Racism and Racial Discrimination.

15.11 Mention should also be made of WHO’s cooperation in matters concerning natural disasters and catastrophes with the Office of the United Nations Disaster Relief Coordinator (UNDRO). In 1975 WHO procured and made arrangements to despatch medical supplies and equipment, and health personnel in some cases, to disaster areas in Benin, Cyprus, Democratic Yemen, Ethiopia, Romania, Somalia, Sudan, and Yemen, in response to appeals made to UNDRO for relief assistance. WHO also continued its assistance for building up the health infrastructure in the Sudano-Sahelian region of Africa.

United Nations Development Programme

15.12 The UNDP Governing Council reviewed and approved country programmes for nine countries at its nineteenth session, held in New York in January-February 1975, and for a further two countries at its twentieth session, held in Geneva in June. These

¹ The reader is referred to paragraph 2.9 in connexion with the World Population Conference (1974), to paragraphs 2.34 and 2.35 in connexion with the World Food Conference (1974), and to paragraph 2.10 in connexion with the World Conference of International Women’s Year (1975). Preparations for Habitat, the United Nations Conference on Human Settlements (1976), are mentioned in paragraph 10.87.
² Cooperation with UNEP is covered principally in Chapter 10.
approvals relate to country programmes within the first United Nations Development Cooperation Cycle (1972-76) but certain of these programmes overlap into the second cycle (1977-81). By the end of 1975 country programmes had been approved for 118 of the 121 countries and territories to which the procedure applies, leaving a further three still to be dealt with.

15.13 Three more countries—Burma, Kenya and Laos—have undertaken UNDP country programming for the second time during the current cycle. The Laos programme was approved at the nineteenth session of the Governing Council and the Burma and Kenya programmes at the twentieth session. Twenty-eight programmes covering a second period are planned for submission to the Governing Council in 1976.

15.14 The country programming process, after initial problems arising mainly out of the brief preparation time allowed, has clearly settled down to a more or less continuous programming undertaking within the specific cycles for which the indicative planning figures have been fixed. The Governing Council has taken certain decisions with a view to streamlining the process and speeding up country programming; for instance, country briefs and the background papers will no longer be required, and the process of commenting on the programme has been reduced in scope. At the same time WHO has repeatedly pointed out that an overall view of the health sector must be available at the time of country programming, and in this respect WHO's own instrument of country health programming has obvious relevance. WHO also has emphasized to UNDP the need for more systematic arrangements for the periodic reviews of country programmes, when changes in priority, deletions and additions may be made in a programme. Another important matter stressed by WHO is the need for a more effective intersectoral relationship between programmes and projects; here too, both country programming and country health programming could contribute significantly. Similarly, increasing significance is being attached to the interaction between country programmes and intercountry programmes, which tend to be dealt with separately.

15.15 Among the technical areas of special interest to UNDP is integrated area development. This concept is closely allied to that of rural development, which is one of the main concerns of the World Bank. The health content of integrated area development has multiple aspects, and WHO is emphasizing the need for a concerted approach among the major multilateral agencies concerned (UNICEF, UNDP, the World Bank, and WHO) to primary health care, particularly for underserved populations of developing countries. Discussions on the joint strategy to be followed took place in New York in October and will serve as a guide for future action in this newly defined priority area.

15.16 Innovations introduced by UNDP in 1974 have proved useful in furthering the decentralization of the Programme and in assisting with some of the problems cited above. Use of the management plan through which the Resident Representative sets out the preparatory steps needed to translate the country programme into operational projects, together with the various tasks involved such as the drafting and approval of project documents, the timing of missions and the periodic review of the programme, and the procedure whereby projects can be "approved in principle" prior to their formal approval by UNDP headquarters have brought some uniformity into the programming process, reducing significantly the time lag between project identification and approval. A further step in decentralization was the transfer of responsibility for the establishment of project documents to the Resident Representative with collaboration, in WHO's case, at the regional and country levels.

15.17 UNDP has increased the authority of the Resident Representative to approve projects up to US $150 000, which means that a greater number of projects can be approved rapidly at the local level. WHO decentralized its UNDP operation to the regional level in 1974, maintaining, however, a partnership between regional offices and headquarters in environmental health projects, particularly large-scale water supply and sewerage undertakings. There is a similar collaboration between regional offices and headquarters in the development of intercountry projects in the UNDP sector.

15.18 The decision by UNDP to enter the field of directly executed projects is of particular interest. A special department, charged also with organizing bulk purchases of major standard items of equipment on behalf of executing agencies, has been set up for this purpose.

15.19 While WHO's field programme for 1975 amounted to some US $78 million to be funded from regular budget sources,1 projects to be financed under the UNDP programme, amounting to US $26.6 million, represented a further 25% of funds available for field projects. However, the total UNDP programme devoted to health amounted only to some 5% of

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the overall resources available for all purposes. At the same time, significant contributions are being made by UNDP for special programmes in health fields such as the onchocerciasis control programme, where UNDP is financing the applied research and training aspects (US $1.2 million covering the years 1974-76); applied research in schistosomiasis control in man-made lakes (US $3.1 million were approved in 1975 to continue this work through 1978); and applied research on trypanosomiasis control in the moist savanna zones of Africa (for which US $2.3 million were approved for the period 1975-79, the work to be linked with a parallel FAO project devoted to Glossina control in the dry savanna zones). These projects constitute also new approaches to coordination between national participating governments and their technical services, local institutions and research centres and, in some cases, substantial extrabudgetary resources; special coordinating machinery has been instituted to ensure the efficiency of operations and objective evaluation, and to prevent duplication of effort.

15.20 Continued concern has been felt about the low delivery rates of executing agencies, of which WHO is one, in the UNDP programme. Following discussions with UNDP on possible remedies, an analysis was carried out by WHO to ascertain where the main shortfall in performance was occurring; it appears that the main impediments to delivery occur in the subcontract and procurement components. It is hoped that further decentralization will contribute to an improvement, particularly during the second programme cycle due to start in 1977. The newly instituted tripartite reviews of projects (by the government, UNDP, and the agency concerned) should also contribute to speedier delivery.

15.21 WHO continued to review requests submitted by governments for UNDP assistance and to advise on their health implications; the Organization also participated in a number of projects being executed by other agencies. Assistance was provided in various fields, including sanitary engineering, hospital dietetics, public health nutrition, health education, and food sanitation. Similarly, some ongoing UNDP projects for which WHO is executing agency continued to be assisted by ILO (occupational safety), FAO (zoonoses control), and UNIDO (sanitary engineering). The procedures of country programming have tended to shift the emphasis on intersectoral coordination to the country level, and it is here that practical arrangements now need to be made.

15.22 The scheme for technical cooperation among developing countries is of considerable importance in the new technical cooperation proposals of the Governing Council, which were endorsed by the General Assembly of the United Nations in 1974—resolution 3251 (XXIX). The wider use of national personnel and institutions in developing countries is envisaged, and in this connexion a special unit has been set up in UNDP headquarters to establish an inventory of available manpower and expertise in those countries. Further to develop this new avenue of approach to technical cooperation, it was also decided to hold a series of regional meetings at the headquarters of the different United Nations economic and social commissions, to be followed by an international symposium.

**United Nations Children's Fund**

15.23 Following a thorough review of existing relationships and the sharing of operational responsibilities, WHO and UNICEF jointly issued in January a Memorandum of Understanding setting out the areas and modalities of cooperation between the two agencies.

15.24 The UNICEF/WHO Joint Committee on Health Policy (JCHP) held its twentieth meeting in Geneva in February. The main item on the agenda was the joint UNICEF/WHO study on alternative approaches to meeting the basic health needs of populations in developing countries, which was recommended for adoption by the UNICEF Executive Board. The JCHP decided to reconvene early in 1977 to examine the report on a proposed joint UNICEF/WHO study on community involvement in primary health care.

15.25 The UNICEF Executive Board held its twenty-ninth meeting in New York in May 1975 and approved commitments of funds totalling US $112.2 million. Of this amount, US $30.4 million (41% of the total programme aid) were allocated for child health, and US $8.3 million (11.2% of the total) for child nutrition.

15.26 The Board unanimously endorsed the report on the joint UNICEF/WHO study on alternative approaches to meeting basic health needs of populations in developing countries as official UNICEF policy on health. The Board also endorsed the recommendations of the JCHP on the WHO expanded programmes of immunization and on the review of patterns of education and training for nurses and midwifery personnel, and approved community involvement in primary health care as an appropriate topic for the next joint UNICEF/WHO study. The first steps have already been taken by WHO in consultation with UNICEF to carry out the study, after definition...
of the scope and main methods. Finally, a study on child nutrition specially prepared for UNICEF was considered by the Board.

15.27 UNICEF finalized a composite list of equipment and supplies for peripheral health facilities, which updates and expands the range of UNICEF medical equipment and supplies and which is based on the equipment list for peripheral health services recently issued by WHO. In the new composite list the material is rearranged into flexible sets suitable for different levels, tasks and staffing of health services.

15.28 An important addition to UNICEF supplies lists introduced during the period under review is a mixture of electrolytes for oral rehydration. The salts are packed in the solid state and they can easily be diluted in drinking-water and freely administered to patients, thereby providing a safe means of treating children suffering from dehydration caused by gastrointestinal diseases. UNICEF intends to cooperate closely with WHO in the promotion of oral rehydration. It will distribute the rehydration salts widely through health care systems and may also assist in national production projects, where this is possible and warranted.

15.29 Close coordination was also maintained between UNICEF and WHO in the interagency activities following the World Food Conference in Rome in 1974, in the work accomplished by the Ad Hoc Working Group on Rural Potable Water Supply and Sanitation, in which UNICEF is represented, and in the preparation of assistance programmes to the newly independent African countries and African liberation movements.

United Nations Relief and Works Agency for Palestine Refugees in the Near East

15.30 The year 1975 was a milestone in the history of UNRWA, marking the completion of 25 successive years of operation under a mandate from the United Nations and also the twenty-fifth anniversary of the agreement with WHO, which was first ratified in 1950. Under the provisions of that agreement WHO continued its technical direction and support of the UNRWA health programme by providing the services of the Agency’s Director of Health and four other health specialists. Assistance was provided by WHO in the assessment of the Agency’s trachoma programme in Jordan and the Syrian Arab Republic, and in the analysis and computer processing of the socioeconomic data obtained in the nutrition-assessment study carried out among the most vulnerable refugee groups, and the preparation of a report. An UNRWA-sponsored candidate was awarded a WHO fellowship of 18 months’ duration for a training course in child psychiatry and mental health at the Institute of Psychiatry, London. A number of WHO publications and some vaccines were also made available. The total value of WHO assistance to UNRWA during 1975 was approximately US $236 000.

15.31 UNRWA’s comprehensive community health programme for some 1.4 million refugees comprises integrated preventive and curative medical services, nutritional support for vulnerable groups, and environmental sanitation for those living in 63 refugee camps. Despite continuing serious budgetary and other difficulties, the level of health services was maintained. Biochemical tests were introduced in the Agency’s clinical laboratories serving the larger health centres.

15.32 Again, particular importance was attached to the joint Agency/refugee self-help camp improvement schemes, which received government assistance in some cases. The most common activities are the construction of surface drains and the paving of pathways, to take care of wastewater disposal problems, facilitate refuse collection and provide better access to refugee shelters and camp installations. Other self-help projects include sewerage systems and water augmentation schemes. The Agency tripled its budgetary allocation for subsidies from US $50 000 in 1974 to US $150 000 in 1975 in addition to the amount budgeted for the family latrine programme, which progressed satisfactorily.

15.33 Through appropriate preventive measures including surveillance, health education, improved environmental sanitation, and an extensive programme of regular immunization and special campaigns, the communicable diseases were kept generally under control. No case of cholera, smallpox, louseborne or endemic typhus, relapsing fever, or plague was reported during the year. Most of the notifiable diseases continued to show a satisfactory trend.

15.34 Health activities in Lebanon during the latter part of 1975 were severely hampered in consequence of the disturbances in Beirut and other parts of the country. Most members of the Health Department at UNRWA headquarters were, however, able to continue to exercise their functions from the field offices.

15.35 The Twenty-eighth World Health Assembly, after considering the Director-General’s report on health assistance to refugees and displaced persons in the Middle East, which included an abbreviated annual report of the Director of Health of UNRWA, adopted
a resolution (WHA28.35) requesting, inter alia, the Director-General to allocate appropriate funds for improving the health conditions of the population in the occupied Arab territories, urging the Special Committee to continue its efforts in the accomplishment of its mandate and to report to the Twenty-ninth World Health Assembly, and further requesting the Director-General to continue to provide the Special Committee with all facilities necessary for the performance of its mission.

World Food Programme

15.36 After two years of operations at a reduced level the World Food Programme (WFP) actively resumed its relief and its development-assisting activities. To cope with the world food crisis, the gravity of which became all the more evident after the World Food Conference in November 1974, several countries made extra resources available to WFP, much of which went to countries in South-East Asia where the need was most acute. This emergency situation, and the need to get food aid to those requiring it most, justified unusually expeditious WFP procedures, which might have had adverse implications for health had it not been for the speedy scrutiny work carried out by WHO and the special health precautions taken. In some instances post facto health initiatives were necessary. A notable example was in Bangladesh, where massive distribution of food aid resulted in population movements that could have impaired the smallpox eradication campaign, whose rapid progress was nevertheless maintained.

15.37 The additional assistance given by food-producing countries also resulted in the rapid expansion by WFP of projects that had barely survived through the period of shortage. Thanks to national reorientation of efforts, independence from food aid should be achieved by a number of countries within a few years despite their recent difficulties. An example of this resilience is the major nutrition project in Colombia.

15.38 Finally, some approved projects postponed for lack of the necessary commodities were initiated during the year. Among these, a number of health-promoting projects became operational in the second half of 1975, including several in the crisis or priority categories, such as supplementary feeding of mothers and children, and others devoted to investment in health infrastructure. The most striking example of the latter type is the food grant of US $24.2 million for developing rural water supply systems in the Republic of Korea. This project will provide safe drinking-water for over half of the rural population of the country, i.e., for about 9 million people. This programme is an essential part of the Republic of Korea's plans for controlling epidemics.

15.39 On account of the unfavourable circumstances referred to above, WHO devoted much effort to ad hoc updating and adaptation of existing programmes to meet present-day situations. However, as the world food situation improves and resolutions adopted by the World Food Conference are implemented, WHO and WFP may look forward to the resumption of concerted planning, especially as WFP's traditional interest in fostering rural development is closely allied to WHO's efforts to improve the delivery of rural health services. Statistics for health promoting activities are set out in Table 3.

15.40 During 1975 WFP developed its relations with UNDP, UNICEF, and also with nongovernmental organizations, thereby strengthening its collaboration with WHO, which already has official relations with many nongovernmental organizations and well established working relationships with UNDP and UNICEF. WFP also provided for “non-food items” in its procedures, which should facilitate appropriate health measures both in emergency situations and in the planning of development programmes.

Table 3. WFP commitments to health and related activities, and to all projects, since the Programme's inception

<table>
<thead>
<tr>
<th>General nature of project</th>
<th>Projects approved as at 30 June 1974</th>
<th>Projects approved as at 30 June 1975</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Amount (US$ million)</td>
<td>No. Amount (US$ million)</td>
</tr>
<tr>
<td>Health and related activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health promotion</td>
<td>52 134.6</td>
<td>60 195.4</td>
</tr>
<tr>
<td>Institutional feeding</td>
<td>61 282.2</td>
<td>67 376.6</td>
</tr>
<tr>
<td>Teaching institutions</td>
<td>71 107.5</td>
<td>71 125.0</td>
</tr>
<tr>
<td>Community housing and development</td>
<td>84 154.1</td>
<td>87 170.7</td>
</tr>
<tr>
<td>Total, all projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development projects</td>
<td>613 1479.7</td>
<td>686 1993.0</td>
</tr>
<tr>
<td>Emergency aid</td>
<td>180 139.7</td>
<td>193 156.7</td>
</tr>
</tbody>
</table>

United Nations Emergency Operation

15.41 The United Nations Emergency Operation (UNEO) was created for a period of 12 months as of 1 May 1974 (but later extended to the end of March...
1976) in consequence of United Nations General Assembly resolution 3202 (S-VI) as the first concrete measure of the special programme set up to provide assistance to the countries most affected by the economic crisis. The purpose of UNEO is to assure the maintenance of essential imports in the countries that appear in the Secretary-General's list of most seriously affected countries. Allocations are mainly made for such essential imports as fertilizers, petroleum products, foods and medicaments.

15.42 By the end of 1975 some US $270 million had been pledged to UNEO, of which US $245 million were paid up, and of the funds received 60% had been allocated for disbursement: some US $70 million were allotted to the governments directly; US $36 million through FAO; US $30 million through WFP, and about US $7 million through WHO. A further US $5-6 million were earmarked for allocation through WHO by the end of March 1976, after completion of the necessary evaluation and costing.

15.43 Up to the end of the year, 16 countries had made requests for medical supplies under UNEO arrangements and had been allocated funds from UNEO through WHO (Bangladesh, Burundi, Central African Republic, Chad, Egypt, Guinea, Guyana, Haiti, Laos, Madagascar, Mauritania, Niger, Sierra Leone, Somalia, United Republic of Cameroon, Western Samoa).

15.44 Governments, once notified of their allocation, indicate the imports for which they wish to use the funds. This is done in the form of an official request formulated by the government for presentation to UNEO. WHO headquarters informs regional offices and WHO Representatives of the allocations, and the WHO Representatives assist national health authorities in preparing a specific health request should the government decide to include this in the overall requests. The final request is then transmitted by the ministry of foreign affairs, through the UNDP Resident Representative, to UNEO. At the same time WHO provides UNEO with a technical evaluation justifying the request and also makes a cost estimate of the items contained in the request. On acceptance of the request UNEO transfers the necessary funds to WHO for actual procurement on behalf of the government. Despite the volume of work created by this operation, WHO was able to undertake the necessary action without financial support from the Secretary-General's account.

Other extrabudgetary sources of funds

15.45 Greater attention has been devoted to improving cooperation with international programmes under the United Nations system and with other extrabudgetary sources of aid. Participation in health activities by such sources is on the increase, and numerous financial contributions have been received by WHO. Opportunities for cooperation with different types of contributor are growing, and considerable efforts have been made to strengthen existing links and establish new ones with sources of support for health programmes at both the national and international levels. The World Health Assembly has recognized the potential value of such sources of aid to the Organization in meeting its objectives, and has adopted a number of resolutions requesting the Director-General to seek such support.

15.46 In pursuance of resolution WHA28.31 of the World Health Assembly, the Executive Board is carrying out an organizational study on the planning for, and impact of, extrabudgetary resources on WHO's programme and policies. At its session in January 1975, the Board, while establishing a working group to proceed with the study, decided to postpone further consideration of the study until its fifty-seventh session in January 1976 and to report on it to the Twenty-ninth World Health Assembly. Meetings of the working group were held throughout the year and a preliminary draft was completed for study by the Board as a whole.

15.47 The Organization's activities in this area of cooperation have taken a variety of forms depending on the nature, interests, and the potential of the different bodies likely to participate actively in health programmes. For example, a conference called by WHO, with some financial support from USAID, to discuss coordination and cooperation for health in Africa was held in Yaoundé in September, bringing together representatives of the major contributors to health programmes in Africa and those of recipient governments to discuss a coordinated approach to future assistance from all sources. Meetings were also held to discuss the possibility of developing coordinated programmes such as the WHO special programme for research and training in tropical diseases and the cooperative rural potable water supply and sanitation programme, and for donors to the WHO expanded programme of research, development and research training in human reproduction.

15.48 Relations with IBRD and the African Development Bank have been systematized and periodic meetings arranged at set intervals to review activities of mutual concern. These discussions, complemented by meetings of technical staff arranged on an ad hoc basis, have contributed considerably to better mutual understanding and to the development of joint pro-
15. COOPERATION WITH OTHER ORGANIZATIONS

Nongovernmental organizations

15.51 By resolution EB55.R55, the Executive Board, at its fifty-fifth session, in January, established official relations with five further nongovernmental organizations—the Commonwealth Medical Association, the International College of Surgeons, the International Federation of Clinical Chemistry, the International Society for Human and Animal Mycology, and the World Federation of Nuclear Medicine and Biology—thus bringing the total number in official relations with WHO to 114 (see Annex 10).

15.52 At the same session the Executive Board considered a report on the triennial review of nongovernmental organizations in official relations with WHO, covering the period 1972-74, and later in the year there was further consultation of those nongovernmental organizations that had not replied to the enquiry made by the Director-General in 1974 regarding the submission of comments on their relations with WHO.

15.53 In the course of the year, the Director-General took steps to implement resolution EB55.R53 concerning the membership of nongovernmental organizations, which should be in conformity with the resolutions of the General Assembly of the United Nations and of the World Health Assembly on the restoration of all its rights to the People's Republic of China. All 114 organizations in official relations were requested to furnish the information required to enable the Director-General to report to the fifty-seventh session of the Board.

15.54 Pursuant to resolution EB55.R54, two informal meetings with a number of nongovernmental organizations were convened to examine proposals for more effective collaboration between them and WHO. The comments and suggestions arising from these meetings are under consideration. Already, indeed, there is much close collaboration with nongovernmental organizations in official or working relations with WHO, and numerous examples have been mentioned throughout this volume; three further instances may be given to illustrate the potential value of this type of collaboration:

15.55 International Epidemiological Association. Several meetings were held with representatives of the Association with a view to planning collaboration in the conduct of seminars in the WHO Regions for the benefit of those involved in health administration and planning and in evaluation in the use of epidemiological methods. A five-year plan for one seminar, workshop or meeting to be held once a year in each of the six Regions was agreed upon, and contacts have been made between the Association and the WHO Regional Directors. A review at the regional level showed that there are practical opportunities for cooperation taking different forms in different Regions. The promotion of national seminars or meetings on epidemiological problems in close collaboration between the Association and WHO will be one way of expanding knowledge and improving practice in this field.

15.56 International League of Red Cross Societies. A number of meetings were held with the League to explore intensified collaboration with WHO, especially...
since the League is now trying to expand its activities and is seeking WHO's advice as to how its work might more efficiently be carried out at the regional level. It was felt that the WHO regional offices could make an important contribution to coordinating the activities of national Red Cross societies; the role that WHO Representatives might play was emphasized, and it was agreed that the regional offices should keep the WHO Representatives informed of possibilities for more active collaboration with the national societies. Consideration is being given to a proposal by the League that it request the national societies to offer cooperation with their respective governments on programmes for the promotion of health and social wellbeing, particularly in organizing courses for the instruction of voluntary personnel in relevant subjects. This would be a valuable adjunct to WHO's work, particularly in the areas of primary health care and integrated rural development.

15.57 **International College of Surgeons.** The College has informed the Organization that, upon request, it is prepared to supply for varying periods of time volunteer surgical teams to teach and demonstrate in general surgery, the surgical specialties and the allied basic sciences in universities, medical schools, and hospitals. This offer is being followed up in the Regions. Several countries have already indicated an interest, and negotiations are being pursued with the governments concerned.
PART II

THE REGIONS

In order to present an integrated overall account of the Organization's work during the year, WHO's various programme activities have been reported together in Part I of this volume, whether they were carried out directly from headquarters or—as applies to by far the greatest part of the work—through the six Regional Offices.

Part II is concerned with some of the important developments, trends and problems within each Region. Brief accounts are also given of the meetings of the Regional Committees since these (unlike the World Health Assembly and the sessions of the Executive Board) are not covered in other volumes of the Official Records of the World Health Organization.

Fuller descriptions of the work within each Region separately are contained in the Annual Reports of the Regional Directors to the Regional Committees.
Fig. 1. WHO Regional Offices and the areas they serve
16. AFRICAN REGION

16.1 During a year in which health activities in Africa suffered drastically from the effects of worldwide inflation, WHO's efforts were concentrated on adapting programmes to the new socioeconomic context while defending the ground already gained. Despite the unfavourable situation, the Organization was able to record some progress through its activities in the strengthening of health services, manpower development, disease prevention and control, and the promotion of environmental health.

Strengthening of health services

16.2 The strengthening of health services remains a priority objective involving the planned development of integrated services to provide complete coverage of the needs of the population, which should participate as much as possible in health activities. WHO's approach to the development of health services in the Region entails the integration of medical care, rehabilitation, family health, communicable disease control, environmental health, health education, and health statistics. Major importance is attached to manpower training and to the active participation of communities, including traditional health workers.

16.3 In most African countries, the health sector plan is an integral part of the overall plan for socioeconomic development. In Congo and Nigeria WHO specialists in health planning, including an economist, participated in specific projects; while advisory services were provided to Gabon, Madagascar, Mali, Togo and the integrated development authority for the Liptako-Gourma region (Mali, Niger and Upper Volta). The WHO-supported African Institute of Health Planning in Dakar, which began work in early 1975, gave its first course towards the end of the year. The Government of Congo went through the country health programming process, which is intended to smooth the way from planning to project implementation.

16.4 A number of long-standing programmes supported by WHO were evaluated. Missions to Burundi and the Central African Republic showed that many constraints still hampered the health services despite substantial advances—for example, difficulties of communication, duplication, lack of funds and logistic support, rigidity of health structures, and lack of staff. Similarly, recommendations were made to the Government of Ghana following an evaluation of the health programmes organized with WHO's cooperation between 1952 and 1974. At a meeting held in Lagos in January 1975 the staff of 12 health service development projects in Nigeria reviewed their approach strategy and adjusted tactics.

16.5 Work continues to redefine the concepts of health services in keeping with the Executive Board's organizational study on methods of promoting the development of basic health services. Three of the original approaches singled out in the joint UNICEF/WHO study on alternative approaches to meeting basic health needs (paragraphs 1.5-1.7) are drawn from the Region: the use of village health workers in Niger; health auxiliaries in ujamaa 1 villages in the United Republic of Tanzania; and the two-way radio system in North Western State, Nigeria. The concept of the development of health services centred primarily on providing elementary health care for the most deprived populations is gaining ground every day. For this objective to be realized, each community must make the best use of all the resources available to meet the needs of integrated community development. The use of village or community health workers is part of this approach to primary health care. Following the seminar on methods of extending the coverage of health services in rural areas, held in Brazzaville in July 1974, various initiatives were taken by countries or the Region to promote community participation; for example, the Central African Republic established a national health day and a health subscription card. A number of achievements were recorded in the strengthening of national health services, notably in Burundi, Kenya and Togo. The Organization continued to work with African liberation movements recognized by OAU in order to develop health services and protect the health of refugee populations.

16.6 As the use of village health workers and traditional midwives to extend medical care in rural areas gains acceptance, experiments are in progress in different countries of the Region. A study group on the training and supervision of traditional midwives met

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1 Ujamaa ("pulling together") villages are those in which scattered rural populations have been encouraged to settle in order to form economically viable units working on a communal basis.
in Brazzaville in December to examine the practices, training and supervision of these workers in different countries.

Family health

16.7 The governments of the Region are showing more interest in the adoption of health objectives related to maternal and child health and to family planning, partly because of the progressive reduction in mortality and morbidity and also because of the approach advocated by WHO to meet the health targets and objectives of the countries in the Region, several more of which requested assistance from UNFPA for their national programmes in this field.

16.8 Family health activities with WHO’s collaboration made appreciable progress in Botswana, Liberia, and Nigeria. WHO’s objectives in family health were widely reflected in the development of the maternal and child health/family planning component of health care, the promotion of family health at ministerial level, the collection of mortality and morbidity data, and stress on the family health element in broader programmes aimed at, for example, immunization, primary health care, and the training of auxiliary personnel and traditional birth attendants.

16.9 Two types of activity represented the main trends in nutrition in the Region during the year. Firstly, as a contribution to developing regional and national food and nutrition strategies, food and nutrition summaries were compiled for the majority of countries in the Region. Secondly, the filing of all the Organization’s nutrition posts in the Region, and particularly those under an intercountry project, made it possible to meet requests for short advisory missions in a number of countries where no WHO nutrition staff is located.

16.10 The most significant development in health education during the year was the institution of a postgraduate training course on this subject at the University of Ibadan, Nigeria, starting in October 1975. The course is the first of its kind in the Region and is expected to help to meet the long-felt need for health educators trained in the local setting for English-speaking parts of Africa.

Health manpower development

16.11 WHO’s main concern in the Region continued to be the integrated development of health services and personnel, within the context of socioeconomic development. The training policy it has pursued over the past decade is beginning to bear fruit; nevertheless, of the four main elements in the balanced development of health personnel—planning, production, utilization, and monitoring—the last has not always received the attention it demands, so that timely replanning and adjustment were not always made. As national health manpower strength has increased, new university centres for health sciences are opening, such as those at Brazzaville, Libreville and Niamey.

16.12 During the year, the Organization collaborated with a number of countries in various stages of the health manpower planning process, either as part of a national plan for socioeconomic development or as a component of a health plan. Multidisciplinary training for health team members has developed rapidly, accompanied by the setting up of new training institutions. There was cooperation with most countries of the Region in the training of nursing personnel, while the training of auxiliary personnel is being given greater attention as more countries recognize the enormous disparity between needs and the number of health professionals available. Public health teaching was further developed in undergraduate and postgraduate programmes, while the training of health sciences teachers and of specialists and research workers continued to expand. Thirteen representatives of training institutions in the Region attended the sixth meeting of directors or representatives of schools of public health, held in Manila in March 1975.

Communicable diseases

16.13 Despite the efforts made by WHO in cooperation with the countries of the Region to control communicable diseases, many of these remain a major problem. The Organization has given support to the development of the health infrastructure, to mass campaigns against specific diseases, to long-term surveillance and control, and in emergencies during epidemics or to prevent outbreaks following natural calamities such as drought and floods. More countries have now integrated control measures for many communicable diseases within their general health service structures.

16.14 Plans were made for implementing the WHO expanded programme on immunization as part of the general health services in some countries, with emphasis on the development of cold chains, training of national personnel, transport, and logistic support. In certain countries, the first step will be the strengthening of the existing immunization component of services, with a view to its expansion at a later stage. Financial, technical and material support for reference and research centres and to vaccine production laboratories continued.
16.15 Following the success of the smallpox eradication campaign, the status of this disease is being assessed in 15 countries in western Africa. The final results will be studied by an international commission in early 1976 to determine whether a certificate of eradication can be issued in respect of the area.

16.16 Outbreaks of cholera and other diarrhoeal diseases were less common than in previous years. However, these diseases continue to be endemic and sometimes cause high morbidity and mortality, particularly among malnourished children.

16.17 Surveillance, research, and maintenance immunization programmes continued in zones where yellow fever is known or suspected to persist. The Organization provided vaccination materials and equipment for research. It also cooperated with countries in research on Lassa fever and distributed recent publications on experiences of this disease in endemic areas. Steps were taken to set up immune plasma banks. WHO carried out studies on different viruses resembling measles and on the serological status after measles vaccination, as well as operational research on immunization within epidemiological projects. It was also within the framework of these projects that WHO collaborated with countries for control of louseborne typhus.

16.18 Among mycobacterial diseases, WHO's collaboration was focused on operational research for the integration of leprosy control activities with general health services and on the training of personnel. Maintenance vaccination campaigns against tuberculosis were conducted in almost all countries of the Region, mostly in conjunction with other vaccinations. Serious problems are caused by the high rate of absenteeism of ambulatory patients.

16.19 In the programme for the control of onchocerciasis in the Volta River basin area, assisted by several international agencies and donor countries and with seven participating countries, Simulium control operations by aerial spraying of larval sites with insecticide covered the whole of the phase I zone and started in the phase II zone. The results in the first zone were encouraging, as transmission of the disease was interrupted in much of the region concerned, but some of the area previously cleared has since been reinfested by adult blackflies, and research to tackle this problem is in progress (for further details of the programme, see paragraphs 5.56-5.64). The national project for the control of onchocerciasis continued in the Republic of Guinea, and WHO collaborated with other affected countries outside the programme area.

16.20 Activities against schistosomiasis and trypanosomiasis were based on advisory services to evaluate the epidemiological situation and make recommendations for control in endemic areas—for example, in Congo and the United Republic of Tanzania. The trypanosomiasis control project in Gabon entered its operational phase.

16.21 There is an increasing trend in the Region towards developing malaria control programmes on a national scale as part of overall planning. Congo and Nigeria, for example, have recently embarked on the planning of malaria activities within the framework of socioeconomic development plans. Progress was made in all countries of the Region towards rationalization of control measures following recognized and standardized methods and techniques. The means at hand are better utilized, duplication of efforts is being avoided and polyvalent workers are being trained. Anti-malaria activities are being integrated into the health services development projects, and support is also provided through the three WHO intercountry anti-malaria teams.

16.22 To reduce endemic levels of malaria, vector control is essential. Hence WHO is encouraging and cooperating in activities in urban zones and selected forest areas where malaria can be controlled by larviciding or spraying of houses with residual insecticides. The forest areas should be selected according to the government's priorities and the ability to maintain control activities once initiated; vector control against malaria should be undertaken only where the general health services are sufficiently involved in antimalaria activities to maintain optimum control of the disease.

16.23 WHO is also cooperating with the countries of the Region in the protection of the most vulnerable age-groups, in operational research, and in the training of multipurpose workers. Primary school children continue to be protected by the administration of antimalarial drugs in several countries. In the United Republic of Cameroon, about 800,000 schoolchildren are protected during each academic year. In ujamaa villages in the United Republic of Tanzania, the population has been enlisted in malaria control activities.

Health laboratory services

16.24 The undoubted importance of laboratory activities in the control of communicable diseases is not yet properly recognized in the Region. Hence special efforts were made in various countries either to establish or to reorganize and improve the laboratory element—notably in Botswana, Togo and Upper
Volta in 1975. The inadequate numbers and quality of national laboratory staff at all levels remains a heavy handicap in the development of laboratory activities, but the Organization supports training for such staff from a number of countries at Lomé.

16.25 The Organization continued to collaborate with various countries of the Region in the production of vaccines and in testing their effectiveness and conformity to WHO standards.

Noncommunicable diseases

16.26 The trend towards a greater interest in the non-communicable diseases in the Region—particularly dental and mental disorders and degenerative diseases such as cancer—continued, and WHO’s cooperation with countries is on the increase in response to a growing number of requests. Statistics on causes of death show that cardiovascular diseases and cancer have become disturbing problems. Cancer control activities are now being coordinated on a regional basis. During the year, WHO collaborated with two countries in setting up radiotherapy units for the management of cancer cases and for teaching purposes. The selection of “Dental health and the development of health services in Africa” as the subject for the Technical Discussions at the twenty-fifth session of the Regional Committee in September testified to the importance this aspect of health care has now assumed.

Environmental health

16.27 Although WHO’s collaboration in the field of environmental health covered a wide range of activities, emphasis continued to be put on the strengthening of national capability for the planning, formulation and implementation of programmes for the provision of basic sanitary measures. Efforts were also directed towards the training of personnel and the stimulation of community participation. These activities were carried out in 20 countries of the Region, through 26 integrated health services development projects.

16.28 WHO continued to take part in the joint UNDP/UNICEF/WHO well-digging programme covering seven countries of the Sudano-Saharan region. A major difficulty is the operation and maintenance of the completed water supplies.

16.29 The Organization has also collaborated with UNDP in 13 planning and pre-investment programmes for water supply and wastes disposal in 12 countries. Sectoral studies, under the WHO/IBRD cooperative programme, have been carried out in 10 countries.

Water supplies in rural areas are beginning to play a larger part in this programme.

16.30 Advisory services were provided in occupational health; and in Kenya, WHO carried out research and supplied equipment as a preliminary step in monitoring occupational health problems in small-scale industries.

16.31 The second session of the Coordinating Committee for Africa of the Codex Alimentarius Commission was held in Accra in September. The session was attended by representatives of 13 countries, of which 11 are in the WHO African Region and two in the Eastern Mediterranean Region. The Committee’s discussions centred on: the role of the Coordinator; a model food law; the inclusion of Codex criteria in national legislation and the acceptance of Codex Standards; and possible food products for standardization on a regional or subregional basis. Particular importance was attached to the development of a food control infrastructure in countries, including the training of staff, and to codes of food hygiene.

Health statistics

16.32 In view of the incompleteness or lack of accuracy of health statistics in many countries of the Region, and of the fact that the available statistics are often not fully utilized, the Organization is investigating by what means it can best collaborate with countries to remedy the defects in their health statistical systems. During the year, it collaborated with eight countries in preparing plans for reorganizing their health statistical services, including appropriate training programmes. In 12 countries, WHO provided statistical support to projects in epidemiology and the strengthening of health services.

16.33 Statistics on the availability of health manpower and training facilities are collected for the Region every two years. A report of the survey made at the end of 1973 was issued and a further survey was carried out at the end of 1975. These statistics give an overall picture of the health manpower situation in the Region and the potential for improvement in the future from existing facilities for training. In connexion with the WHO multinational study of the migration of physicians and nurses, preliminary data showed that only in two countries of the African Region is this a serious problem.

The Regional Committee

16.34 The twenty-fifth session of the Regional Committee for Africa was held at Yaoundé from 17 to 24 September 1975. It was attended by representatives
of 34 Member States, of which three (Botswana, Guinea-Bissau, and Mozambique) were represented for the first time as full Members, an observer from one non-Member State (Cape Verde Islands), and representatives of six national liberation movements recognized by the Organization of African Unity. Also present were representatives of UNDP, UNICEF, FAO, the United Nations Economic Commission for Africa and the Office of the United Nations High Commissioner for Refugees, and observers from 10 nongovernmental and six intergovernmental organizations. The session was attended by the Director-General.

16.35 Introducing his report for the year ending 30 June 1975, the Regional Director pointed out that health activities had continued in Africa within a particularly difficult socioeconomic context. There was a need for more rational utilization of national resources, and particularly of the qualified staff that many Member States already possessed. The regional Office would increasingly emphasize coordinating and catalytic activities in support of the goal of national self-sufficiency.

16.36 The new methods of WHO collaboration gave rise to an animated discussion. The Committee considered that this collaboration should be adapted to the health manpower needs and resources of the countries, and be integrated as much as possible within their administrative structures. The utilization of staff from the Region and, whenever possible, from the country itself should be encouraged. The establishment of regional panels of multidisciplinary experts was considered desirable, together with the strengthening of the coordinating role of the Regional Committee and its administrative organ, the Regional Office. At the same time, the Committee recommended that Member States strengthen their national health bodies and promote community participation in national and international health cooperation.

16.37 The Committee considered the Regional Director's report on the Sixth General Programme of Work for the period 1978-83, which proposed a list of principal and detailed objectives for the main sectors of health activity, and stressed the importance of certain problems to the Region. It was emphasized that while the development of health services ought to be based on adequate planning and management and should preserve a balance between curative and preventive services, prominence must be given to primary health care for underserved populations. Other objectives with regional priority were the development of laboratory services for epidemiological surveillance and for the control of biological and therapeutic substances; health education and information of the public; multisectoral food and nutrition programmes and the establishment of simple systems of nutritional surveillance and rehabilitation; the prevention and control of communicable diseases; and the promotion of mental health, environmental health, biomedical research, and health manpower development.

16.38 Noting the recommendations of a consultant group on the coordination of biomedical research in Africa, the Committee proposed the strengthening of such activities through the establishment of a regional advisory committee on biomedical research. It authorized the creation of a special regional account for biomedical research within the Voluntary Fund for Health Promotion, and invited Member States and aid-giving agencies to provide the necessary extra-budgetary funds. It considered that the priority field for this programme should be tropical diseases, particularly schistosomiasis, filariasis, onchocerciasis, trypanosomiasis, and leprosy. The Committee noted the continuing concern of most Member States with malaria, and called for the coordination of strategy and tactics at the regional level.

16.39 The Committee approved revisions of the programme budget for 1976-77 that had been submitted as a consequence of the international monetary crisis, the inclusion of provisions for countries attaining independence or struck by natural disasters, and the need to increase assistance to liberation movements.

16.40 The Committee confirmed its previous decision to hold its twenty-sixth session at Kampala and decided that the twenty-seventh session would be held at the Regional Office in Brazzaville.

16.41 In the Technical Discussions on "Dental health and the development of health services in Africa", the urgent need to remedy the acute shortage of dental manpower was emphasized. The subject of the Technical Discussions to be held in 1976 will be "Traditional medicine and its role in the development of health services in Africa", and the subject chosen for 1977 is "Importance of nutrition in socioeconomic development".
17. REGION OF THE AMERICAS

17.1 The changing health and socioeconomic conditions in the countries of the Region have induced the Organization to adopt a more dynamic and flexible approach in the fulfilment of its tasks. Traditionally, activities have been focused on certain specific areas, the strengthening of health services for the benefit of individuals, and some aspects of environmental health. Now the scope needs to be widened and efforts concentrated on priority areas defined by the countries themselves in their endeavour to achieve the goals set forth in the Ten-year Health Plan for the Americas. The activities carried out in 1975 might be regarded as the first phase in the complex task of introducing this new approach.

Extension of health service coverage

17.2 A substantial number of countries in the Region are analysing and adjusting their health policies and programmes to meet the central objective of the Ten-year Health Plan—namely, the extension of health services to underserved populations—which is also clearly defined in the proposals for the Sixth General Programme of Work of WHO. In this expansion of coverage certain priority areas have been specified—communicable disease control, family health (including maternal and child care and nutrition), and environmental health—and in order to carry out the requisite programmes it will be necessary to develop the health infrastructure, including the human resources.

17.3 Efforts are being made to assist Member governments in this undertaking, and such support should be intensified over the coming years. In the development of the health infrastructure, the need to harmonize operations with prevailing cultural patterns and to secure the full participation of the community must always be kept in mind. Because of this, new approaches and the development of local techniques are urgently required. In Colombia, Costa Rica, Honduras, Panama, and Peru, among other countries, practical advantages are being gained from involving communities in the analysis and solution of their own health problems, thanks to the success of the methodology applied and the formal actions taken by the governments concerned.

17.4 It is recognized that there is a tendency first to establish quality standards for health care and then to try to maintain those standards so far as possible during the extension of health service coverage. Efforts should be made to modify this attitude. In fact, the initial preoccupation should be to provide minimum health services to the entire population, and only after this end has been achieved should the question of quality be given prominence. In the extension of coverage a clear definition is needed of the levels of health care within national health systems, of which support and referral mechanisms form part. In addition to providing regular assistance in this field, the Organization is devising methodological guidelines and approaches that can be adapted to the requirements of individual national health policies.

17.5 To sum up, it is apparent that the Organization's efforts over the medium term should be mainly concentrated on assisting Member governments to programme and implement the extension of health service coverage, due attention being given to the financial aspects. The involvement of communities in this endeavour is of vital importance and perhaps constitutes one of the fundamental priorities in the Organization's promotional activities.

Sectoral and intersectoral coordination

17.6 Lack of coordination among the various entities of the health sector has proved to be a major hindrance to productivity and efficacy. Methods of overcoming this obstacle are being promoted in several Latin American countries, but progress is slow and governments must be assisted in intensifying their efforts to achieve proper conditions and—if appropriate—thorough integration within the health sector. The new approaches in socioeconomic planning have influenced programming and coordination in the use of all health resources. Attention should be focused on the various components of health care, including social security, which, in the countries of the Americas, plays a significant role in the delivery of services to increasing numbers of people. With the assistance of the Organization, at least 16 countries of the Region are analysing their health care systems.

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17.7 The interrelationship and coordination of the health sector with other socioeconomic sectors is also of growing concern in the Region. Attempts have been made to create national mechanisms capable of securing the necessary support for health activities from other sectors, and to relate health promotion to the overall process of socioeconomic development. To this end, two multisectoral meetings were held during the year in Colombia and Costa Rica with the participation of educational, agricultural, labour, social security, and planning agencies. A joint analysis of national health plans and specific programmes was made in order to determine the major areas in which the interests of the various sectors might conflict or coincide. The role of international cooperation in this field was also defined. Dissemination of the findings and promotion and follow-up of similar cooperative efforts in other countries constitute an important task for the Organization.

Financing of programmes

17.8 In view of the seriousness of the Region's outstanding health problems, and to further the goals defined in national health policies, governments are being assisted by the Organization in seeking additional financing in the form of loans from the international credit agencies. Ten countries are in the process of requesting, negotiating, or obtaining loans from the Inter-American Development Bank, which together amount to some US $130 million, mainly for the consolidation of their health systems and for the extension of health service coverage. Over the next two or three years, the Latin American countries are expected to request an additional US $150 million from the Inter-American Development Bank and other financing institutions for the same purposes. It is estimated that the governments concerned will invest amounts two to three times greater than these sums as counterpart contributions. The Organization has a serious responsibility not only in aiding the formulation and implementation of the necessary programmes, but also in helping governments to define their capability for the absorption and proper use of external resources. Such assistance includes an analysis of the current status and potential development of the health system, an assessment of human resources, and preparatory studies on costs and expenditures.

Other priority programmes

17.9 The role of epidemiological surveillance in communicable disease control is gradually evolving in the Region; however, an increase in the incidence of diseases preventable by immunization has been noted. Poor immunization coverage, inadequate maintenance programmes, and problems in the handling of vaccines are some of the major difficulties to be overcome. To this end, assistance is given in the integration of immunization schemes in local health services, communicable disease surveillance, and evaluation activities.

17.10 Several countries have intensified their efforts to integrate maternal and child health services into the general health care system. Attention is also being given to the extension of coverage to rural areas and the provision of family planning services. The Organization intends to increase its assistance in this field, helping to identify health problems that affect mothers and children and to formulate projects for the expansion and improvement of activities in close coordination with other programmes. As a fundamental component of family health, national food and nutrition policies are being drawn up and implemented in several countries of the Region. The Organization's activities in this context include the promotion of nutritional surveillance, the strengthening of nutrition services at the national and local levels, support for the production of nutritious food mixtures for vulnerable groups, and encouragement of efforts to improve institutional food services.

17.11 Support continued to be given to countries in their endeavours to provide safe water to rural and urban populations. Preliminary assistance, pre-investment studies, final design of installations, and the implementation of environmental health programmes are areas in which the Organization is intensifying its own activities. Measures for the control of environmental pollution are as yet at an initial stage of development in many countries of the Region, but economic development—particularly industrialization—and changes in the pattern of living are now affecting ecological conditions. To cope with immediate needs a new Pan American Centre for Human Ecology has commenced operations in Mexico, its major aims being to formulate a methodology for dealing with human health problems associated with environmental change and to establish priorities for control. The Organization is continuing its assistance in this field and, in addition, seeking out potential sources of financing to meet the requirements of the programme.

17.12 In summary, it may be stated that some progress has been made towards achieving the goals of the Ten-year Health Plan for the Americas, but much remains to be done before the end of the decade. Since the resources of the Organization are limited, efforts will continue to be concentrated on the priority
areas described above, with a view to the eventual achievement of the stated objectives.

The Regional Committee

17.13 The twenty-third meeting of the PAHO Directing Council, which was also the twenty-seventh session of the WHO Regional Committee for the Americas, was held from 29 September to 8 October 1975 in Washington, DC. It was attended by representatives of 27 Member States, as well as by those of France, the Netherlands, and the United Kingdom on behalf of territories in the Region. The Director-General of WHO and observers from the United Nations, UNICEF, UNDP, FAO, the Organization of American States, the Inter-American Development Bank, and 10 nongovernmental organizations also attended.

17.14 The appropriations for PAHO for the fiscal year 1976, amounting to US $30,765,687, were approved. Note was taken of the changes in the budget estimates of WHO for the Region of the Americas for 1977 which have occurred since the preparation of the proposed programme budget.¹

17.15 The Committee approved the annual report of the Regional Director for 1974.

17.16 Tribute was paid to Dr Abraham Horwitz for his work on behalf of the health of the Region during his term of office, from 1959 to 1975, as Director of PASB and WHO Regional Director for the Americas. The Committee authorized the presentation of a gold medal and of a scroll recording his appointment as Director Emeritus of PASB.

17.17 Taking note of the goals of the Ten-year Health Plan for the Americas, the Committee requested the Organization to give top priority to the extension of health services to rural and other underserved populations, at the same time promoting community involvement in local health activities, to achieve a coverage of the entire population that would be in keeping with the living patterns and needs of the communities served. It was urged that the decision to expand and improve rural health services—and, to this end, to use all possible manpower resources in the communities served—should be made explicit in government health programmes. The Committee also encouraged governments to share their knowledge and experience in this area with other countries, in collaboration with the Organization. In addition, governments were asked to promote effective coordination between health activities and other socioeconomic activities intimately affecting the wellbeing of rural populations.

17.18 In recognition of International Women’s Year, the Committee recommended that high priority should be given to the promotion and protection of women’s health and opportunities for education and employment. It felt that action should be taken to meet women’s needs in rural areas with respect to their own wellbeing and to that of their families, and to secure the participation of women in health programmes at all levels, including increased involvement in the work and decisions of the Organization.

17.19 It was recommended that greater attention should be paid to the health of young people, in view of their ever-increasing numbers in the Region of the Americas. Governments were requested to examine the health conditions of young people in their countries so as to pave the way for appropriate health programmes.

17.20 The Committee approved a report by the Regional Director on the contribution of the Region of the Americas to WHO’s Sixth General Programme of Work, and confirmed that the priorities proposed for the Region in this report—including the fundamental aim of broadening health service coverage—corresponded to the priorities set forth by the ministers of health of the Americas in the current Ten-year Health Plan.

17.21 With regard to malaria eradication, it was noted that financial problems were hindering the development of antimalaria programmes in several countries of the Region and that in some places the epidemiological situation had deteriorated. The Committee recommended that both individual governments and the Organization should endeavour to devise malaria control methodologies better adjusted to the realities of the situation in each country. It authorized the Regional Director to convene a meeting of international and bilateral credit and technical assistance agencies to study the possibilities for financing anti-malaria programmes.

17.22 The Committee requested that PAHO’s expanded Scientific Advisory Committee on Dengue, Yellow Fever and Aedes aegypti make a study of Ae. aegypti in the Region and review the Organization’s current policy regarding this vector in the light of recent scientific advances in yellow fever and dengue control and taking into account reports of the reinfestation by Ae. aegypti in countries that had previously achieved eradication.

17.23 Although cardiovascular diseases, diabetes mellitus, and cancer are among the principal causes of death in the Region, many countries still lack well-defined control programmes. The Committee therefore asked the Regional Director to collaborate with Member countries in epidemiological studies aimed at defining the scope of the noncommunicable disease problem, and recommended that governments establish technical units dealing with this group of diseases in order to programme and coordinate national control activities.

17.24 The Committee examined a report on nursing personnel resources and recommended that governments draw up more accurate estimates of requirements for nursing personnel and that they formulate and execute more effective plans for the provision of such personnel and for their absorption into the health services.

17.25 Satisfaction was expressed with the Organization's programme for distributing medical and nursing textbooks and basic diagnostic instruments for medical students. In view of the need to extend this service to as many students as possible, the Committee asked the Regional Director to continue negotiations with the Inter-American Development Bank for additional funds and to explore other possible sources of financing the programme.

17.26 Recognizing that the participation of all the countries in the Region was essential if the evaluation of the Ten-year Health Plan for the Americas was to have real meaning, the Committee requested those countries that had not been able to establish the initial frame of reference to forward the necessary information to the Organization as soon as possible. It also asked the Regional Director to take steps to systematize and analyse this information and disseminate the results of these operations during the first quarter of 1976.

17.27 The Technical Discussions were on “Methodologies for the formulation of national food and nutrition policies and their intersectoral implementation”, and the topic selected for 1976 was “Development of the health service infrastructure with due regard to the need for extension of coverage”.

17.28 The Committee accepted the invitation of the Government of Mexico to hold its twenty-eighth session in that country.
18. SOUTH-EAST ASIA REGION

18.1 The year 1975 in the South-East Asia Region was attended by spectacular success against one disease, contrasted with a grave situation for many others. Whereas this Region had recorded 98% of the world’s smallpox in 1974, there was not a single case known by the end of 1975. The attainment of zero smallpox incidence in Asia has been described in Chapter 4. However, the opportunity may be taken here to record the debt of gratitude that is owed to the thousands of national health workers, to the hundreds of international health staff, and to the voluntary, bilateral and international agencies and other bodies whose different contributions combined to make this achievement possible; special mention should be made of the nongovernmental assistance provided in 1975 by the Tata Group of companies in India and by Oxfam.

18.2 Against this success must be set the serious difficulties encountered in other fields—for example, the resurgence of malaria in most countries. Financial stringencies continued to affect all development efforts, including those in the health sector, and natural disasters such as floods and drought further aggravated the situation. Governments have struggled against heavy odds to meet the challenges of the situation, but the magnitude of the task is so great and the resources are so limited that these efforts have not had the desired impact on the health situation. WHO’s own financial difficulties resulting from inflation have necessitated the curtailment and readjustment of some activities.

18.3 Project formulation for country health programming—one important means of strengthening health services in the Region—was undertaken in Bangladesh, Nepal and Thailand, and training workshops on the subject were organized in Burma.

18.4 The development of health services is being rationalized by the promotion of systematic health planning, manpower studies and the systems approach. Assistance in this field was given to Indonesia, Nepal and Thailand during the year and, with the collaboration of UNDP, help was also given to various training institutions in the development of courses in health planning and health systems management.

18.5 Governments are becoming increasingly aware of the value of the primary health care approach in improving not only the coverage but also the quality of health care, and the importance of the role of multipurpose and voluntary health workers in this respect is receiving growing recognition (see paragraph 18.15). Guidelines for the organization and delivery of primary medical care in rural areas were drawn up at a regional seminar held in Thailand, in Bangkok and Chiangmai, in September.

18.6 Assistance was given during the year for the improvement of medical care in Bangladesh and Mongolia, for the development of medical records in Bangladesh and Indonesia, and for a course for hospital administrators in Sri Lanka.

18.7 With regard to medical rehabilitation, under a regional project based in Indonesia courses in prosthetics, orthotics and physiotherapy were organized in Solo, and a disability prevention unit was established in Semarang; assistance for training in this field was also provided to Burma, India and Mongolia.

**Family health**

18.8 The postgraduate paediatric education programmes of Bangladesh, Burma, India, Indonesia, Sri Lanka and Thailand were reviewed during a conference held in Bangkok in March, and recommendations were made regarding their further development. In India, following the finalization of a remodelled community-oriented curriculum in paediatrics at the undergraduate, internship, diploma and doctoral levels, attention has been turned to the formulation of an undergraduate curriculum in maternal and child health in line with the requirements of the country’s maternal and child health/family planning services; the rapidly growing national programme for the medical termination of pregnancy was also assisted. Studies were initiated in two countries in the Region on perinatal morbidity and mortality.

18.9 The regional documentation centre on human reproduction, family planning and population dynamics issued four general bibliographies and special bibliographies on the subjects of male reproduction and
fertility control, intrauterine devices, reproductive biology (female) and sterilization (male and female). Guidelines for the establishment of similar documentation centres at the national level were drawn up at a regional seminar held in New Delhi in April-May.

18.10 A regional course on the teaching of human reproduction, family planning and population dynamics in medical schools was held in Bangkok and a national course on the subject was organized in Sri Lanka. The present status of the teaching of these subjects in medical schools in India was reviewed during a workshop attended by both teachers and students.

18.11 In view of the scarcity of food in Sri Lanka and distress due to unprecedented flood or drought in Bangladesh and India, special supplementary feeding programmes were developed for infants, preschool children, pregnant women and lactating mothers. Close collaboration was maintained with UNICEF, the World Food Programme and bilateral and non-governmental agencies with regard to nutrition programmes; special emphasis was laid on deficiencies in vitamin A (causing xerophthalmia and blindness), in iron and folic acid (resulting in anaemia), and in iodine (leading to goitre). Assistance was provided to Burma in connexion with studies on growth, development and fitness, and the training of health personnel in nutrition; to Bangladesh and India for the establishment or development of nutrition institutes; and to Bhutan, Indonesia, Nepal and Sri Lanka for the development of nutrition activities as an integral part of the health services.

18.12 With a view to promoting community participation, particularly with regard to the extension of primary health care, emphasis was placed on the development of health education as an integral part of health programmes—especially those related to maternal and child health, family planning, nutrition, the control of disease, and environmental health. Several countries received assistance in the review and reorganization of health education services, and due attention was given to promoting the participation of the community in their development, delivery and evaluation.

18.13 The integration of health education into existing health programmes calls for the strengthening of pre-service training of health professionals in the subjects, and more attention was paid to this, rather than to in-service training as in the past. Thus, in India the undergraduate curriculum in health education was revised during a WHO-sponsored workshop, and in Indonesia the Organization assisted with the development of a curriculum for a university degree course in the subject.

18.14 Further progress was made in several countries of the Region in research in the behavioural sciences relevant to health education, as well as in school health education programmes (for example, in India, Indonesia, Nepal and Sri Lanka).

**Health manpower development**

18.15 Close attention was given to the integration of health manpower development within activities aimed at the strengthening of health services. As a means of developing the health manpower required for the delivery of primary health care in rural areas, governments are placing increasing emphasis on the re-orientation of personnel from programmes for the control of specific diseases so that they become multipurpose health workers. To find ways of improving the pre-service and in-service training of such workers, a survey was undertaken of their responsibilities and of the training programmes in various countries of the Region. Assistance was given to Bangladesh, India and Maldives both in planning for the utilization of multipurpose health workers and in their training, and to Bangladesh, Burma, Mongolia and Nepal in connexion with the training of health assistants, feldshers and other middle-level health workers.

18.16 Efforts were continued to restructure medical education so that future physicians are better prepared for community health work, and a survey was made of community-oriented training programmes in the Region. Revised curricula were developed and training in field practice areas was introduced in Burma, Indonesia, and Mongolia; in India the entire undergraduate medical education programme was reviewed and recommendations were made for its revision to bring it more into line with actual needs and to make it more community-oriented.

18.17 The two regional teacher-training centres established with WHO and UNDP assistance in Sri Lanka and Thailand continued to play an important role in the development of curricula and educational technology. Subject to the availability of funds, the development of national teacher-training centres is planned in Bangladesh, Burma, India, Indonesia and Mongolia.

18.18 In nursing education attention was given to the training of personnel in community and family health and primary care; in Indonesia, for example,
existing activities are being converted into a programme for the training of primary health nurses, and it is planned to undertake, as an experimental measure, the training of nurses in the community rather than in the hospital. Support was continued for the preparation of tutors for all levels of nursing training, both through the organization of short courses and by assistance to countries in establishing postbasic schools of nursing; increased emphasis was given to helping countries to establish their own training facilities.

Disease prevention and control

18.19 Epidemiological services and surveillance were further strengthened; an increase in the number of personnel trained to work in communicable disease control contributed to better reporting and a reduction in case fatality rates.

18.20 Of the diseases subject to the International Health Regulations, plague was reported only from Burma, which received assistance for field investigations of the epidemiology of the disease in the endemic foci, and for the training of staff. In the research project on the ecology of plague in Indonesia, evaluation of the accumulated data was completed early in 1975. Cholera was reported from Bangladesh, Burma, India, Indonesia, Nepal, Sri Lanka, and Thailand. The case fatality rate showed a further decline. Experience once again showed that the spread of cholera cannot be prevented by vaccination alone; attention will also have to be paid to the provision of better sanitation, supply of safe drinking-water, intensive surveillance of diarrhoeal diseases, education of health personnel in early diagnosis, and rehydration therapy for cases of acute diarrhoea.

18.21 Countries were assisted in strengthening immunization programmes against smallpox, tuberculosis, diphtheria, pertussis and poliomyelitis. In November, participants from nine countries attended a seminar held in New Delhi in the context of the WHO expanded programme on immunization, at which the epidemiological situation and the resources available in the countries were assessed, with a view to setting realistic targets for national immunization programmes.

18.22 The continued increase in the incidence of malaria, the rapid renewal of the spread of Plasmodium falciparum in large areas of some countries, and reports of increased mortality in those areas have given rise to serious concern. Technical problems have increased, and operational and administrative difficulties have been aggravated as a result of shortages and rising costs of insecticides and antimalarial drugs. There is an urgent need for a revised strategy and methodology for the containment of the disease. Governments have been encouraged to give continued priority to containment, to the strengthening of the epidemiological and entomological services, and to collaboration with neighbouring countries, and WHO has tried to develop alternative approaches, in addition to residual insecticide spraying, in some countries (for example, the use of larvicides, biological control using fish, and water management).

18.23 Tuberculosis control programmes have been integrated into the basic health services in most countries of the Region, and in some countries work was in hand to conduct combined tuberculosis and leprosy investigations or control programmes. In accordance with a resolution adopted by the Regional Committee, guidelines for leprosy control (which was assisted in five countries) were drawn up at an intercountry consultative meeting in December, when all aspects of the leprosy problem were considered, including research. The Government of India expressed interest in adopting an intensified approach to the control of the disease, and future assistance is being planned accordingly.

18.24 Dengue haemorrhagic fever is considered to be one of the major killing diseases of children under 10 years of age in the Region, especially in Burma, Indonesia, and Thailand. In accordance with recommendations made by the WHO Technical Advisory Committee on Dengue Haemorrhagic Fever for the South-East Asia and Western Pacific Regions, steps were taken for the establishment in Bangkok of a collaborating centre for research on the immunopathology of dengue haemorrhagic fever, and technical guides on the control of the disease have been distributed in the two Regions.

18.25 Noncommunicable diseases are assuming increasing importance in the Region. A regional seminar on the development of cardiac resuscitation and rehabilitation services was held in New Delhi in late December to promote planning for the development of services for cardiovascular emergencies, and assistance was given during the year for the strengthening of training, services and research in the fields of both cardiovascular diseases and cancer. The prevention of visual impairment and the control of blindness have been identified as demanding priority attention, and six countries were assisted in determining the magnitude of the problem in preparation for the development of national programmes aimed at establishing basic ophthalmic services more accessible to remote communities at the periphery.
18.26 There has been an increase in the demand from countries for assistance with regard to mental health. The problems of drug dependence and alcoholism are causing concern, and help has been given with training and the establishment of treatment and rehabilitation facilities in some countries of the Region.

18.27 A recent survey revealed that there was considerable scope for improvements in quality control in vaccine-producing laboratories in the Region. Difficulties arose from an inadequate supply of laboratory animals of the required quality, as well as from the lack of national standards, which meant that laboratories were dependent on reference preparations that were in short supply. Documents concerning the minimum requirements for facilities for laboratory animals and the training of staff for their management were prepared on the basis of the discussions of veterinarians who met at a regional seminar held in February in Bombay, India.

Environmental health

18.28 Community water supply and sanitation programmes received increased attention in almost all countries as a result of the growing recognition of their role in the promotion of health. Projects assisted by WHO and UNICEF in Bangladesh, India, Indonesia, Maldives, Nepal, Sri Lanka and Thailand progressed according to plan. Assistance was also given to Burma for the development of rural water supplies and to Mongolia for the planning and implementation of a rural water supply and sewerage project.

18.29 The UNDP-funded projects for which WHO is the executing agency in Indonesia (for sewerage and sanitation in Jakarta, rural water supplies in East Java, and the strengthening of the environmental health aspects of health services in Irian Jaya) proceeded as planned. Assistance was given to India for the preparation of a UNDP document for the development of rural water supplies, and to Bangladesh for feasibility studies on projects for the improvement of garbage disposal and the installation of sanitary latrines in Dacca.

18.30 Priority was given to the training of personnel in the environmental health programmes in several countries. With regard to the training of sanitary engineers, assistance was given in the preparation of curricula on the treatment of industrial wastes and on other subjects that are relatively new in the Region. Nearly all field projects include provision for the training of auxiliary personnel. A study of environmental health manpower planning was carried out in Indonesia and a regional workshop on manpower planning in environmental and public health services was held in Colombo at the end of December.

18.31 Assistance was given to Burma for the development of occupational health services, and for the preparation of a UNDP project document for strengthening health services in newly industrialized areas along the west bank of the Irrawaddy River. In Indonesia, ILO and WHO made a joint reappraisal of the project for the strengthening of the National Institute of Occupational Health in order to bring the activities into line with national requirements.

18.32 Accidents, attempted suicides, occupational hazards and environmental factors account for rising social dependence and for serious economic loss in developing countries. Assistance has been given in the field of occupational health and in connexion with environmental hazards for assessing the existing facilities, identifying the high-risk groups and instituting measures for reducing morbidity and mortality.

18.33 In the field of radiation health, WHO provided assistance in seven countries with the organization of radiological, radiotherapy and nuclear medicine services, the training of personnel, the strengthening of facilities for dosimetric calibration, and the monitoring and establishment of national radiation protection services.

The Regional Committee

18.34 The twenty-eighth session of the Regional Committee for South-East Asia was held in New Delhi from 25 to 30 August 1975. Representatives of all Member countries of the Region were present. In addition, the session was attended by representatives of UNDP, ILO, FAO and 11 nongovernmental organizations in official relations with WHO.

18.35 Introducing his Annual Report, the Regional Director referred to the widening gap between the developing and the developed countries, which had also affected the health sector. The efforts so far made to improve the health of the people had not yielded the desired results, and there was a need for new approaches. Within WHO the emphasis was being shifted from numerous small projects to fewer, more comprehensive programmes—a new approach that was being adopted by some countries in the Region. Country health programming, essentially a national undertaking for which WHO provided assistance and advice, had enabled a number of countries to assess their problems and plan their own solutions within the limits set by the available resources.
18.36 During the discussion on the Annual Report
the Committee considered a paper on a multipurpose
health workers scheme to improve the health coverage
of the rural population. The need for planning and
evaluation of the programme and for training, super-
vision and guidance of field workers was stressed, and
the Committee adopted a resolution requesting the
Regional Director to collect and disseminate informa-
tion on such programmes in countries in the Region,
and to develop guidelines for evaluation. With regard
to family planning, emphasis was laid on the need to
achieve self-sufficiency in the production of contra-
ceptives in countries with large family planning pro-
grammes. The integration of nutrition projects within
the basic health services and the development of pro-
grammes to combat malnutrition and deficiency
states called for priority attention; in particular, there
was an urgent need to provide nutritional supplements
to the most vulnerable segments of the population.

18.37 The Committee expressed grave concern over
the recrudescence of malaria in some countries of the
Region and stressed the need for prompt measures so
that the resources and efforts put into the malaria
eradication programme over the past three decades
would not be wasted. The shortage of DDT and its
increased price, the development of insecticide resist-
ance in vectors and the inadequate supply of anti-
malarial drugs were seen as the main difficulties. The
Committee requested the Regional Director to
continue his efforts to assist governments in increasing
the production of antimalarial drugs and insecticides
and in training personnel for long-term antimalaria
activities, as well as to stimulate and support studies
on the operational aspects of control.

18.38 The remarkable progress made during the year
in the smallpox eradication campaign, particularly the
achievement of zero incidence in India, was noted.
The Committee emphasized the urgent need for coor-
dinated and concerted efforts on the part of
governments, international voluntary organizations
and bilateral agencies to control leprosy. With regard
to dengue haemorrhagic fever, the Committee recog-
nized the adoption of a systematic approach
towards prevention, diagnosis, treatment and control,
including the strengthening of surveillance activities
coordinated within the Region and with the Western
Pacific Region.

18.39 The expansion of the health laboratory services
programme was requested by several representatives
in view of the important role played by the laboratories
in the control of communicable diseases, epidemi-
ological surveillance and biomedical research.

18.40 Suggestions were made for reducing the social
dependence and economic loss to the community
resulting from visual impairment and blindness,
which pose a severe problem in the Region. WHO was
requested to mobilize technical assistance and other
resources for countries for implementing national
preventive programmes.

18.41 In stressing the importance of improving the
environment as a means of promoting health, emphasis
was laid on the need for health ministries to take a
more active part in ensuring a healthy environment in
new settlements through closer coordination with
other ministries.

18.42 With regard to training, the difficulty of persua-
sing doctors and nurses to work in rural communi-
ties was discussed, and stress was laid on the need to
revise the curricula of medical schools so that they
were better adapted to meeting the real needs of the
community.

18.43 The Committee considered that biomedical
research in the Region should be concentrated on
carefully selected priority areas, and welcomed the
proposal to establish a Regional Advisory Committee
on Medical Research, which, it was felt, should have a
balanced representation with regard to both geo-
graphical areas and disciplines.

18.44 The Committee endorsed the principles con-
tained in a draft Charter for Health Development in
South-East Asia.

18.45 Revisions to the programme budget for 1976
and 1977 were approved.

18.46 The Committee confirmed its previous decision
to hold its twenty-ninth session in September 1976 in
Srinagar, India, and decided to hold its thirtieth session
in Thailand.

18.47 The Technical Discussions were on “Organi-
zation of research in disciplines of regional priority,
with special reference to methods for expanding the
coverage and improving the quality of health services
in the community”. “Development of national nutrition
programmes with special reference to the vul-
nerable sectors of the population” was chosen as the
subject for the Technical Discussions at the twenty-
ninth session.
19. EUROPEAN REGION

19.1 A modern approach to management and increased cooperation with other United Nations specialized agencies and intergovernmental organizations, intended to produce uniformity of action and avoid duplication of effort, are particularly important for the work of WHO in the European Region because extrabudgetary funds administered through the Regional Office, coming mainly from UNDP, are at least equal to the regular budget funds available for country and intercountry projects. With these principles in mind, a meeting was again held during the year with representatives of UNDP, UNICEF, and the United Nations Division of Social Affairs to coordinate procedures and increase efficiency in planning and implementing joint programmes. The special characteristics of the European Region as regards the delivery of medical care, training of personnel, and both biomedical and technological research determine working methods in the Region; numerous, and very diverse, working groups, conferences, symposia, and other meetings are organized and the results are made generally available through an extensive range of documents, and also through a limited publishing programme. Plans to expand the latter considerably were put into effect in 1975 to provide a medium through which the work of the Region could be brought to the attention of a wider audience among medical and public health professions, not only in the European Region but also in other parts of the world.

19.2 An important event in the Region was the resumption of direct assistance to Portugal, in accordance with resolution WHA28.49 adopted by the World Health Assembly in May. This has taken the form of the preparation of projects aimed at developing an integrated national health service, providing training in public health, and reorganizing mental health services.

The health services and manpower development

19.3 The continuous changes taking place in the delivery of health care result both from professional concern with economy and efficiency and to some extent from the dissatisfaction of users with services and coverage. The problem of coverage is not limited to the developing countries; in Europe, too, there are still groups, such as migrant workers, immigrants and the elderly, that are underserved. In programmes for the development of community services in the European Region, particular attention is therefore paid to these groups. As part of the continuing effort to improve primary health care in the Region, a working group to define parameters of efficiency was held in Reykjavik in July in conjunction with a working group on nursing in modern health services. These working groups called for a common terminology with definitions of functions and activities, resources and constraints, and division of labour with special reference to the role of the nurse. In this context a glossary of health care terminology was prepared in document form on a trial basis, and users’ comments and criticisms are being sought.

19.4 Planning and programming for the health services were covered by a study of health planning systems in six Member countries, two international training courses in health planning (one in Moscow and Helsinki, the other in Bucharest), and a working group on the use of operational research in health services. A seminar, based on experience in Scotland, was held on the project systems analysis approach to the programming and management of health services. Technical support was given for country health programming in Algeria, the first country to undertake this process in the Region. The Scientific Centre for Hygiene and Epidemiology, which was established in Sofia with UNDP/WHO assistance, arranged a national symposium on computer application in communicable disease control in the Gabrovo pilot district of Bulgaria with assistance from the Organization. Help was also given to Iceland in establishing a health data bank covering the entire population.

19.5 Epidemiological principles have an important place in the evaluation and planning of health services, and their use was studied by three working groups on geographical factors, screening activities and randomized trials. In addition, three postgraduate courses on epidemiology were held during the year, in Bratislava (Czechoslovakia), Brussels and London. Epidemiological methods are also necessary for investigating the causes of road traffic accidents, which are still on the increase in Europe; a conference in Vienna con-
cluded that such methods could be applied to the study of the causes of road traffic accidents and to the prevention of disability resulting from them.

19.6 There is in Europe today a wider recognition than ever before that the education and training of national health personnel must be improved in order to strengthen the health services and achieve greater efficiency in the delivery of health care. A working group that met in Kuopio, Finland, in June discussed the relevance of educational planning to health problems; another working group in Brussels in September dealt with specific problems of schools of public health and discussed the responsibility of health administrations for educational planning. Also in Brussels in September the first steering committee on the medium-term programme in nursing/midwifery in Europe met to develop a programme aiming to assist Member States to strengthen their capacity for planning and managing the nursing/midwifery component of the health services. Assistance was given to the University of Iceland in organizing a teaching programme for senior hospital nursing staff. The objectives of the WHO-assisted training project at the Institute of Health Technology at Constantine, Algeria, were broadened to embrace six categories of health personnel for the health team; most of the WHO staff have been replaced by national personnel, according to plan. In Turkey, a health manpower development project was started, focusing on the preparation of teachers and the development of facilities for training auxiliary health workers in rural areas.

Specific health problem areas

19.7 Family health. Family health, although fairly adequately covered in the European Region by comparison with some other Regions, is nevertheless an important concern of the Organization. The first of a planned series of three working groups on the problems of school-age children was held in Copenhagen in November. Paediatricians, teachers and health and social workers considered the traditional health hazards and environmental and social influences in relation to existing methods of health protection for children in this age-group. In relation to the strengthening of maternal and child health services in Morocco, assistance was given in establishing a master framework for sampling the health status of a population. In addition the Organization continued its collaboration with Algeria, Morocco and Turkey in connexion with UNFPA-funded activities for maternal and child health and birth spacing or family planning.

19.8 Cardiovascular diseases. One of the major health problems in the European Region is cardiovascular diseases. The second meeting of the steering committee for the long-term programme in cardiovascular diseases took place in Copenhagen in February, giving priority to the community approach to control and prevention. Subsequently the Regional Committee, after considering the conclusions of its own evaluation group (see paragraph 19.19), asked Member countries in the Region to participate actively at both the national and international levels. Meetings were held in connexion with acute myocardial infarction, the rehabilitation of cardiovascular disease patients, the control of stroke, and the community control of hypertension.

19.9 Mental health. Under the long-term programme in mental health, nine pilot areas are engaged in a study of existing services and staffing patterns. Different aspects of mental health were dealt with by various working groups. At a third working group on mental health services in pilot areas held in Trieste, Italy, mental health resources, distribution of staff and patients’ use of the facilities provided were among the topics discussed. Another working group, that met in Saarbrücken, Federal Republic of Germany, in March, studied the role of nursing in mental health and psychiatric care. In Siena, Italy, in October a working group considered forensic psychiatry under different control and treatment systems and its future role in the prevention of crime. A multidisciplinary symposium on the planning and organization of services for alcoholism and drug dependence was held in Albi, France, in July; and in Lübeck, Federal Republic of Germany, a working group reviewed the activities, organization and staffing of youth advisory services.

19.10 Smoking and health. At the Third World Conference on Smoking and Health, held in New York in June, preliminary data were presented from the survey on smoking and health initiated in the European Region in 1974. The final data from this two-year survey, which were made available to Members later in the year, provide information on the subject from 25 Member States in the Region.

Environmental health

19.11 Environmental health authorities in the Region are particularly concerned with chemical pollution, with the effect of radiation, and with noise as a cause of stress. However, in some parts of the Region the

1 In connexion with work on alcoholism in the European Region, see also paragraph 7.129.
threat of communicable diseases, especially typhoid and viral hepatitis, and even cholera, is exacerbated by population movements and the rapid growth of urban communities, requiring many of the basic sanitation services, both national and provincial, to be strengthened and pre-investment studies relating to water supply, sewerage, etc., to be made. The international impact of environmental pollution is particularly apparent in Europe, where the effects of air and water pollution are often experienced in several neighbouring countries simultaneously. Methods and techniques currently used in the diagnosis and treatment of respiratory diseases in children, which are often associated with the long-term effects of air pollution, were reviewed by a working group in Rotterdam, Netherlands, in March. In conjunction with the European Society for Clinical Respiratory Physiology, a nomenclature and definitions of terms used in respiratory physiology were published in the Bulletin de physiopathologie respiratoire. A manual on urban air quality management was completed and will be No. 1 in the EURO Series of the new WHO regional publications programme; it is the first publication in the regional long-term programme in environmental health but should be equally useful to governments and official agencies concerned with air pollution problems in other parts of the world.

19.12 The production of an increasing range of toxic materials has resulted in particular hazards for those employed in industries either manufacturing or using such materials. The epidemiology of industrial intoxications was the subject of a three-week course held in Helsinki in October-November. Development of a national system of health surveillance for workers exposed to toxic substances was begun at Łódź, Poland, with UNDP/WHO assistance. A seminar on pollution in the Danube was organized in Copenhagen in March in collaboration with UNEP; detailed proposals were made for a multicountry surveillance and monitoring programme. Meetings were held during the year on systems analysis in relation to water quality management (in Budapest), the problem of animal wastes (in Bratislava, Czechoslovakia), and regional planning aspects of environmental pollution control (in Katowice, Poland). Working groups also dealt with environmental health aspects of nuclear power production and the use of lasers and other sources of nonionizing radiation. A two-year study on the role of public health in environmental pollution control was started in cooperation with the Belgian Government, and a study was made of the requirements of an environmental pollution information system, with emphasis being placed on water pollution as a first stage.

Prophylactic and therapeutic substances

19.13 Questions related to drug therapy such as the registration of drugs, responsibility for providing drugs for treating rare diseases, and herbal and traditional remedies were discussed by clinical pharmacologists and drug control officers with representatives of nongovernmental organizations at the fourth in the series of European symposia on clinical pharmacological evaluation in drug control in Deidesheim, Federal Republic of Germany, in November. A drug control course was organized in Stockholm in April in collaboration with the Swedish Government for medical officers and pharmacists from the European and Eastern Mediterranean Regions. Meetings took place in April and December, respectively, on the use of laboratory methods in the control of hospital infections and on the public health aspects of antibiotic-resistant bacteria. Preliminary data were collected on the cost/benefit ratio of automation in clinical chemistry and haematology in three Member States.

Communicable diseases

19.14 A programme was prepared for the evaluation of the economic impact of communicable diseases and for analysis of the cost/benefit and cost/effectiveness of various approaches to their control in national health programmes. The changing approach to malaria in the Region is shown by the decision to create an intercountry malaria team to serve the whole Region in place of separate teams in Algeria, Morocco, and Turkey. An assessment was made of measures taken to prevent the reintroduction of malaria into Portugal since eradication was certified. Viral hepatitis and tuberculosis in migrant workers in the European Region were considered by working groups. The close relationship of waterborne and foodborne enteric diseases to basic sanitary conditions was stressed in several country programmes (e.g., in Algeria, Morocco and Turkey) which include both epidemiological services and activities for the improvement of basic sanitation.

The Regional Committee

19.15 The twenty-fifth session of the Regional Committee for Europe was held in Algiers from 2 to 6 September 1975. Representatives of 30 countries of the Region participated. Also present were representatives of UNICEF, UNDP, ILO, the International Committee of Military Medicine and Pharmacy, and of several nongovernmental organizations, and an observer from the International Children’s Centre.
Introducing his report for the period 1 July 1974 to 30 June 1975, the Regional Director spoke of the difficulties faced by the Organization on account of the unstable monetary situation, but stated that, despite certain restrictions, the programme of work had been continued as actively as possible, thanks in part to the availability of extrabudgetary funds. He indicated a number of new programmes that might be implemented should funds become available—protection of the elderly, prevention of road traffic accidents, and the campaign against smoking. It had also been suggested that the Regional Office should deal as well with such matters as rheumatology, radiation protection in medical establishments, and food hygiene aspects of veterinary public health; in addition, it might be necessary to resume some dental health activities.

Referring to the conclusions of the recent Helsinki Conference on Security and Cooperation in Europe, the Regional Director foresaw new prospects for collaboration in science and technology, and in the general discussion a number of representatives stressed the exceptional technical potential of the Region and, hence, the possibilities open to the Regional Office for coordinating information for the benefit of all countries including those in other Regions. Appreciation was expressed of the work that had been accomplished during the year despite inevitable limitations of the funds.

The Committee considered proposed modifications to the programme budget for 1976 and 1977; these were intended partly to offset the effects of inflation and currency fluctuations and were so formulated as to preserve the usual balance between country and intercountry programmes in the Region. The revisions for 1977 were endorsed in a resolution which also recommended the reinstatement of funds for fellowships whenever possible.

The Committee noted with satisfaction the progress made in preparation for the long-term programme in health manpower development. In connexion with disease prevention and control, the Committee commented on the need for studies on gonorrhoea and for measures to control alcoholism, which is still a widespread problem in the Region, and considered an evaluation of the long-term programme in cardiovascular diseases that had been made by an advisory group composed of members of the Regional Committee. The group had concluded that the choice of cardiovascular diseases as the subject of a long-term study and the priorities established for the various projects had been appropriate and that all the objectives, apart from health education, had been achieved, but rehabilitation had perhaps been overemphasized and an evaluation in depth of the fellowships was needed.

Concerning the role of the Regional Office in the development and coordination of biomedical research, the Committee considered it necessary to proceed with the greatest caution in an area that already presented difficulties at the national level. It was thought too early to establish immediately an advisory committee on biomedical research for the Region; rather, a preliminary ad hoc consultative group should be convened to define the main lines to be followed and to consider the financial implications.

The Committee also discussed the proposed objectives for the Sixth General Programme of Work for the period 1978-83 and considered the regional priorities.

The German language was adopted as a working language of the Regional Committee.

The Committee confirmed that the twenty-sixth session would take place in Athens from 14 to 18 September 1976, and accepted an invitation from the Government of the Federal Republic of Germany to hold the twenty-seventh session in Munich in September 1977.

Technical Discussions were held on “The place of occupational health in public health services”. The Committee confirmed that the Technical Discussions at the twenty-sixth session would be on “The role of nursing staff in the health field in the 1980s”, and chose “Information systems in health services” as the topic at the twenty-seventh session.
20. EASTERN MEDITERRANEAN REGION

20.1 Health problems in the Eastern Mediterranean Region fall into two main categories: those with which countries themselves may be expected to cope with no, or minimal, external assistance, and those for which international or bilateral assistance is required. In the first category are such activities as the provision of basic health services, including maternal and child health care and school health services; mass immunization campaigns and other measures for the control of communicable diseases; the provision of basic sanitation and an adequate water supply; health education for all levels of population; and elimination of malnutrition with its resulting effects on the mental and physical capacity of the population—all these activities being conducted to the extent that means are available. In the second category can be placed training programmes for health personnel, from the front-line worker to the medical specialist, including the exchange of scientists between institutions; the planning and management of services, including advice on the best use of available manpower, statistical and medical record systems; the provision of specialized care and advice on related facilities; assistance in the planning and execution of emergency measures; advice on biomedical research, through the establishment of advisory panels; and the organization of seminars, symposia and working groups on matters of special concern to the Region.

20.2 In practice, the demarcation line between the categories is not always well defined. Levels of development achieved by the individual countries in the Region vary greatly owing to very rapid evolution in some of them. Thus, the programme of WHO assistance is, and must be, flexible and capable of adaptation to meet changing circumstances. Discussion at the meeting of Sub-Committee A of the Regional Committee in October identified priorities for the allocation of WHO resources in the Sixth General Programme of Work for the period 1978-83 that would help in improving health conditions for the largest number of people in the Region.

20.3 One rewarding result of recent economic progress in the Region is that a high proportion of the new wealth is being devoted to improvement of the health conditions of the people, directly through inputs and expenditure in other parts of the social sector. The wealthier countries have also shown willingness to provide health assistance to others in a less fortunate economic situation. Noteworthy in the year under review was the generous attitude of the Governments of Iran, Iraq, Kuwait, Libyan Arab Republic, Qatar, Saudi Arabia and the United Arab Emirates. Further, as a result of the understanding attitude of governments, it was possible to maintain the level of WHO assistance to Afghanistan, Democratic Yemen, Ethiopia, Somalia, Sudan and Yemen—countries in the Region most in need of assistance—in spite of the serious reduction in the Organization's resources as a result of the world economic situation.

20.4 During the year a number of Member countries experienced natural or man-made catastrophes. Services, already under strain, were disrupted, while universities were closed and programmes interrupted on account of civil disturbances, with the result that many years of investment in education and training were lost. The countries concerned made every effort to overcome these difficulties, and to the fullest extent possible WHO provided emergency help and adapted programmes to meet sudden changes in priorities.

Strengthening of health services

20.5 The search for the most effective way to deliver health services continued in a research project in the West Azerbaijan region of Iran. Analyses of health and the health services situation permitted an appraisal of means of developing health services best suited for improving community health. This type of approach to primary health care formed the subject of the Technical Discussions at Sub-Committee A of the Regional Committee; the practical application in other countries of many of the techniques tried out in West Azerbaijan was considered to be feasible.

20.6 WHO has recently been invited by governments to participate at an early stage in the planning of new hospitals and in the reorganization and administration of existing hospital services. The need for more properly trained personnel to operate, administer and maintain these services has been kept in mind when awarding fellowships. In turn, the improved facilities
afford better opportunities for WHO-assisted manpower development projects.

20.7 A pretraining course designed to prepare candidates for the regional training centre for repair and maintenance of medical equipment in Cyprus could not be held, and the centre has not yet opened. However, direct assistance in this field was provided for Afghanistan, Democratic Yemen, Ethiopia, Iran, Pakistan, Syrian Arab Republic and Yemen.

**Family health**

20.8 Apart from continued emphasis on the integration of maternal and child health services into the basic health services, assistance was aimed at raising the standard of family health in the Region, mainly through biomedical research in family planning and training activities, which were extensive. An intercountry seminar on the development of field training areas, and their needs and advantages for the teaching of maternal and child health and family planning to health personnel, was held in Iran in May to strengthen such teaching in medical schools. Maternity-centred family planning projects in Democratic Yemen and Sudan were approved by UNFPA, and child health/family planning projects are being formulated for Jordan and the Syrian Arab Republic.

20.9 An analysis based on information from several countries showed that moderate to severe degrees of malnutrition affect 20-30% of preschool children. Insufficient food, repeated pregnancies, parental ignorance and environmental factors provide conditions in which malnutrition flourishes. Greater involvement of women's organizations in the promotion of national efforts towards nutritional improvement is desirable. A seminar on this subject was organized in Damascus in August, with the participation of Arab women's organizations. Following recommendations of the World Food Conference in November 1974, the activities of the regional nutrition project in Beirut were reviewed by UNICEF, FAO, UNESCO and WHO. It was agreed to give greater emphasis to the establishment of nutritional surveillance systems in selected countries of the Region where facilities exist, to the coordination of nutritional activities with other appropriate activities of health services, and to the promotion of sound national food and nutrition policies, whenever possible.

**Health manpower development**

20.10 Special efforts were made during the year to improve health manpower planning and requirement-predicting capacity in countries and to promote collaboration between the various training institutions, particularly medical and other professional schools, and the health ministries which employ their graduates. The Organization continued to urge the need for a long-term approach to the training of health personnel, but many medical and other health professional schools—dentistry, pharmacy, nursing—are still opened without proper planning. The opening of new schools and the rapid expansion of existing ones without proper regard to the recruitment and preparation of teaching staff remain serious problems.

20.11 The largest single programme in health manpower development in the Region, apart from the fellowships programme, is concerned with all aspects of educational planning and technology, with particular reference to teacher-training for medical school and other teachers, and the effective utilization of modern technologies in education. In postgraduate training the year was marked by two main events: a working group on the postgraduate and continuing education of physicians in the Region was held in Alexandria in July, and a postgraduate Master of Public Health degree course, with special emphasis on malaria and other parasitic diseases, commenced at the School of Public Health, University of Teheran. This is the first full-scale academic programme in English that the School has developed.

20.12 As far as nursing is concerned, no country in the Region yet considers that its nursing manpower is sufficient to meet its needs. Patterns of nursing care and programmes for preparing nurses vary widely and include traditional nursing schools, nursing education as one of the disciplines in health manpower institutes, and university-based programmes. In most countries, nursing programmes are now functioning without the help of international staff, but a need for assistance still exists and is being met by short-term consultants and fellowships provided by the Organization.

20.13 The fellowships programme continued to be a central activity in 1975 and accounted for a very high proportion of the total expenditure of funds, as well as effort, by the Organization in partnership with the Member countries. This large-scale operation—through which, for every working day of the year, between all the 23 Member countries of the Region, an average of two young persons set out on a new learning experience—calls for a complex and intricate system of management and close collaboration from all concerned. Steps are being taken to make the programme match even more closely the needs of countries, and to ensure that each individual fellow receives appropriate training to enable him to contribute most effectively to his country's health services.
Communicable diseases

20.14 Communicable diseases continue to be the main causes of morbidity and mortality in the Region, although much progress has been made in their control and Member countries are making every effort to advance this work. The WHO staffing of these communicable diseases programmes is gradually being reduced since the majority of countries now have their own well-trained cadres of experts. The worldwide smallpox eradication campaign has achieved almost total success; and in Ethiopia, the only country where smallpox transmission is still known to occur, the goal of eradication is in sight. There have been setbacks, however, in the malaria programme, principally on account of financial difficulties due to the increased cost of insecticides and other essential supplies. However, financial assistance for malaria activities has now been received from international and bilateral sources, which, if properly administered, should radically improve the situation during the next few years. Schistosomiasis, which is a major public health problem, has been aggravated as a result of large-scale irrigation and other development schemes, by movements of population from infected areas back to areas now uninfected, or, in one country, by resettlement of the population from drought-stricken but uninfected areas in an infected area. In view of the importance of schistosomiasis, an international conference on the disease was held in Cairo in October under the sponsorship of the Government of Egypt in association with the United States Government, UNEP and WHO.

Noncommunicable diseases

20.15 The noncommunicable diseases are a serious problem in the Region not only in terms of incidence and prevalence, but also in relation to health expenditure and manpower, hospital beds and other health facilities, and working days lost at the most productive age. A regional advisory panel on cancer at its first meeting in February elaborated a regional cancer programme designed to be a model for national cancer control programmes. Regional cancer reference centres were designated in Alexandria and Cairo, Teheran, and Tunis. The task of each centre is to formulate and implement studies concerning the epidemiology, etiology, detection, treatment and prevention of a specific type of cancer.

20.16 The introduction of psychotropic drugs in the management of mental illness, together with increasing emphasis on community-based services and attempts to incorporate psychiatric care into the total health services, are opening up new possibilities in the complex field of mental health. A seminar on the application of psychiatric epidemiology was held in Khartoum in February, marking an important step towards the proper collection of psychiatric information, a prerequisite for assessing the magnitude of the mental health problem. The WHO mental health programme was discussed in October at the meeting of Sub-Committee A of the Regional Committee, which called attention to the prime need in all countries to develop a qualified cadre of mental health workers capable of providing the general services needed, as well as differential care for special groups such as the mentally retarded, drug-dependent persons, and mentally abnormal offenders. Medium-term programming was carried out in Kuwait and Sudan; the former to develop mental health work from hospital-based care to community-oriented services, the latter to study the possibility of developing mental health services within the total health system.

Prophylactic, diagnostic and therapeutic substances

20.17 Following a resolution of Sub-Committee A of the Regional Committee in 1974, a working group on rational drug therapy, efficacy, safety, and economy was organized in March 1975. The group recommended that studies should be undertaken on factors determining physicians' prescribing patterns and the drug-taking behaviour of the population. In assisting the modernization of national drug control, it was necessary in some countries to establish an organizational framework for a drug control authority; in others, the integration of specialized drug control institutions was reviewed and strengthened. Progress was made in certain specialized fields of collaboration; for example, a course in clinical pharmacology has been established with WHO assistance at Pahlavi University, Shiraz, Iran; a national poisons information centre has been established in Baghdad; and assistance has been given in developing national formularies, improving drug purchasing, storage and distribution, and the efficacy and economy of drug use in community health care.

20.18 Financial assistance given by UNDP to health laboratory services in seven countries of the Region has been used in establishing national health laboratory services and in developing specialized activities, such as those in Egypt, Sudan and Tunisia. Assistant laboratory technicians are being trained in all countries, while training for laboratory technologists is being provided at universities in Iran, Jordan, Lebanon and Sudan. Production of vaccines and sera is progressing satisfactorily; better control of these products has
been instituted in Egypt, Iran and Jordan through the application of production techniques to improve quality and increase output.

Promotion of environmental health

20.19 Notable accomplishments during the year were the completion of the master plan for water supply for Greater Kabul with UNDP financing and the contribution to national development in Saudi Arabia that was made through the advancement of a water supply and sewerage project. Other environmental health projects related to urban or rural water supply and wastes disposal were in operation in most countries of the Region. In Lebanon, negotiations were completed with a consulting firm for the UNDP-financed project for a national wastes management plan, but its implementation had to be suspended.

Health statistics

20.20 Population censuses were carried out in a number of countries during the year, some for the first time. A large number of countries now publish reports annually on general statistics and/or vital and health statistics, which, together with an increasing number of requests for assistance and fellowships in this field, is evidence that the importance is recognized of accurate data in the sound planning, administration, management and evaluation of health programmes. The provision of advisory services on medical records is increasing through an intercountry project. A regional training centre for medical record science was established at the High Institute of Public Health, University of Alexandria, Egypt, where the first course was completed. Guidelines for medical record practice were distributed to all countries of the Region.

The Regional Committee

20.21 Sub-Committee A of the Regional Committee for the Eastern Mediterranean met in Teheran, Iran, from 7 to 11 October 1975. Sub-Committee B did not meet.

20.22 The meeting of Sub-Committee A was attended by representatives of Afghanistan, Bahrain, Cyprus, Democratic Yemen, Egypt, Ethiopia, Iran, Iraq, Jordan, Kuwait, Lebanon, Libyan Arab Republic, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, and Yemen.

20.23 The United Nations, UNDP, UNICEF, UNRWA and the Organization of African Unity (OAU) were represented, and an observer from the Palestine Liberation Organization attended. Representatives or observers of 23 other intergovernmental or nongovernmental organizations were also present.

20.24 In the discussion of the Regional Director's Annual Report for the period 1 July 1974 to 30 June 1975, the flexible nature of WHO assistance in the Eastern Mediterranean to meet countries' needs, in view of the rapidly changing socioeconomic conditions, was emphasized. Speakers welcomed the trends towards reducing the number of long-term staff, except in a limited number of countries still in need of such assistance, and providing more consultants, fellowships, and supplies and equipment. Satisfaction was expressed at the greater use of national expertise under WHO sponsorship by way of local subsidies, grants and payment of supplementary costs; this type of assistance helps to ensure that national experts are able to contribute to their own country's health programme.

20.25 The continuation of the "brain-drain" was considered to require special remedial measures, and it was suggested that the provision of postgraduate training facilities within the countries of the Region might be one way to reduce the emigration of qualified health personnel.

20.26 The proportion of the new wealth in the more affluent countries being devoted to health, and the agreement of certain countries to reduce their allocation of the WHO regular budget so that programmes in less economically fortunate countries could be maintained or even increased, as well as the voluntary contributions received from Egypt, Iran, Kuwait, and Saudi Arabia, and being negotiated with the Governments of Bahrain, Iraq, Libyan Arab Republic, Qatar and the United Arab Emirates, are evidence of the importance attached to the promotion of health in the Region.

20.27 Reference was made to the fact that the Region had suffered seriously from natural and man-made catastrophes in the previous year. Appreciation was expressed of WHO's involvement in providing technical support and relief measures in collaboration with other United Nations agencies. The Sub-Committee adopted a resolution calling for urgent medical assistance to Lebanon and appealing for protection of life, especially the lives of women and children, in that country.

20.28 The burden placed by emergency situations on the health services and the dangers to health which might arise from subsequent movements and resettlement of populations were recognized. It was considered
that one of the major problems is the possible spread of schistosomiasis. The risk is aggravated by irrigation and agricultural projects, and, in this connexion, the Sub-Committee endorsed a plan for greater involvement of the Region in biomedical research, and agreed to the establishment of a regional advisory committee on biomedical research.

20.29 Other topics touched upon were smallpox and the need for continued surveillance after global eradication is achieved, and blindness—some 7.5 million persons in the Region are victims of blindness from preventable causes. A resolution was adopted urging continued efforts aimed at expanding the use of Arabic as a working language of the Organization.

20.30 The Sub-Committee endorsed the revised programme and budget estimates for 1976-77 under the regular budget and all other funds. The principal and detailed objectives of the Organization were reviewed, and priorities for the Region identified, for the Sixth General Programme of Work covering the period 1978-83.

20.31 The Sub-Committee accepted invitations from governments to hold future sessions in Pakistan in 1976, Kuwait in 1977, Bahrain in 1978, and Qatar in 1979.

20.32 The theme of the Technical Discussions was “Approaches to the effective delivery of primary health care, with particular reference to experience in West Azerbaijan, Iran”. Papers presented on the major difficulties being faced by the antimalaria programme in the Eastern Mediterranean Region and on the mental health services in the Region stimulated much discussion.
21. WESTERN PACIFIC REGION

Strengthening of health services

21.1 The planning and management of national health services remained major concerns of countries in the Western Pacific Region. Training in planning continued but rather within countries than on a regional basis, and the subjects covered now include not only the methodology of health planning but also the programming and management aspects. For the first time country health programming was undertaken in a Member country (Laos), and the experience will be helpful in applying the technique to other countries in the Region seeking help. A health planning manual was prepared for use in courses on national health planning, and for national health workers as a basic work of reference.

21.2 The Organization is assisting nine countries to develop their health services through a collaborative effort intended to strengthen services at all levels, including basic health services, and to coordinate specialized programmes, or even integrate them into the general health organization. As budgets for health services remain more or less unchanged, efforts are being made to increase their effectiveness and efficiency, especially at the peripheral level. Various methods are used for this purpose; in putting them into effect empirical measures are gradually giving way to a more systematic approach and the use of operational research techniques. One assisted government has restructured its rural health services to facilitate the provision of a World Bank loan for development purposes. Efforts are being made to broaden the scope of information collection by including data from fields other than health that are needed for the planning, management and evaluation of health services.

21.3 The cost of medical care, including the operation of medical institutions, continues to take the lion's share of national health budgets. Assessment of hospital systems, particularly those of developing countries, shows that there has been not only a rise in the cost of care but also in many instances inefficient management. The Organization has endeavoured to improve hospital management and to take account of community needs through training of administrative and technical staff, upgrading of administrative services, and development of technical and clinical units. Fifteen governments have requested specific assistance for medical care institutions, in training of medical and nonmedical hospital administrators and middle-level staff, in hospital architecture, and for medical equipment maintenance and repair. One country is being assisted in the planning and construction of a general hospital complex. A regional project providing for consultant services and regional training centres in the various fields was proposed to UNDP for funding but, in view of the high cost it entailed, it is proposed to seek additional sources of funds and to spread the establishment of the centres over a longer period.

21.4 The importance of occupational health is being recognized by developing countries that have given priority to industrialization in their developmental goals. WHO assistance in this field is still modest, and consists in the provision of advice in making assessments or setting up official agencies to oversee activities and promote the establishment of occupational health services. In one country assistance was given in planning the nursing component of such a service. A regional course has been established under WHO sponsorship for training national health workers in occupational health.

Family health

21.5 Family health care continues to be a major component of primary health programmes. In some countries such care is provided at the peripheral level through health workers simply trained for the task; in others specialized services are organized for selected groups. Most developing countries in the Region favour the former approach, and this trend is encouraged by the Organization. In providing assistance to Member countries, the Organization seeks to promote comprehensive services for mothers and children, including fertility regulation as part of maternal care, with the aim of meeting major needs through multidisciplinary services provided by personnel with limited training. In Laos, Malaysia, the Philippines and the Republic of Korea special needs and problems of the family as a unit were identified,
training programmes for health workers developed, and technical and administrative procedures continuously adapted.

21.6 Active community involvement and individual participation are crucial for successful family health care. Efforts were therefore made to include health education in all health programmes. The need for collaboration between health services and the various development-related agencies working at community level is emphasized in health education since there is a close link between improvement of the health status of a community and overall socioeconomic progress. Increasing importance is being attached to the formulation of national food and nutrition policies and to collaboration in this sphere between WHO and other organizations in the United Nations system. As awareness of the problem grows, nutrition activities have been progressively integrated into the basic health services and instruction on the subject has been included in the training of health personnel. Nevertheless, difficulties still arise with regard to the training of staff and coordination among the different professions involved in the various activities.

Health manpower development

21.7 Member States are concerned to improve the delivery of health services so as to cover all sections of the community but severe shortage of trained manpower remains an unresolved problem. Greater utilization of auxiliary personnel is a possible solution. Greater action in this direction has been slow to commence. The Organization has for some time been advising Fiji and Papua New Guinea on the training of medical assistants and auxiliary health workers, and has provided assistance to the Public Health Institute, Kuala Lumpur, in the teaching of sanitarians. In general, countries have been encouraged through WHO-assisted projects to make optimum use of all potential health manpower resources.

21.8 The sixth meeting of directors or representatives of schools of public health was held in Manila in March. It was the largest meeting of its kind held so far, 35 institutions in 28 countries in the African, South-East Asia, Eastern Mediterranean, and Western Pacific Regions being represented. There was a wide exchange of views on current trends in public health and the areas of responsibility and the place of the schools within the national health structure.

21.9 With the establishment of two national teacher-training centres in the Philippines and the Republic of Korea early in 1975, the regional teacher-training programme for health personnel entered its second phase. At the regional teacher-training centre in Sydney, Australia, preparations were made for the first batch of WHO fellows to start the master’s course in health personnel education at the University of New South Wales in 1976. This course was initiated in 1975. Three international workshops were held at the centre during the year. A mid-term review of the programme recommended continuation of UNDP support.

21.10 Assistance was given to the Faculty of Medicine, University of Malaya, in developing Master of Science programmes in public health and pathology, and to the University of Singapore in developing its master’s programme in occupational health. The University of the Philippines also received assistance for strengthening the faculty of the Institute of Public Health. WHO fellows were placed in the regional centre for the training of anaesthetists located in Manila.

21.11 Assistance to basic professional nursing education programmes was provided to Cambodia, Fiji, Laos, the New Hebrides and the Philippines, and long-term advisory support in medical education to Fiji, Laos and Papua New Guinea. Postbasic programmes for the preparation of nursing and midwifery teachers and administrators were assisted in Malaysia and Papua New Guinea.

Communicable disease prevention and control

21.12 Shortage of epidemiologists and other health personnel with training in epidemiology, and lack of laboratory support, continue to hinder the development of epidemiological services and surveillance activities. The organization of a regional training course in epidemiology is therefore being examined. Assistance in developing epidemiological services continued in Laos, Malaysia and the Republic of Korea. An intercountry epidemiological surveillance project was established to serve countries or areas in the South Pacific.

21.13 A second regional seminar on immunization for the control of communicable diseases was held at Manila in October. The participants, from 16 countries or areas, reviewed immunization needs in the Region in the context of the WHO expanded programme on immunization, and discussed methods of evaluation and the supply and distribution of vaccines.

21.14 In view of the importance of insect and other vectors in the spread of many of the most important
communicable diseases in the Region, much stress continued to be laid on vector control. The establishment of vector control services in a number of countries was further encouraged, and courses on the control of insect vectors and rodents were conducted in Malaysia and the Republic of Korea.

21.15 The second meeting of the Technical Advisory Committee on Dengue Haemorrhagic Fever, that serves the South-East Asia and Western Pacific Regions, took place in Bangkok in February. Technical guides for diagnosis, treatment, and prevention were revised and later distributed in English and French to all countries concerned. A document on equipment and insecticides for control of Aedes aegypti mosquitoes and on the places where supplies could be obtained was distributed; and provision was made to supply governments in emergencies with suitably formulated insecticides and with portable machines for their ultralow-volume application from the ground. Emergency assistance was given to Fiji and Tonga in controlling Ae. aegypti during extensive outbreaks of dengue haemorrhagic fever. With the cooperation of the South Pacific Commission, American Samoa, the New Hebrides, Papua New Guinea, the Solomon Islands, and Western Samoa were given help in preventing outbreaks, conducting a long-term control programme and ensuring intensive surveillance of the vector.

21.16 Another vectorborne disease widespread in the Region is filariasis, and a number of countries or areas were assisted in assessing the extent and severity of the problem or developing control programmes.

21.17 Governments continued to accord high priority to malaria in their development plans. The malaria-free status of countries where the disease is no longer endemic was maintained, and progress elsewhere was largely preserved despite administrative and operational difficulties, including the discontinuation of bilateral assistance to some countries. In Papua New Guinea, UNDP and WHO provided assistance for continuing an extensive project through the period of transition to full self-government and for making improvements in field operations. Continued support was given to the regional malaria training programme. A workshop on antimosquito measures directed against malaria was held in Kuala Lumpur, and a combined course in parasitology, entomology and epidemiology for senior technical staff was conducted in Manila.

21.18 For the first time, a regional seminar on tropical skin diseases was held, in Manila in September. Particular attention was paid to the superficial mycoses, which are widespread in the tropical areas of the Region. Practical ways of expanding services for diagnosis, therapy and prevention of prevalent skin diseases were also discussed.

21.19 With respect to the mycobacterial diseases, leprosy control activities again benefited from donations to the Voluntary Fund for Health Promotion—with a notable contribution during the year from the Japan Shipbuilding Industry Foundation—and the Sasakawa Memorial Health Foundation convened a seminar on cooperation in leprosy control in Asia. In Western Samoa and American Samoa a combined survey was conducted to determine the prevalence of both leprosy and tuberculosis. Assistance was given to national tuberculosis programmes through an intercountry team; particular stress was laid on involving personnel at the periphery in antituberculosis work and on training at all appropriate levels.

Noncommunicable disease prevention and control

21.20 A review of mortality figures in the Region indicates that noncommunicable diseases, notably cardiovascular diseases and cancer, are now among the leading causes of death even in the developing countries. As a result, additional demands will be made on their generally inadequate health care facilities, and it is felt therefore that a community approach, with greater emphasis on prevention and control through the general health services, is desirable. The second regional seminar on the prevention and control of cardiovascular diseases was held in Manila in March, when the problems of rheumatic fever and rheumatic heart disease, arterial hypertension, stroke and ischaemic heart disease were considered. In October, a working group on the organization of comprehensive cancer control programmes met in Manila to review the nature and extent of the cancer problem in the various countries and to consider the implementation and evaluation of measures for prevention.

21.21 Assistance to countries for developing preventive dental programmes and training dental auxiliaries continued, and a regional two-month course in public health dentistry was held in Singapore and Malaysia, starting in May; this was concerned with the training and utilization of both auxiliaries and professionals.

21.22 Activities for the prevention and control of drug dependence and alcoholism were stepped up in 1975. A working group on health education programmes for young people in relation to the nonmedical use of drugs was held in Manila to consider a suitable control strategy. Assistance was provided to the Philippines in introducing preventive education on the
misuse of drugs in schools; to the Republic of South Viet-Nam and to Singapore in conducting epidemiological studies and developing a national programme for treatment and rehabilitation of drug-dependent persons; and to Laos in strengthening the mental health care services.

Prophylactic, diagnostic and therapeutic services

21.23 To provide manpower for the development of basic peripheral laboratory services, short practical courses are organized on frequently used laboratory techniques. Routine laboratory activities connected with national programmes for control of diseases such as tuberculosis, malaria, and filariasis are being integrated and guidelines, manuals and other teaching materials aimed at ensuring the uniformity and quality of laboratory examinations produced. Water analysis and similar activities of public health importance are being introduced in central and regional laboratories.

21.24 Pharmaceutical control is a matter of concern to governments of developing countries wishing to regulate the manufacture and distribution of pharmaceuticals and to safeguard consumers. Most programmes in this field are in the initial phase, and WHO is helping to assess the situation and formulate recommendations for necessary action. Fellowships were awarded for personnel engaged in quality control, drafting or supervision of regulatory measures, and pharmaceutical laboratory activities. Greater emphasis is being placed on local production and standardization of biologicals for intensified immunization programmes against certain communicable diseases. The UNICEF/WHO-assisted project to produce BCG vaccine in Alabang, Philippines, for that country and neighbouring countries became operational in 1975. Large-scale production of diphtheria-pertussis-tetanus vaccine has now also been initiated and production of rabies vaccine for dogs is under study. Assistance was given for improving laboratory animal breeding facilities and studying the feasibility of breeding simians for laboratory use.

Promotion of environmental health

21.25 The organization of basic sanitary measures remains the key feature of assistance to many countries. In the South Pacific area, equipment and materials were supplied by UNICEF for this purpose. A water supply scheme was constructed in the Cook Islands; rural water supplies were developed in Malaysia; advice was given on drinking-water quality control and on a latrine construction programme in the Philippines; and provincial water supplies and sewerage were developed in the Republic of Korea. With UNDP assistance, pre-investment studies on water supply, sewerage and drainage projects were commenced or completed in four countries. In the Philippines, a design study for the first stage of the Manila sewerage programme was formulated; the study represents a new approach in UNDP assistance.

21.26 Mounting stresses on the environment have led to more requests from governments for assistance in connexion with such matters as noise, pesticides, water and air pollution, water quality management and information systems based on monitoring. A seminar on water pollution was held in Manila in March.

21.27 General environmental health advisory services were provided through six country projects and one intercountry project serving the South Pacific. Environmental health was also a component of seven projects in other health fields. Activities during the year included continuing work to develop environmental health institutions in Malaysia; a review of the environmental manpower situation in the Philippines; and the opening of a two-year course for sanitary assistants in Laos.

21.28 Activities to establish food standards continued as part of the overall environmental health programme. Assistance was provided to the Republic of Korea in developing methods and training staff for improving its food control programme, and to Malaysia in developing a code of practice on food hygiene.

21.29 In the regional radiation health programme, continued emphasis was placed on the development of medical radiology services. Since there are few qualified physicists, engineers, and engineering and radiological technicians in the Region, technical support for the services is generally inadequate; countries have therefore been helped to develop such support through the regional programme. A number of countries were assisted in developing medical equipment maintenance programmes. Under an agreement between the Government of Sweden and WHO, operational assistance in the actual maintenance and repair of equipment was increased. Radiation dosimetry services were further strengthened with the decision of two countries in the Region to establish national reference centres in this field. The IAEA/WHO postal radiation dosimetry programme continued, with the participation of institutions in Australia, Japan, New Zealand, Papua New Guinea, the Philippines, Republic of Korea and Singapore.
21.30 Emphasis was also placed on improving radiation protection. A postal service for monitoring radiation workers was provided for four countries in the Region. The first regional course on medical physics, held in Brisbane, Australia, was attended by participants from five countries or areas.

The Regional Committee

21.31 The twenty-sixth session of the Regional Committee for the Western Pacific was held in Manila from 1 to 5 September 1975. The meeting was attended by representatives of 15 Member States, including those responsible for territories or areas in the Region, and of Papua New Guinea, at that time an Associate Member. Observers from the Democratic Republic of Viet-Nam were also present, as were representatives of UNDP, UNICEF, the International Committee of Military Medicine and Pharmacy and of 29 nongovernmental organizations in official relations with WHO.

21.32 The Committee decided to propose to the Executive Board that Dr Francisco J. Dy be reappointed as Regional Director for a period of three years from 1 July 1976.

21.33 In the discussion on the Annual Report of the Regional Director for the period 1 July 1974 to 30 June 1975 representatives emphasized that new developments in the delivery of health care, particularly in the rural areas, would necessitate closer community involvement and a reappraisal of the available health manpower and the training methods utilized. It was noted that most governments in the Region already had established the necessary health policies and structural framework, differing only in the degree of development, to apply the concept of primary health care in the operation of their health services.

21.34 The Committee examined revisions made to the original proposed programme budget for 1976 and 1977 and authorized the Regional Director to utilize an amount of US $10 000, if savings were made in 1976 and future years, for the purchase of equipment and insecticides for use in emergencies due to outbreaks of dengue haemorrhagic fever.

21.35 The proposed principal and detailed objectives of the Sixth General Programme of Work for the period 1978-83 were examined and priorities accorded for the Western Pacific Region to each objective.

21.36 The Committee supported resolution WHA28.79 of the Twenty-eighth World Health Assembly on special assistance to Cambodia, the Democratic Republic of Viet-Nam, and the Republic of South Viet-Nam and requested that Laos be included among the countries to receive special assistance.

21.37 After reviewing a report on the progress of WHO-assisted programmes in the Western Pacific Region between July 1973 and June 1974, the Committee once again expressed its belief in the value to governments, as a form of assessment, of regular detailed evaluations of long-term programmes. Progress in the regional malaria programme was reviewed and areas were identified where improvements could be made towards overcoming technical and operational difficulties.

21.38 The Committee considered a report on action taken over the past year to promote improvement in the nutritional status of infants and small children through breast-feeding and timely, adequate supplementary feeding. Governments were urged to encourage public acceptance of breast-feeding and to coordinate efforts in the social, agricultural, educational and industrial, as well as the health fields, paying particular attention to the production, content, labelling and ethical advertising of commercial infant foods.

21.39 The Committee noted that a working group on measures for the prevention and control of drug dependence had made recommendations for the development of the future programme of WHO assistance in the Region. The importance was stressed of intensifying programmes of education, legislation, treatment and rehabilitation and maintaining effective monitoring systems. It was decided that alcoholism should in future be considered separately from drug dependence in order to distinguish the problems involved.

21.40 The greater involvement of the Regional Committee and the Regional Office in promoting and coordinating programmes of biomedical research was welcomed by the Committee, which endorsed proposals to strengthen the Region's role, particularly in applied research.

21.41 Support was given to the proposed international programme for the improvement of water supply and sanitation in rural areas of developing countries (see paragraphs 10.24 and 10.25) and the representatives of four countries expressed their governments' interest in becoming members of the ad hoc Working Group on Rural Potable Water Supply and Sanitation.

21.42 The Committee accepted the tentative invitation extended by the Government of Japan to hold its...
twenty-eighth, instead of its twenty-seventh, session in Japan. It was decided that the twenty-seventh session would take place in Manila from 6 to 11 September 1976.

21.43 The theme of the Technical Presentation was “The control of tuberculosis in the Western Pacific Region”. “Primary health care” was selected as the topic for the Technical Presentation in 1976.
PART III

PROJECT LIST
This part of the Annual Report contains a list of country and intercountry projects and of interregional activities (interregional projects and activities under assistance to research) that were in operation for the whole or part of the period from 1 December 1974 to 30 November 1975. Projects for which no material assistance was provided during the period are not included, nor are collaborating centres that received WHO support (a list of such centres is contained in Annex 5).

The dates following the project title indicate the duration of assistance to the project, whether such assistance is continuous or intermittent. For projects not completed during the period under review, the date of estimated termination has been given (in italics) where possible.

For projects—or phases of projects—completed during the period, details of the assistance provided by the Organization and a brief description of the work done between the dates indicated are given. For continuing projects such details have not as a rule been included. No details are given for projects concerned entirely with the award of fellowships. (The numbers of fellowships awarded in 1975, by subject of study and by Region, are given in Annex 7.)

As in former Annual Reports, an attempt has been made to summarize the immediate results of completed projects and, where the nature of the work has permitted, to show the extent to which the objectives of the projects have been achieved.

The projects are grouped by Region in the following order: Africa, the Americas, South-East Asia, Europe, Eastern Mediterranean, and Western Pacific. In order to present a balanced account of the health programmes in the Americas, the list for that Region includes the projects assisted by the Pan American Health Organization (PAHO) in addition to those assisted by WHO. For each Region, projects in individual countries are grouped in the alphabetical order of countries, followed by intercountry projects; within each country, and for intercountry projects, the listing is in accordance with the programme classification structure used in the Proposed Programme Budget for the Financial Years 1976 and 1977 (Official Records No. 220). The few projects that do not have a project identification symbol are given, in the order of their former project numbers, at the end of each group. Interregional activities are listed, also according to the abovementioned programme classification structure, at the end of this part of the Annual Report.

The abbreviations used for sources of funds are as follows:

R     WHO regular budget  PS     PAHO Special Fund for Research
UNDP  United Nations Development Programme  PT     PAHO Textbook Fund
UNDP/UN Funds received from United Nations, FAO  PW     PAHO Community Water Supply Fund
UNDP/FAO or UNESCO as executing agency for UNDP-assisted projects
UNDP/UNESCO FR     Reimbursable funds  VA     Special Account for Assistance to the Least Developed among Developing Countries
FR     Funds-in-trust  FT     Onchocerciasis Fund  VC     Special Account for the Cholera Programme
ON     United Nations Environment Programme  VD     Special Account for Miscellaneous Designated Contributions (General)
UEP    United Nations Fund for Drug Abuse Control  VG     Special Account for Medical Research (Specified) — General
UNFIDAC United Nations Fund for Population Activities  VH     Special Account for Medical Research (Specified) — Human Reproduction
UNFPA  United Nations Fund for Population Activities  VI     Special Account for the Expanded Programme on Immunization
WI     Fund of the United Nations for the Development of West Irian  VK     Special Account for Miscellaneous Designated Contributions (DANIDA)
PA     PAHO regular budget  VL     Special Account for the Leprosy Programme
PR     PAHO regular budget  VM     Malaria Special Account
PA     Member governments of the Institute of Nutrition of Central America and Panama  VN     Special Account for Medical Research (Specified)—National Institutes of Health, USA
PAHO  PAHO Special Fund for Health Promotion  VR     Special Account for Medical Research (Unspecified)
PG     Grants and other contributions to PAHO  VS     Special Account for Smallpox Eradication
PK     PAHO Special Fund for Health Promotion  VW     Special Account for Community Water Supply
PM     PAHO Special Malaria Fund
PN     Grants and other contributions to the Institute of Nutrition of Central America and Panama

Names or acronyms of any other agencies or entities cooperating in a project are given in parenthesis after the source(s) of funds.
AFRICAN REGION

Benin

SHS 001  Development of health services (1968- ) R UNICEF
-To implement the plan for the development of the health services, integrating into them activities in maternal and child health and sanitation; to develop sanitation work in urban areas; to improve methods and facilities for communicable disease control; to strengthen health education; and to train health personnel.

HMD 001  Department of Health Sciences (1970- ) R UNDP
-To develop the Department of Health Sciences of the University for the joint training of various types of health personnel, adapt curricula to the needs of the country, and train teachers.

HMD 002  Nursing education (1969-74) R UNICEF—To plan nursing and midwifery services, adapt curricula to the needs of the country, and train nursing and midwifery teachers. Provided—a nurse educator and supplies and equipment. UNICEF provided teaching material.

During the period of operation of the project, 265 state-registered nurses and 97 state-registered midwives were trained. Teaching was given by 11 national instructors, including 2 midwives. Three instructors continued their studies at the postbasic nursing schools in Dakar and Yaoundé. Following an evaluation of services and needs, the curricula of the National Medico-Social Institute were revised to include training in public health, and the duration of nursing studies was extended from 2 to 3 years.

Since 1973 nursing auxiliaries have been trained at the National School for Nursing Auxiliaries, Parakou. Advanced training courses were organized for the instructors and for the staff in charge of practical training.

Training of nursing staff is continuing at the Department of Health Sciences of the University (project Benin HMD 001).

HMD 009  Health manpower development: fellowships R

SME 001  Smallpox eradication (1968-74) R VS—To implement the smallpox eradication programme, organize the maintenance phase, and strengthen epidemiological surveillance. Provided—local costs.

During the course of the project some 3.7 million smallpox vaccinations were performed. Vaccination against measles was also carried out (71,877 vaccinations in 1973 and 48,674 in 1974). Maintenance activities were carried out by the Major Endemic Diseases Service and non-mobile units.

Activities were transferred to the project for the development of health services (Benin SHS 001) in January 1975.

LAB 001  (formerly SHS 002) Health laboratory services (1970- ) R UNDP—To develop the national health laboratory service within the public health services and train staff.

Botswana

SHS 001  Development of health services (1971- ) R UNDP

UNFPA UNICEF—To develop the national health laboratory service within the public health services and train staff.

HMD 001  Training centre for health personnel (1972- ) UNDP FT—To train health personnel, especially nurses, midwives and public health technicians.

HMD 009  Health manpower development: fellowships R

BSM 001  Management assistance to the Water Utilities Corporation (1973-74) UNDP—A project manager was assigned as director of the Corporation in May 1973. In this capacity he prepared draft regulations for the operation of the Corporation and administered its technical and administrative services.

UNDP became the executing agency for the project in July 1974.

Burundi

SHS 001  Development of health services (1969- ) R UNICEF—To expand and improve the health services, integrate into them activities in nutrition, environmental sanitation, maternal and child health and health education, and train personnel.

HMD 009  Health manpower development: fellowships R

ESD 001  Epidemiological services (1972- ) R UNFPA—To establish an epidemiological service for the surveillance and control of communicable diseases, strengthen the health statistics services, develop laboratory services and train personnel.

PIP 001  Master plans for sanitation and drainage, Bujumbura (1972-75) UNDP FT—To make engineering, administrative and financial studies in respect of sanitation and drainage in Bujumbura, draw up master plans, and prepare feasibility studies and final design for first-stage construction. Provided—a sanitary engineer (project manager), contractual services, 2 fellowships, and supplies and equipment.

The work was completed in July 1975. Following a joint appraisal mission of WHO and the African Development Bank in September 1975, the provision of financial aid for first-stage construction work is under consideration by the Bank.

4201  Health laboratory services (1971-74) R—To develop a blood transfusion centre in Bujumbura, establish subcentres in the interior of the country, and train staff. Provided—a laboratory technician (from Sept. 1971) and supplies and equipment.

Following a study of needs, a blood transfusion centre was set up in Bujumbura. The techniques for determining blood groups and for examining volunteer donors were improved and a card index of donors was established. New techniques were introduced for detecting Hb antigen and controlling post-transfusion reactions. The distribution of blood to the hospitals and grouping techniques and compatibility tests were improved.

The Director of the WHO collaborating centre for reference and research in blood groups, London, visited Burundi to advise on future activities and provided reference material. Since 1974 the centre has been accommodated in new premises built under bilateral assistance from Switzerland. Activities are being continued under the project for the development of health services, Burundi SHS 001.
Central African Republic

SHS 001  Development of health services (1969– ) R UNDP
UNICEF—To develop the health services, integrate into them activities in maternal and child health, health education and communicable disease control, promote environmental sanitation work, develop health statistics, and train staff.

HMD 001  Nursing education (1966–74) UNDP—To plan nursing and midwifery services as part of the development of health services; to prepare national nurses to assume responsibility for the services, and to train nurses, midwives and nursing teachers. Provided—2 nurses (Aug. 1966-June 1974), fellowships, and supplies and equipment.

The National Institute for Medico-Social Education was set up in 1968, since when it has awarded state diplomas to 83 nurses, 25 midwives, 15 social workers and 20 public health technicians, and the basic nursing diploma to 136 nurses. The course leading to the state diploma has been extended from 2 to 3 years and the basic training course has been reduced from 2 years to 1 year; the curricula have been revised accordingly. All applicants for admission to the Institute are now required to hold the brevet d'études du premier cycle (an intermediate secondary-school certificate).

Delivery of services was improved in the health units, whose staff received further training, particularly in the Bimbo rural demonstration area. Seven nurses completed their training at the postbasic nursing education centres in Dakar and Yaoundé and 4 others were studying there when the project terminated. By June 1974, 12 of the 22 teachers at the Institute were Central African Republic nationals.

HMD 099  Health manpower development: fellowships R

SME 001  Smallpox eradication (1970–74) R—To implement the attack phase of the smallpox eradication programme, organize the maintenance phase, and strengthen epidemiological surveillance. Provided—local costs.

Vaccination was carried out by the mobile teams of the Major Endemic Diseases Service and by health units. During 1974, 620,000 smallpox vaccinations were performed, as well as 138,624 yellow fever vaccinations, 32,978 measles vaccinations, and 40,712 BCG vaccinations. Since the project started some 2.5 million smallpox vaccinations have been performed.

As from 1975 the activities of the project were integrated with those of the project for the development of health services, Central African Republic SHS 001.

BSM 001  Sanitation and drainage, Bangui (1969–74) UNDP—To draw up a plan of work for sanitation in a pilot district of Bangui and a management plan, train personnel, and carry out sanitation and drainage work in the pilot area. Provided—2 sanitary engineers, a consultant, 3 fellowships and supplies and equipment.

Twenty nationals were trained locally as team leaders. Health education campaigns were carried out to encourage the community to participate in latrine construction and other sanitation work. Ditches were dug, pipes were laid, and standpipes, 3 reinforced concrete bridges, wooden footbridges and a flood protection dyke were constructed.

The work completed made it possible to negotiate the financing of further sanitation activities by the African Development Bank.

Chad

SHS 001  Development of health services (1964– ) R UNDP
UNICEF—To develop and strengthen the health services, with emphasis on maternal and child health and environmental health, and to train personnel.

HMD 001  Nursing education (1962– ) R UNICEF—To improve the national school of nursing, and to train professional and auxiliary nurses and nursing teachers.

HMD 099  Health manpower development: fellowships R

SME 001  Smallpox eradication (1968–74) R—To carry out the attack phase of the smallpox eradication campaign, organize the maintenance phase, and strengthen epidemiological surveillance. Provided—contribution to local costs, and equipment and vaccines.

Between 1969 and 1972, 3.8 million persons were vaccinated against smallpox. In 1973, 812,098 smallpox, 97,730 measles, and 343,052 yellow fever vaccinations were performed, and, in the first 10 months of 1974, 487,391 smallpox, 85,974 measles, and 137,112 yellow fever vaccinations, as well as 113,325 vaccinations against tuberculosis. The maintenance phase activities have been carried out by the mobile teams of the endemic diseases service, supported by the static health units.

At the beginning of 1975 the activities of the project were integrated into the project for the development of health services, Chad SHS 001.

Comoros

SHS 001  Development of health services (1970– ) R UNICEF—To continue activities for the control of communicable diseases, including leprosy; to study malaria epidemiology and plan and implement antimalaria measures; and to develop the health services and train personnel.

HMD 099  Health manpower development: fellowships R

Congo

SHS 001  Development of health services (1964– ) R UNICEF—To draw up national health plans, strengthen the facilities and improve the activities of the health services, control communicable diseases, and train staff.

HMD 001  Nursing education (1967–74) R UNICEF—To develop nursing and midwifery education and train teachers. Provided—2 nurses, a consultant, fellowships and supplies and equipment.

Since 1968, 212 state-registered nurses, 91 state-registered midwives and 415 enrolled nurses have completed their training. A consultant made a study of new orientations in teaching with senior staff of the J. J. Loukabo School of Nursing at Pointe-Noire, following which educational objectives for state-registered nurses were defined and a review of curricula was made. A course on teaching methods was organized for 8 teachers of the School. Field work for students in the Kinkala pilot area was introduced in 1974. Four nurse educators obtained their teaching diplomas at the postbasic nursing education centres in Dakar and Yaoundé.

Since January 1975 activities have been incorporated in project Congo HMD 002—Higher Institute of Health Sciences.

HMD 002  Higher Institute of Health Sciences (1975– ) R—To train members of the health team, including physicians, nurses and midwives.

HMD 099  Health manpower development: fellowships R

ESD 001  Epidemiological services (1972–74) R—To strengthen the communicable disease control services, carry out epidemiological surveillance, develop the laboratory services, and train staff. Provided—a microbiologist, supplies and equipment, and a contribution to local costs.
In 1973, detailed recommendations were prepared for the
development of the laboratory services and for training of their
staff.
Surveillance of diarrhoeal diseases was continued; several
strains of *Vibrio paraehemolyticus* and *Shigella* were isolated.
A bacteriological study was made of sea fish in the Brazzaville
markets and recommendations were subsequently submitted for
improving the conditions of hygiene under which fish is sold.
Since the beginning of 1975 activities have continued under
the project for the development of health services, Congo SHS
001.

**Equatorial Guinea**

**SHS 001 Consultant services (1969-) R**—To plan and develop
health services, giving particular attention to general administra-
tion; to develop medical care and strengthen environmental
health measures; and to train personnel.

**HMD 099 Health manpower development: fellowships R**

**Gabon**

**SHS 001 Development of health services (1969-) R FT**—To
develop the health services, with emphasis on maternal and child
health and environmental sanitation, and to train personnel.

**SHS 002 National health planning (Dec. 1974-Jan. 1975) FT**—
A consultant assisted in preparing the health section of the third
5-year plan.

**HMD 001 Nursing education (1961-) R**—To conduct regular
evaluations of the training programme for nurses and midwives,
and train nursing staff and instructors.

**HMD 002 University Centre for Health Sciences (1975-) R**—
To train health service personnel, including physicians, nurses,
laboratory technicians, and sanitarians.

**HMD 099 Health manpower development: fellowships R**

**Gambia**

**SHS 001 Development of health services (1974-) R**—To
implement the national health plan; develop the health services;
organize an epidemiological service, giving particular attention
to tuberculosis control; develop maternal and child health
activities and health laboratory services; improve environmental
sanitation in rural areas; and train staff.

**HMD 099 Health manpower development: fellowships R**

**Guinea**

**SHS 001 Development of health services (1968-) R UNFPA
VL UNICEF**—To develop and strengthen the health services,
including communicable disease control, epidemiological sur-
veillance and health laboratory services, and to train the neces-
sary staff.

**HMD 001 Training in health sciences (1969-) R**—To develop
medical education at the Conakry medical school so as to train
physicians able to carry out the tasks involved in ensuring health
coverage of the population.

**HMD 002 Nursing education (1973-74) R**—To strengthen
nursing education at the Secondary School of Health, carry
out regular reviews of curricula and train nursing instructors.
Provided—a nurse educator and supplies and equipment.

The School's nursing teachers made a survey in hospitals,
dispensaries and maternal and child health and endemic disease
control services, and at the Conakry Health Institute, to deter-
mine the tasks actually performed by nurses, midwives and public
health technicians. Training programmes for these categories of
staff were revised in accordance with the findings, and new
subjects were introduced into the curricula.

The activities of the project were incorporated in project
Guinea HMD 001, Training in health sciences, in January 1975.

**HMD 099 Health manpower development: fellowships R**

**Ghana**

**HMD 001 Medical school, Acera (1968-) R**—To strengthen
the teaching of physiology and develop the physiology depart-
ment of the medical school.

**HMD 002 Public health engineering education (1975-) R**—To
improve the teaching of public health engineering at the
Faculty of Engineering, University of Science and Technology,
Kumasi.

**HMD 099 Health manpower development: fellowships R**

**ESD 001 Epidemiological services (1974-) R**—To develop
epidemiological services, organize epidemiological surve-
illance of communicable diseases and strengthen measures for their
control, and train the necessary staff.

**PIP 001 Rural water supply and sanitation pilot project (1972-)**

**UNDP**—To carry out pre-investment studies and draw up a
long-term programme for rural water supplies, including staff
training, as well as final design for an immediate programme.

**Kenya**

**SHS 001 Development of health services (1968-) R**—To
implement the national health plan; develop the health services;
organize an epidemiological service, giving particular attention
to tuberculosis control; develop maternal and child health
activities and health laboratory services; improve environmental
sanitation in rural areas; and train staff.

**HMD 001 Training in health sciences (1969-) R**—To develop
medical education at the University of Nairobi so as to train
physicians able to carry out the tasks involved in ensuring health
coverage of the population.

**HMD 002 Nursing education (1973-74) R**—To strengthen
nursing education at the University of Nairobi, carry
out regular reviews of curricula and train nursing instructors.
Provided—a nurse educator and supplies and equipment.

The School's nursing teachers made a survey in hospitals,
dispensaries and maternal and child health and endemic disease
control services, and at the Conakry Health Institute, to deter-
mine the tasks actually performed by nurses, midwives and public
health technicians. Training programmes for these categories of
staff were revised in accordance with the findings, and new
subjects were introduced into the curricula.

The activities of the project were incorporated in project

**HMD 099 Health manpower development: fellowships R**

**MPD 001 Onchocerciasis control (1967-) R**—To study the
transmission of the disease in a pilot area (Kankan), implement
a control programme in the area and evaluate results; to draw
up a plan for a national onchocerciasis control campaign and
train the necessary staff.

**SME 001 Smallpox eradication (1969-74) R**—To implement
the attack phase of the smallpox eradication programme, organize
the maintenance phase, and strengthen epidemiological surve-
illance. Provided—local costs, supplies and equipment and
(under the intercountry project LAB 001) a consultant in
laboratory services.

Some 7 million vaccinations were performed during the period
of the project. Maintenance was assumed by mobile teams of the
Major Endemic Diseases Service and non-mobile units.
Guinea (continued)

The consultant helped to overhaul the equipment at the Neenekaly Institute, Kindia, which enabled the production of smallpox vaccine to be resumed.

In January 1975 activities were integrated into the project for the development of health services, Guinea SHS 001.

**PIP 001 Sewerage and drainage for Conakry (1975–) UNDP** —To carry out pre-investment studies and draw up master plans for sewerage and drainage in Conakry, including a final design and staff training components.

**HWP 001 Occupational health (1974–) R** —To organize the occupational health services at the central, intermediate and peripheral levels and train staff.

**Guinea-Bissau**

**SHS 001 Development of health services (1975–) R** UNDP

VS—To plan and develop the health infrastructure, strengthen environmental sanitation and health education work, and train staff.

**Ivory Coast**

**MCH 001 Maternal and child health services (1964–) R** UNICEF—To strengthen maternal and child health activities, vaccinate children against the most prevalent communicable diseases, and train health and social service personnel in the care of mothers and children.

**HMD 009 Health manpower development: fellowships R**

**PIP 001 Groundwater investigation and improvement of the water supply system for the city of Abidjan (1975–) UNDP** —To look for groundwater reserves in the Abidjan area, update the master plan for water supply, and define the measures required to prevent pollution of groundwater.

**Kenya**

**SHS 001 Development of health services (1962–) R** UNFPA

UNICEF—To develop the health services, strengthen family health activities and train personnel.

**HMD 002 Postbasic nursing education (1967–74) R** UNICEF —To develop postbasic nursing education at the University of Nairobi and to train nursing teachers and supervisory staff for the nursing services. Provided—4 nurse educators, fellowships, and supplies and equipment.

The Department of Advanced Nursing at the University of Nairobi was opened in August 1968. Graduates of the programme may ask to be registered as public health nurses. The curriculum concentrated on public health, administration, and supervision and also included psychiatric nursing and mental health. Between 1968 and the end of 1974, 64 nurses were trained; with one exception, all took up teaching or nursing administration. An advanced course in public health nursing started in October 1972 with 11 students. In 1973 a programme leading to a B.Sc. in nursing was drafted. However, an evaluation committee composed of representatives of the University, the Ministry of Finance and Planning, the Ministry of Health and WHO decided that the existing programme was satisfactory and implementation of the B.Sc. programme was therefore postponed.

In January 1975 activities were transferred to project Kenya HMD 004, Teaching of health sciences.

**HMD 003 Public health engineering education (1971–74) R** —To strengthen teaching of public health engineering at the Faculty of Engineering, University of Nairobi; to organize specialized laboratories and carry out research projects; to collect and disseminate documentation on public health engineering in East Africa; and to train teachers in the subject. Provided—2 teachers —of public health engineering (from March 1971) and of sanitary chemistry and microbiology (from June 1973).

Activities are continuing under project Kenya HMD 004 (see below), into which this project was integrated at the beginning of 1975.

**HMD 004 Teaching of health sciences (1971–) R** —To develop training centres for health personnel; to strengthen public health activities at the Faculty of Engineering, University of Nairobi, and develop postbasic nursing education at the University’s Department of Advanced Nursing; and to train teachers.

**HMD 009 Health manpower development: fellowships R**

**ESD 001 Epidemiological services (1971–74) R** UNDP UNFPA —To develop the services for the epidemiological surveillance and control of communicable diseases, especially smallpox and tuberculosis; to improve the collection and analysis of epidemiological data; to develop the laboratory services; and to train staff. Provided—a medical officer, a technical officer and a statistician, and, in 1974, consultant services.

A division for communicable disease control, a national health laboratory service and a health statistics service were set up. A national tuberculosis control campaign was implemented. The combined smallpox and BCG vaccination campaign, started under the smallpox eradication project (Kenya SME 001) which was incorporated into the project in January 1974, was continued; in all, more than 7,000,000 BCG and 22,000,000 smallpox vaccinations have been performed as well as 2,000,000 poliomyelitis and 1,000,000 cholera vaccinations.

No cases of smallpox have occurred since the 2 imported and 2 secondary cases reported early in 1974.

In January 1975 activities were incorporated into the project for the development of health services, Kenya SHS 001.

**PIP 001 Sectoral study and national programming for community and rural water supply, sewerage and water pollution control, phase II (1974–) FT** —To implement the recommendations made during phase I of the project (1971–73), prepare a national sewerage development plan, improve measures for waste water treatment and water pollution control, set standards for developing, operating and maintaining sanitary facilities in urban and rural areas and train technical and administrative staff.

**PIP 002 Master plan for sewerage, storm drainage and groundwater investigations, Nairobi (1971–74) UNDP** —To carry out groundwater investigations for increasing the Nairobi water supply; to make studies on solid wastes disposal, waste water treatment, organization, legislation and financing; to draw up a master plan for sewerage and drainage in Nairobi and determine the immediate and medium-term needs; and to train personnel. Provided—a sanitary engineer (July 1971–Dec. 1974), consultants, and 6 fellowships.

Reports were submitted on water treatment plants, sewage treatment plants, stabilization ponds, the use of sewage effluents in agriculture, infiltration into sewers, leakage in the water distribution system, groundwater investigations, and solid wastes, as well as on organization, management, finance and legislation.

A first-stage sewerage programme and a master plan for sewerage and storm drainage for Nairobi were drawn up.
Lesotho

SHS 001 Development of health services (1968– ) R UNDP
UNICEF—To draw up a national health plan; and to develop programmes in environmental health, communicable disease control and family health, improve the quality of public health nursing services, reorganize the laboratory services, improve health statistics, and train personnel.

HMD 099 Health manpower development : fellowships R

Liberia

SHS 001 Development of health services (1968– ) R UNFPA
UNICEF—To implement the national health plan, strengthen health services, particularly the network of health centres, continue the control of communicable diseases and improve epidemiological surveillance, develop maternal and child health care activities, and train personnel.

SHS 003 Radiological services (1972– ) R—To strengthen the radiology and radiotherapy departments of the John F. Kennedy Memorial Centre, develop the national radiology and radiotherapy services, and train staff.

HMD 001 Faculty of Health Sciences, Monrovia (1970– ) R—To develop the Faculty, promote the adoption of integrated instruction, and train teachers.

HMD 099 Health manpower development : fellowships R

ESD 001 Epidemiological services (1968– ) R—To strengthen the control of communicable diseases, improve the epidemiological surveillance system and train personnel.

Madagascar

SHS 001 Development of health services (1971– ) R—To develop national health planning, strengthen the health services in the fields of family health (including nutrition and family planning), environmental health and communicable disease control, and train personnel in public health work.

HMD 099 Health manpower development : fellowships R

PIP 001 Pre-investment study on water supply and sewerage, Tananarive (1971– ) UNDP—To carry out a pre-investment study on water supply and sewerage in Tananarive and the surrounding communities; to draw up a master plan covering 30 years; to draw up feasibility studies for first-stage construction and an immediate programme of short-term measures; and to provide basic and further training to staff.

Mali

SHS 001 Development of health services (1970– ) R
UNICEF—To implement the national health plan, develop maternal and child health services, strengthen the epidemiological surveillance and control of communicable diseases, and train personnel.

HMD 099 Health manpower development : fellowships R

Mauritania

SHS 001 Development of health services (1968– ) R VS
UNICEF—To develop health services and integrate maternal and child health activities into them, strengthen environmental sanitation and health education work, improve epidemiological surveillance and control of communicable diseases, and train staff.

HMD 001 Nursing education (1963– ) R UNICEF—To develop the teaching at the School of Nursing and Midwifery and train nursing and midwifery tutors.

HMD 099 Health manpower development : fellowships R

Mauritius

MCH 001 Maternal and child health (1971– ) UNFPA
UNICEF—To strengthen the maternal and child health services and incorporate into them the activities of the Family Planning Association.

HMD 001 Nursing education (1970–74) R—To develop programmes for training nurses and midwives and train midwifery tutors. Provided—2 nurse educators, in public health and psychiatry (1970–74) and teaching supplies and materials.

During the course of the project 187 nurses completed their basic training, 23 took the advanced course in midwifery, and 6 district nurses were trained in home nursing. Job descriptions were drawn up for public health nurses. An introductory course in mental health and psychiatric nursing was instituted.

In December 1973 a new school of midwifery was opened at the Sir Seewoosagur Ramgoolam Hospital, where a one-year course in practical public health nursing was organized.
Mauritius (continued)

collaboration with the maternal and child health project a handbook on maternal and child health and family planning was prepared. Sixteen nurses and midwives were awarded fellowships (under project Mauritius HMD 099) for specialist training.

HMD 002 Sanitary engineering education (1973–) UNDP–To train sanitary engineering assistants, health inspectors, and teachers of sanitary engineering, and to strengthen national environmental sanitation services.

HMD 099 Health manpower development: fellowships R

Niger

SHS 001 Development of health services (1969–) R FR UNICEF—To develop the infrastructure and activities of the health services in accordance with the national health plan, strengthen maternal and child health, health education and environmental sanitation work, improve epidemiological surveillance and control of communicable diseases, and train staff.

HMD 001 Nursing education (1966–74) UNDP—To train nurses, midwives, assistant social workers, and nursing teachers and administrators; to adapt curricula to the needs of the country; and to develop a system of continuous training for personnel in service. Provided—8 nurse educators, fellowships, and supplies and equipment.

The project was a continuation of 2 former nursing projects (Niger 0011 and Niger 0021).

Following an evaluation of the initial phase by a joint Government/UNDP/WHO mission, the project was extended for 5 years. The nursing school became the National School of Public Health. In 1971 the training period for state-registered nurses and midwives was extended from 2 to 3 years. In 1972 a section for assistant social workers was set up to provide one year’s training to supplement the basic nursing training. In October 1974 nurses with basic training were given the opportunity to train for a further year as community development workers. A review of the curriculum for basic nursing training was begun in the same year.

During the course of the project, 184 state-registered nurses, 275 enrolled nurses, 15 midwives, 1 enrolled midwife, and 8 assistant social workers were trained. When the project ended, 10 qualified instructors (7 nurses and 3 midwives) had been appointed, and 7 were continuing their studies at the postbasic nursing schools in Dakar and Yaoundé. National staff were in complete charge of the School.

Activities have been integrated into project Niger HMD 002, University Centre for Health Sciences, Niamey.

HMD 002 University Centre for Health Sciences, Niamey (1974–) R UNDP—To provide joint training for members of the health team, including physicians and nurses, and further training for personnel in service.

HMD 099 Health manpower development: fellowships R

Nigeria

SHS 001 Development of health services, Federal (1968–) R—To coordinate the activities of the health services, organize antimalaria work and train personnel.

SHS 002 Development of health services, Western State (1968–) R UNDP UNICEF—To develop a network of health services that will also undertake the control of communicable diseases, develop nursing services, strengthen environmental sanitation services, and train personnel.


SHS 014 National health planning, Federal (1973–) R UNDP—To formulate the health component of the third national development plan and draw up the 15-year health plan.

HMD 001 Medical school, Zaria (1967–) R—To develop the teaching of public health, microbiology and psychiatry at the medical school, and train medical teachers.

HMD 002 Medical school, Ibadan (1968–) R—To develop teaching in psychiatry, neurology and neurosurgery at the medical school, train specialists and teachers in these subjects, and provide training in mental health to physicians and other health workers.

HMD 003 Faculty of Health Sciences, Ife (1975–) R—To develop the Faculty and train staff suited to local conditions and capable of providing preventive and curative health care to the rural and urban population.

HMD 005 Medical school, Benin City (1975–) R—To strengthen teaching at the medical school, particularly in physiology and anatomy.

HMD 006 Public health engineering education (1972–) R—To develop public health engineering education at the civil engineering faculty in Lagos, organize applied research, provide training in environmental health to health personnel, and train teachers of public health engineering.

HMD 007 School of radiography (1968–) R—To train radiographers and teachers of the subject.

HMD 099 Health manpower development: fellowships R

ESD 001 Epidemiological services, Federal (1968–) UNDP—To develop the epidemiological service at federal level, improve epidemiological surveillance, develop health laboratory work, organize vaccine production, and train the necessary staff.

ESD 002 Epidemiological services, Western State (1968–74) R UNICEF—To develop the control of communicable diseases, strengthen health laboratory work, improve the epidemiological surveillance system and train staff. Provided—a medical officer (epidemiology), a laboratory technician and a statistician, and supplies and equipment. An epidemiology and statistics unit was set up in the Ministry of Health and equipped with 3 electronic calculators. Annual statistical bulletins were published and as from 1973 an epi-
demiological bulletin was issued monthly. The laboratory work in 48 health units was evaluated. Vaccinations were continued and combined smallpox and BCG vaccination was introduced. In 1974, 1,045,350 persons were vaccinated against smallpox and 189,298 against measles; 65,030 were vaccinated with BCG.

Severe control measures were taken against cholera and tetanus following the increase in the number of notified cases in September and October 1974; 50% of the notified cases of cholera were bacteriologically confirmed. In all, 211 students (nurses, health inspectors and medical record clerks) were given training in communicable disease control.

As from the beginning of 1975, activities were continued under the project for the development of health services in the Western State, Nigeria SHS 002.

ESD 003 Epidemiological services, northern states (1968– ) R UNICEF—To strengthen the control of communicable diseases, develop laboratory work, improve the epidemiological information system and statistical analysis, and train staff.

ESD 004 Epidemiological services, Mid-West State (1968– ) UNDP UNICEF—To develop the control of communicable diseases, improve the epidemiological surveillance system, and train staff.

ESD 005 Epidemiological services, North-Western State (1971–74) R—To integrate and develop activities for the control of communicable diseases, and improve the system of epidemiological information and statistical analysis. Provided—an epidemiologist. (The leprologist and ophthalmologist assigned to project Nigeria ESD 003—Epidemiological services, northern states—also assisted with this project.)

The epidemiologist helped to reorganize the epidemiological unit in the Ministry of Health and to develop its work, and assisted with the collection and compilation of statistics on communicable diseases, including cerebrospinal meningitis, chickenpox, measles and leprosy. The WHO staff also took part in cholera control work and in strengthening leprosy case-finding. In 1971 and 1972 they collaborated in a field trial of a meningitis vaccine (serotype A polysaccharide).

Since the beginning of 1975 activities have continued under the project for the development of health services in the North-Western State, Nigeria SHS 009.

BSM 001 Health component in the Kainji Lake research project (1968–73; 1975–) UNDP/FAO—To carry out epidemiological surveys, implement communicable disease control programmes, and plan public health services in the project area.

Rwanda

SHS 001 Development of health services (1969–) R UNICEF—To develop health services, integrate into them activities in maternal and child health, nutrition, health education and environmental sanitation, and train personnel.

HMD 001 Medical school, Butaré (1967–) R—To develop medical education at the National University of Rwanda, introduce public health in the training of medical and other health staff, and train national teachers.

HMD 099 Health manpower development: fellowships R

ESD 001 Epidemiological services (1972–) R UNDP UNICEF—To strengthen the epidemiological service, carry out programmes for the control of communicable diseases, including tuberculosis and typhus; to maintain smallpox surveillance, strengthen the vital and health statistics service, and train personnel.

PIP 001 Pilot studies on water supply, Kigali and Butaré (1972–) UNDP—To make pre-investment studies and draw up master plans for water supplies for Kigali and Butaré, and to train personnel.

Senegal

SHS 001 Development of health services (1968–) R UNICEF—To develop a network of integrated health services, extending them by stages from the Fatick area to other rural areas so as to provide coverage for 200,000 more people each year; to carry out maternal and child health and nutrition work in the Fatick area and plan its extension; to control endemic diseases, especially malaria and tuberculosis; and to train personnel.

HMD 001 Institute of Odontology and Stomatology, University of Dakar (1967; 1970–) R—To develop the teaching at the Institute, and to train dentists, dental auxiliaries, and teachers.

HMD 099 Health manpower development: fellowships R

PIP 001 Master plan for water supply and sewerage for Dakar and the surrounding area (1966–) UNDP—Phase I (1966–73)

To draw up a phased master plan for water supply in Dakar and the surrounding area, determine the administrative, legal and financial conditions necessary for implementation of the programme, and train personnel. Phase II (1973–) To continue sectoral studies, recharge the aquifer under the city with waste water, carry out sanitation work, and continue the training of staff.

Seychelles

HMD 099 Health manpower development: fellowships R

Sierra Leone

SHS 001 Development of health services (1968–) R UNDP UNICEF—To strengthen health services and control of communicable diseases, especially in rural areas; to strengthen activities in maternal and child health, nursing, health education, vital statistics and environmental sanitation; and to train personnel.

HMD 001 Training of health personnel (1970; 1974–) R UNICEF—To establish a university centre for health sciences in Freetown, improve nursing and midwifery services, and train nurses, midwives and teaching and administrative staff.

HMD 002 Nursing education (1961–74) R UNICEF—To train nurses and midwives and teaching staff, and to improve the nursing and midwifery services. Provided—successively, 4 nurse educators, and supplies and teaching material. UNICEF provided fellowships.

Following a study of needs and resources, programmes were established for training qualified state nurses in 3 years, registered nurses in 2 years, and midwives in 18 months. As from 1969 retraining was provided for staff in hospitals and maternal and child health services; retraining in administration and supervision continued. During 1970 and 1971 training was also given to maternal and child health auxiliaries.

Since 1961, 11 qualified state nurses, 39 qualified state midwives and 100 registered nurses have been trained. The nursing school is now entirely in charge of national personnel (14 nurse educators and 11 nurse administrators).

In January 1975 activities were transferred to the project for the training of health personnel, Sierra Leone HMD 001.
Sierra Leone (continued)

HMD 099 Health manpower development: fellowships R UNDP

ESD 001 Epidemiological services (1968–74) R UNDP—To develop epidemiological services, eliminate residual foci of yaws, strengthen the control of tuberculosis, organize national health laboratory services, and train personnel. Provided—2 medical officers (tuberculosis and microbiology), and a statistician, fellowships, supplies and equipment, and a contribution to local costs for smallpox eradication work.

The expanded immunization programme was put into effect. The Bo laboratory, construction of which was completed, assisted the endemic disease control units. The forms for data collection and for statistical reports were revised. The Freetown laboratory was reorganized to enable it to handle tuberculosis control work.

A course was arranged for 10 laboratory technicians and 5 students of the Technical Training School and 49 endemic disease control unit assistants were given training in BCG vaccination techniques.

Since the beginning of 1975 activities have continued under the project for the development of health services, Sierra Leone SHS 001.

Swaziland

SHS 001 Development of health services (1969–) R UNFPA UNICEF—To develop health services, especially in rural areas; to strengthen maternal and child health, including family planning activities; to strengthen epidemiological surveillance and control of communicable diseases; to develop environmental sanitation work; and to train personnel.

HMD 099 Health manpower development: fellowships R

Togo

SHS 001 Development of health services (1968–) R UNDP UNICEF—To develop, by stages, an adequate network of health services; to strengthen maternal and child health, including family planning activities; to strengthen epidemiological surveillance and control of communicable diseases; to develop environmental sanitation work; and to train personnel.

HMD 001 Teaching of health sciences (1972–) R—To develop the teaching of health sciences at the medical school, Lomé, and in training schools for health personnel.

HMD 099 Health manpower development: fellowships R

ESD 001 Epidemiological services (1968–74) R UNDP UNICEF—To develop the epidemiological services and health laboratory services, continue the control of communicable diseases, and train personnel. Provided—3 medical officers (microbiology (1968–72), tuberculosis (1970–73), and epidemiology (from May 1974)) and a public health nurse (1971–72), supplies and equipment, and a contribution towards the costs of the smallpox eradication campaign.

An epidemiological division was set up under a qualified national doctor. Its activities were focused on control of the major endemic diseases, especially smallpox, the transmission of which was interrupted, and tuberculosis, for which BCG vaccination, case-finding and treatment were carried out.

A laboratories division was set up. Work was done on standardization of the main techniques; technical instruction sheets were prepared for clinical chemistry and serological techniques, and laboratory report procedures were standardized to enable them to be used in the process of epidemiological surveillance. New serological diagnostic methods were introduced.

The project staff participated in a study of diphtheria epidemiology, and in another study of the use of metrifonate in schistosomiasis control.

At the beginning of 1975 the project was integrated into the project for the development of health services, Togo SHS 001.

Uganda

SHS 001 Development of health services (1968–) R UNICEF—To strengthen the health services at all levels in accordance with the development plan, develop work in the fields of maternal and child health, nutrition, environmental sanitation and control of communicable diseases, including leprosy, incorporate health education into all health programmes, and train personnel.

HMD 001 Faculty of Medicine, Makerere University (1975–) R UNDP—To provide undergraduate and postgraduate instruction in psychiatry, epidemiology, and sanitary engineering, and to train teachers.

HMD 099 Health manpower development: fellowships R

ESD 001 Epidemiological services (1968–) R UNDP VS UNICEF—To set up an epidemiological and health statistics service and develop a system for the collection and analysis of information; to organize epidemiological surveillance and the control of communicable diseases, especially tuberculosis and onchocerciasis; to develop laboratory services; and to train staff.

RAD 001 Radiotherapy centre, Mulago hospital (1975–) R—To establish a radiotherapy centre at Mulago teaching hospital, Kampala, and train staff for operating it.

United Republic of Cameroon

SHS 001 Development of health services (1968–) R UNDP UNICEF—To develop health services by stages; to organize 6 public health demonstration areas and extend health activities from these areas; to control communicable diseases, including malaria, and to train personnel.

HMD 001 University Centre for Health Sciences, Yaoundé (1966–) R—To develop the University Centre, implement an integrated multidisciplinary programme, train together members of the health team, including physicians, provide in-service training to health staff, train teachers, and develop operational research in health service delivery.

HMD 099 Health manpower development: fellowships R UNDP

United Republic of Tanzania

SHS 001 Development of health services (1975–) R VS—To develop and improve the health infrastructure, especially in rural areas, and environmental health and health education services; and to reduce morbidity and mortality from diseases against which countrywide preventive measures are feasible.

HMD 001 Training of health personnel (1965–) R UNDP UNFPA FT—To provide undergraduate and postgraduate training in medicine, and to train nurses at basic and postbasic levels and health auxiliaries.
particular attention was paid to training and retraining of health personnel, including auxiliaries.

Activities are being continued under the project for the development of health services, United Republic of Tanzania SHS 001.

BSM 001 Water supplies for small communities (1972-74) R

UNICEF—To formulate an environmental health development plan, strengthen the environmental health services, implement the activities scheduled under the plan, and train personnel. Provided—a sanitary engineer and supplies and equipment.

During the course of the project, which was originally concerned especially with the provision of sanitary facilities to small communities, water supply and sanitary wastes disposal schemes were put into operation, and the inspection of drinking-water was instituted in pilot areas. Water pumps were supplied by UNICEF. The project staff also assisted in setting up refugee camps and took part in the retraining of auxiliary staff of the Ministry of Water Development and Power and of health education officers, and in the courses in environmental health given to medical students at the University of Dar es Salaam.

Expansion of the environmental health unit in the Ministry of Health is provided for under the third five year plan, and two posts of sanitary engineers have been authorized for 1975-76.

Since the beginning of 1975 the activities of the project have continued under the project for the development of health services, United Republic of Tanzania SHS 001.

Upper Volta

SHS 001 Development of health services (1968- ) R UNDP

UNICEF—To develop maternal and child health care, integrate communicable disease control activities into the work of the health services, strengthen environmental sanitation activities, and train staff.

HMD 001 Nursing education (1968- ) R UNDP UNICEF—

To develop nursing education, organize inservice training of nursing staff and train teachers.

HMD 099 Health manpower development : fellowships R

ESD 001 Epidemiological services (1969-74) R UNDP UNICEF—

To organize epidemiological services and the surveillance and control of communicable diseases, especially eye diseases, tuberculosis and schistosomiasis; and to develop health and vital statistics services, strengthen health laboratory services, and train staff. Provided—3 medical officers (epidemiology, microbiology and ophthalmology), a statistician, a laboratory technician and a nurse, supplies and equipment and local costs.

The epidemiological surveillance unit was completed by the addition of a health statistics service and a health laboratory service. The operational efficiency of the unit enabled an outbreak of cholera in 1974 to be quickly controlled.

Static health units handled the maintenance phase of the smallpox eradication campaign and the BCG vaccination campaign. More than 11 000 000 smallpox vaccinations (a 93% coverage) and 3 800 000 BCG vaccinations were carried out.

With the assistance of UNICEF, control of communicable eye diseases, especially trachoma, was established in the Dodoma pilot area and in the Singida and Tabora regions. Plans of work were drawn up for extending this programme to other areas, and a plan of action was established to enable the surveillance and control of schistosomiasis to be continued.

Laboratory techniques for the diagnosis of the major communicable diseases, and especially for parasitic diseases, were improved and standardized.
cases of schistosomiasis, 58 of trypanosomiasis, 628 of cholera (including 66 fatalities), 11,516 of onchocerciasis, 17,598 of trachoma, and 6447 of treponematoses. Diagnosis of 72 additional cases of leprosy brought the total to 108,638.

The staff employed in the project also assisted in a survey of a cholera outbreak in Petegolli and in a survey on the integration of leprosy and tuberculosis control.

At the beginning of 1975 the project was integrated into the project for the development of health services, Upper Volta SHS 001.

Zaire

SHS 001 Development of health services (1968– ) R—To strengthen integrated health services, develop a long-term sanitation programme, study the epidemiology of malaria and organize malaria control measures, strengthen maternal and child health activities, and train personnel.

HMD 001 Training in health sciences (1960– ) R—To develop training in health sciences at the National University of Zaire, and provide in-service and further training to health personnel.

HMD 002 Nursing education (1968– ) R—To develop nursing and midwifery services, and train nurses, midwives, and nursing and midwifery tutors.

HMD 099 Health manpower development : fellowships R

ESD 001 Epidemiological services (1968– ) R—To improve the epidemiological services and health statistics, organize laboratory services, and train staff.

SME 001 Smallpox eradication (1967– ) R VS—To maintain immunity of the population to smallpox and tuberculosis at an adequate level, improve the system of epidemiological surveillance of smallpox, and train staff.

Zambia

SHS 001 Development of health services (1969– ) UNDP UNICEF—To strengthen integrated health services, improve the control of communicable diseases and maternal and child health, health education and environmental sanitation work, develop laboratory services, and train personnel.

HMD 001 Training of health personnel, Lusaka (1965–66; 1968– ) R—To develop training in social and preventive medicine at the medical school of the University of Lusaka and establish a department of nursing at the University; to develop the school of medical assistants; and to train teaching staff.

HMD 002 Postbasic nursing education (1973–74) R—To establish a department of nursing at the University of Lusaka, train nursing service administrators and nurse educators, and promote research on nursing. Provided—2 nurse educators (from Sept. 1973 and June 1974 respectively), fellowships, and educational material. The establishment of a department of nursing at the University was accepted by the Board of Studies in 1974 and detailed programmes were prepared for courses leading to the diploma of nursing and also for one-year courses on nursing administration and public health nursing and a 2-year course on the methodology of nursing education.

As from the beginning of 1975 activities have been continued under the project for the training of health personnel, Zambia HMD 001.

HMD 099 Health manpower development : fellowships R

Intercountry Programmes

SHS 001 National health planning (1973–74) R—To assist countries in formulating, implementing and evaluating national health plans. Provided—consultant services as follows:

Gambia. A consultant assisted in preparing a sectoral health plan to be included in the socioeconomic development plan.

Madagascar and Togo. A consultant assembled the statistical data required for evaluating the health infrastructure and the functioning of existing services, and cooperated in planning for the health sector within the framework of the socioeconomic development plan.

Upper Volta. A consultant assisted in revising the administrative organization of the Ministry of Health.

In addition, a consultant assisted the Liptako-Gourma Authority (the economic development project of the Governments of Mali, Niger, and Upper Volta) in preparing a plan for strengthening the fixed and mobile infrastructure.

In January 1975 the project was incorporated into the intercountry project SHS 002, African Institute for Health Planning.

SHS 002 African Institute for Health Planning (1975– ) R—To carry out operational research in health planning, assist in planning, implementing and evaluating national health programmes, and train staff.

SHS 005 Consultant services in hospital administration (1972– ) R—To assist in improving hospital administration in the countries of the Region.

SHS 009 Medical rehabilitation centres (1975– ) R—To set up 2 regional centres for training all categories of staff in medical rehabilitation work, promoting medical rehabilitation work in countries of the Region and adapting methods to the conditions prevailing in the Region.

SHS 010 Consultant services in economic development projects (1971– ) R—To study the health components and assess the public health implications of socioeconomic development projects and assist in preparing and implementing such projects.

SHS 011 Assistance to liberation movements (1975– ) R UNDP UNICEF—To contribute to the efforts of the liberation movements in the health and social fields and to help build up an infrastructure manned by suitably trained staff in each area receiving assistance.

MCH 001 Maternal and child health (1972– ) UNFPA—To train health personnel in the field of family health and integrate family planning activities with the other components of the family health sector.

NUT 001 Joint FAO/WHO/OAU Regional Food and Nutrition Commission for Africa (1964– ) R (FAO) (OAU)—To assemble data on nutrition problems, analyse studies carried out in this field in Africa, and prepare and distribute bulletins and nutrition briefs.

NUT 002 Consultant services in nutrition (1965– ) R—To assist the countries of the Region in developing nutrition work within
the framework of the health services, carrying out nutrition surveys, and training personnel.

HED 001 Consultant services in health education (1971– ) R
UNFPA UNDP/UNESCO—To assist in strengthening health education services, particularly in the field of school health education.

HMD 006 Meeting of Deans of Faculties of Medicine in the African Region, Brazzaville (3-5 Dec. 1974) R—To evaluate the progress made in 1973 and 1974 in educational programmes and methodology, coordination of research, teaching staff exchanges, and relations with the Association of Medical Schools in Africa; to review problems in training in the basic medical sciences; and to prepare short-term and long-term programmes of action. The meeting, which was the fourth of a series, was attended by 19 Deans or Directors of Faculties of Medicine from 16 countries of the Region and by the Regional Secretary of the West African Health Secretariat. Two medical students also attended. Provided—consultant services and the cost of attendance of participants.

HMD 008 Schools of medicine and other teaching institutions in the health sciences (1968– ) R VD—To study the needs of teaching institutions in staff and equipment, provide educational material and equipment, organize postgraduate training in public health, and train nursing and other health personnel in public health practice, teaching, and health services organization through workshops and other methods.

HMD 009 Meeting of Teachers of Health Sciences, Brazzaville (10-16 June 1975) R—To enable teachers of the health sciences to exchange views and experience. In accordance with the recommendation made at the first meeting (Oct. 1972) that each future meeting should be focused on a single well-defined theme, this second meeting was devoted to education in the environmental sciences. There were 11 participants and 3 observers—teachers in faculties or schools of civil or sanitary engineering, university centres for health sciences or faculties of medicine. They endeavoured to define, on the basis of needs in the Region, the types of personnel that should be trained, and indicated ways in which education in the health sciences could be strengthened in schools training environmental health personnel. Provided—a temporary adviser and the costs of attendance of the participants.

HMD 011 Centre for postbasic nursing education, Dakar (1967– ) R UNICEF; HMD 012 Yaoundé (1972– ) R UNICEF—To prepare nurses for participation in health planning, administration of nursing schools or nursing services, teaching, and research in nursing.

HMD 013 Consultant services in nursing (1973– ) R—To provide consultant services for the improvement of nursing administration, training programmes and research.

HMD 014 Centres for public health engineering research, demonstration and training (1972– ) R—To establish public health engineering centres, develop training programmes, and promote the development and application of methods suited to conditions in the Region.

HMD 017 Centres for training in health education (1972– ) R —To assist in developing undergraduate and postgraduate training in health education.

HMD 018 Centre for training technicians in the repair and maintenance of medical equipment (1970– ) R—to train technicians for the installation, maintenance and repair of X-ray apparatus and other electromedical equipment.

HMD 019 International Children’s Centre courses (1968– ) R—To enable physicians and other health personnel to attend courses organized by the Centre.

HMD 022 Training centre for health service personnel (English language) Lagos (1961– ) R; HMD 023 (French language) Lomé (1962– ) R—To organize further training courses for health service personnel and training courses in laboratory techniques.

HMD 025 Departments, institutes and schools of public health (1971– ) R—To assist in establishing and developing departments, institutes and schools of public health in the Region.

HMD 026 Staff exchanges between medical schools of the African Region (1968– ) R—To promote the interchange of views and experience among teachers in medical schools.

HMD 028 Regional teacher-training centres (1971– ) R—To train teachers of health sciences in modern educational techniques and carry out applied research on educational methods.

HMD 030 Consultant Group on the Coordination of Biomedical Research in Africa, Brazzaville (30 June-4 July 1975) R—To take stock of the situation and formulate recommendations on the promotion of coordination of biomedical research in Africa. There were 6 participants (temporary advisers) from as many countries of the Region, and observers from the Organization for Coordination and Cooperation in the Control of Major Endemic Diseases, the Organization for Coordination in the Control of Endemic Diseases in Central Africa, and the East African Institute for Medical Research. The meeting was attended by the Regional Director for Africa. Provided—2 consultants, the cost of attendance of the participants, and the services of staff members.

HMD 032 Workshop on the Development of Effective Communications in the Teaching of Health Sciences, Brazzaville (21-31 Oct. 1975) R—To present the theoretical basis for and techniques of effective communications and to study the application of these techniques to the promotion of communication between systems of teaching health sciences and between these systems and community services, professional bodies and the public. There were 16 participants from 14 countries of the Region and 4 observers (representatives of the Association of Physicians of East Africa and the West African College of Surgeons, and 2 medical students). Provided—the cost of attendance of participants.

HMD 034 Workshops on country health programming (1975– ) R—To stimulate the interest of responsible national and WHO staff in country health programming; to promote the use of country health programming methodology in order to help countries to define, strengthen and implement their health plans and programmes within their programmes for socioeconomic development; and to make available, at the country level, national and international experts capable of conducting and stimulating health programming exercises. Following a workshop held in Brazzaville for WHO staff in 1974, it was decided to establish the project to give joint training each year to national officers and WHO staff. The first workshop was held in Brazzaville in April 1975. It was conducted in French and there were 29 participants,
Intercountry Programmes (continued)

including 14 from 10 countries of the Region. Provided—the cost of attendance of the participants and the services of staff members.

HMD 099 Health manpower development: fellowships R

ESD 001 Epidemiological services (1968- ) R VL VS—To study epidemiological problems in the Region, and assist in the production of vaccines and in the implementation of measures for communicable disease control.

ESD 002 Epidemiological surveillance centre, Nairobi (1960- ) R; ESD 003 Abidjan (1970- ) R; ESD 004 Brazzaville (1974- ) R—To participate in the collection, analysis and evaluation of statistical and epidemiological data, determine priorities and recommend measures for control of epidemics and major endemic diseases, standardize prevention, control and epidemiological surveillance procedures, distribute health information to Member countries, and help to train personnel.

MPD 002, 003, 004 and 005 Consultant services in malaria and other parasitic diseases (1975- ) R—To study the epidemiology of malaria, schistosomiasis, trypanosomiasis, onchocerciasis and other parasitic diseases, to develop control methods, and to assist in the planning, implementation and evaluation of control activities.

As from January 1975, these programmes incorporate parasitic disease control activities previously conducted under the intercountry projects for consultant services in schistosomiasis (MPD 005), onchocerciasis (MPD 007), and trypanosomiasis (MPD 008).

MPD 006 Onchocerciasis control, Volta River basin area (1971- ) ONDP (FAO) (IBRD) (Bilateral assistance)—To interrupt the transmission of onchocerciasis through aerial larviciding with a view to controlling the disease; to carry out applied research to find suitable drugs for treatment of persons infected with onchocerciasis in the programme area, and to improve the methods of evaluation to ensure a high level of effectiveness of operations; to train staff needed for implementation of the programme and subsequent maintenance operations; and to ensure socioeconomic development of fertile areas freed from the disease.

MPD 008 Consultant services in trypanosomiasis (1969-74) R—To detect foci of trypanosomiasis and assess their extent, study vector ecology and transmission of the disease, and make recommendations on control methods. Provided—consultant services as follows:

Gabon. In 1969 a consultant evaluated the importance of 2 residual foci of trypanosomiasis and made recommendations on vector control measures. In 1974 another consultant assisted in reviewing activities.

Rwanda and United Republic of Tanzania. In 1970, 2 consultants carried out epidemiological and entomological surveys to assess the public health importance of trypanosomiasis and helped to plan a control programme.

Central African Republic. In 1974 a consultant reviewed activities and recommended control measures.

Zambia. In 1974 an epidemiological survey was carried out that enabled the boundaries of the foci to be demarcated and control measures to be determined.

In 1975 activities were transferred to the intercountry programmes for the control of malaria and other parasitic diseases (see above).

SME 001 Smallpox eradication (1965- ) R VS—To assist governments in planning and implementing mass smallpox vaccination programmes, carrying out epidemiological surveys in areas where cases of smallpox have been reported, and evaluating eradication programmes in progress.

BAC 001 Bacterial diseases control (1971- ) R VC—To collaborate with countries of the Region in studying the epidemiology of bacterial diseases (plague, cholera, cerebrospinal meningitis and typhoid) and in organizing national and regional control programmes, especially during epidemics; in emergencies, to supplement national stocks of drugs and biological substances; and to train staff.

BAC 002 Plague control (1968-74) R—To analyse the epidemiological situation as regards plague and assist in organizing national and regional control programmes. Provided—consultant services and supplies and equipment.

In 1969 a consultant studied the 2 adjoining plague foci in the mountainous area of north-eastern Zaire. In 1974, 2 consultants (a zoologist and an epidemiologist) studied the situation in the area and made recommendations for developing the epidemiological surveillance of the disease in man and animals. They demonstrated the importance of immediate on-the-spot therapy and of preventive measures among contacts.

In January 1975 activities were transferred to the intercountry bacterial diseases control project (BAC 001).

BAC 003 Cerebrospinal meningitis control (1960-74) R—To assist governments in controlling epidemics of cerebrospinal meningitis. Provided—7 consultants, and supplies and equipment.

The consultants helped to check epidemics and also conducted surveys and studies to obtain more knowledge of the various aspects of the disease and to define procedures for control and epidemiological surveillance. The studies were mainly carried out in the 8 most affected countries of the "meningitis belt" (Benin, Ghana, Ivory Coast, Mali, Niger, Nigeria, Togo and Upper Volta).

The problems of control and the epidemiological aspects of the disease were considered in detail at 2 seminars. The first, held in Bobo-Dioulasso in 1967, had participants from 10 countries and representatives from the Organization for Coordination and Cooperation in the Control of Major Endemic Diseases, the Organization for Coordination in the Control of Endemic Diseases in Central Africa and the Dakar Pasteur Institute. The second, held in Lagos in 1972, had 14 participants and 13 observers from 11 countries of the Region.

Several countries in the meningitis belt were supplied with drugs for prevention and treatment. To deal with an emergency situation in 1974, meningitis vaccine was supplied to Kenya and Mali, and drugs were provided to Togo and Zambia.

In January 1975 activities were transferred to the intercountry bacterial diseases control project (BAC 001).

DNH 001 Consultant services in dental health (1972- ) R—To promote the development of dental health services in countries of the Region.

MNH 001 Consultant services in mental health (1973; 1975- ) R—To assist in developing and strengthening mental health services within the general health services and in organizing training in psychiatry and mental health.

SQP 001 Consultant services in prophylactic and therapeutic substances (1969- ) R VD—To assess the situation with regard to the quality control of pharmaceuticals in the Region, make recommendations concerning the organization of regional con-
trol laboratories, and meet requests of governments for advice on drug manufacture and distribution.

LAB 001 (formerly SHS 012) Consultant services in health laboratories (1970– ) R—To assist governments in developing and strengthening health laboratory services and blood transfusion centres.

BSM 001 Consultant services in water supply and sewerage (1969– ) R—To assist in planning, organizing, implementing and assessing water supply and sewerage programmes.

HWP 001 Consultant services in occupational health (1971– ) R—To assist countries of the Region in developing medico-social services for workers and their families and in training personnel.

DHS 001 Consultant services in vital and health statistics (1971– ) R—To plan the development of vital and health statistics services, draw up working methods for epidemiological research, and train staff.

HLT 002 Regional library (1974– ) R—To develop a regional library specialized in education, biomedical research and staff training.

HLE 001 Consultant services in health legislation (1971– ) R—To assist countries in drafting health legislation and regulations.
REGION OF THE AMERICAS

Argentina

SCHS 001 Programme planning and general activities (1975- ) PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SCHS 002 Nursing services (1973- ) PR—To develop in-service training centres in order to improve the quality of nursing care.

SCHS 004 Latin American Centre for Medical Administration (1967- ) R PR PH PG: Government of Argentina (Kellogg Foundation)—To develop programmes of research on problems of medical and hospital administration and to train personnel in that field.

SCHS 005 Hospital maintenance (1973-77) UNDP—To establish a nationwide hospital maintenance system.

SCHS 006 Rehabilitation (1974-77) R PR—To improve the rehabilitation services by the production of orthotic and prosthetic appliances and by training staff.

SCHS 007 Accidents (1974-77) R—To reduce morbidity and mortality from accidents by assistance to the programmes of the National Committee for Prevention of Traffic Accidents.

SCHS 008 (formerly SCHS 001) Health services (1971- ) R—To organize and develop the health services required to provide the whole population with timely and efficient care on an equal and permanent basis.

MCH 003 Maternal and child health (1973- ) R—To formulate and implement a national maternal and child health programme, to be carried out primarily in the less developed areas, with emphasis on the training of staff.

NUT 002 Nutrition studies (1974-78) UNDP—To formulate a national food and nutrition policy, study the nutritional levels of the population and train staff for the implementation of nutrition programmes.

HMD 001 School of public health (1958-76) R—To strengthen instruction, research and extension work at the University of Buenos Aires School of Public Health.

HMD 002 Education in health sciences (1958-77) R—To strengthen institutions providing training in the health sciences, improve their programmes and teaching and learning methods, and integrate the teaching of various disciplines.

HMD 003 Sanitary engineering education (1960-77) PR—To intensify the national programme of education, research and technical information in sanitary engineering.

ESD 001 Communicable disease control (1969-70; 1972-78) R—To develop communicable disease control programmes.

MPD 001 Malaria eradication programme (1951- ) PR

MBD 001 Tuberculosis control (1973-77) R—To improve tuberculosis control activities and integrate them into the medical care programmes of the provincial health services.

VPH 001 Veterinary medical education (1972-74) PR—To improve the training of veterinarians in preventive medicine and public health, strengthen teaching methods, and train instructors. Provided—a consultant, advisory services by the staff of the Pan American Zoonoses Centre, 3 fellowships, and supplies.

Two professors from the La Plata University School of Veterinary Medicine and an instructor from the University of Buenos Aires School of Veterinary Medicine received training at the Pan American Zoonoses Centre. Staff of the Centre participated in courses and conferences held in 6 university centres and provided advisory services to various teaching and research institutions. The PAHO/WHO consultant assisted the physiology departments of the Schools of Veterinary Medicine of the La Plata and Buenos Aires Universities. The Centre furnished antigens, sera and other biological substances to 15 institutions engaged in veterinary medical teaching and research and its library provided schools with periodicals and audiovisual material.

As from the beginning of 1975 these activities have been continued under project Argentina HMD 002, Education in health sciences.

VBC 001 Chagas' disease and haemorrhagic fever (1974- )—To carry out research on Chagas' disease and haemorrhagic fever and on the ecology of the vectors, and to improve the control of these two diseases.

OCD 001 Chronic diseases (1975- ) R—To organize a programme for the control of chronic diseases, with emphasis on their epidemiology and causative agents and on measures for prevention, comprehensive care and rehabilitation.

DNH 001 Dental health (1973- ) R—To implement programmes for the prevention of dental caries and carry out dental health education.

MNH 001 Mental health (1966-77) PR—To implement a national programme in social psychiatry, plan and implement mental health work, train personnel, and carry out research.

LAB 001 Laboratory services (1974-77) R—To develop a laboratory system under the country's health plan. Activities include standardization of laboratories and extension of their coverage, training of personnel, establishment of reference centres and of an administrative system for quality control, and measures to improve the utilization of laboratory resources and their coordination with clinical and epidemiological services.

BMS 001 Engineering and environmental sciences (1967- ) PR—To strengthen the organization of environmental sanitation services and programmes at the federal and provincial levels and to train professional and technical personnel.

BMS 002 Water supplies (1960- ) R—To construct and improve the administration of water and sewerage services and to train personnel.
CEP 001 Radiation protection (1967–74) PR—To develop a national radiation protection programme, including a census of all radiological equipment and certification of its safe functioning and provision of a radiation monitoring service; and to train personnel.

DHS 001 Health statistics (1960–74) PR—To reorganize and modernize the vital and health statistics systems.

DHS 002 Centre for utilization of computers in health programmes (1968–77) UNDP—To design and put into operation modern computer systems applicable to the health sector, train personnel, and disseminate information on the use of computers and data processing systems in health work.

DHS 003 Training of statistical personnel (1965–74) PR—To train statistical personnel for work in local and regional health statistics offices, and in departments of statistics and of medical records in hospitals and health centres. Provided—a medical records adviser, 5 consultants, advisory services by staff of other projects, 4 fellowships, supplies and equipment, and a grant. The training was carried out at the University of Buenos Aires School of Public Health under an agreement with the Ministry of Health. The regular courses for middle-level statisticians were 9-month programmes divided into a basic cycle for all students, followed by a specialization cycle. In 1972 the School conducted the first advanced course in hospital records, which was completed by 14 students. This course was the second of 3 stages of a new professional-level programme in health information systems. In 1973 an agreement was signed expanding the scope of an existing health statistics system to include university training in this field. In 1974 the School discontinued some regular courses, including the specialized course in medical records, on account of changes in national education priorities. As from the beginning of 1975, activities of this project were transferred to project Argentina DHS 001, Health statistics.

0300 Smallpox eradication (1967–74) R—To eliminate smallpox by means of vaccination to secure a sufficient level of immunity in the population, and to organize epidemiological surveillance services. Provided—a consultant, advisory services by staff of other projects, a fellowship, and supplies and equipment.

Epidemiological surveillance, border control and vaccination activities were carried forward in accordance with the agreement signed in 1967 and extended to the end of 1974. No cases of smallpox have been reported in Argentina since 1970. Production of glycerinated and freeze-dried vaccine in quantities exceeding those required for domestic use made it possible to supply other countries.

Activities were transferred to project Argentina ESD 001 at the beginning of 1975.

Bahamas

SHS 001 Health services (1972–74) R PG: Government of the Bahamas—To improve and extend the health services, integrating the preventive and curative services.

SHS 002 Nursing services (1974–76) PR—To improve nursing services by increasing the part taken by nursing staff in the administrative reform of the Ministry of Health, defining the duties of the various categories of nursing personnel, and carrying out training programmes.

SHS 003 Management of health services (1974–76) R—To organize seminars on the management of health services for national staff with responsibility for implementing projects in hospital administration and environmental health.

SHS 005 Hospital administration (1973–76) UNDP—To plan and organize the delivery of personal health services through 2 community health oriented hospital complexes (Rand Memorial and Princess Margaret-Sandilands) and other health facilities.

BSM 001 Environmental services (1974–75) UNDP—To improve the management of environmental services, including those for pollution control and disposal of solid wastes, in the newly established Department of Environmental Services in the Ministry of Health.

Barbados

SHS 001 Programme planning and general activities (1975–76) R PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Hospital administration (1965–75) UNDP—To organize the Queen Elizabeth Hospital as the central medical care institution of Barbados and as a teaching hospital for the University of the West Indies, and to coordinate its activities with those of other hospitals. Provided—a hospital administration specialist (1965–67), 22 consultants, advisory services by the PAHO/WHO country representative, regional headquarters staff and staff of other projects, and 29 fellowships.

The by-laws and regulations for the Queen Elizabeth Hospital were approved. In 1967 the Hospital received the first medical students from the University of the West Indies. A new hospital director, selected in 1968, was awarded a fellowship for further training. A medical librarian, a senior accountant and 2 dietitians were appointed to the hospital staff. Dietetics and laundry departments were established, the medical stores were reorganized, and the clinical files section was improved. A study was made of the engineering and maintenance supply stores, a feasibility study for a cafeteria was approved and partially carried out, and recommendations were prepared on the laboratory sample collection, analysis and reporting system and on the organization of the pharmacy services.

An appraisal was made of the role of all district hospitals and their structure was reviewed. The laundry of the St Michael Infirmary was developed to function as a central service for the other district hospitals. All hospitals, clinics and dental offices were covered by a study on radiation control standards, practices and legislation. A number of recommendations resulting from a review of the psychiatric hospital and the district hospitals have been implemented. An inventory of equipment of all hospitals except the Queen Elizabeth Hospital was made and an equipment maintenance system was introduced.

New forms, procedures and regulations were drawn up for the medical records systems in use at the Queen Elizabeth Hospital, the district services, and other institutions.

Courses were held for food supervisors, health statisticians and medical records staff, and for supervision of patient activities at the psychiatric hospital.

SHS 004 Management of health services (1974–76) PR—To improve the administrative methods and practices in the Ministry of Health.

SHS 006 (formerly SHS 001) Health services (1968–74) R—To improve, expand and integrate the curative and preventive health services and to train personnel.
Barbados (continued)

VPH 002 Animal and human health (1974–78) UNDP—To develop an organization for the prevention, control and eventual elimination of zoonotic and other animal diseases.

BSM 001 Engineering and environmental sciences (1970–) PR—To extend the environmental health services, and improve the operating capacity of the relevant institutions.

BSM 002 Solid waste management (1975–78) UNDP—To improve the collection and disposal of solid waste.

SES 001 Waterworks administration (1971–) PR PG: Government of Barbados—To strengthen and improve the technical and administrative operation of the national water and sewerage agencies.

SES 002 Public health engineering (1975–76) UNDP—To develop public health engineering services.

Belize

SHS 001 Programme planning and general activities (1975–) R PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Management of health services (1975–) PR—To promote and support necessary changes in the management of the health service delivery system.

SHS 006 (formerly SHS 001) Health services (1962–77) R—To improve the health services and extend their coverage, giving particular attention to communicable disease control and environmental sanitation.

MCH 002 Maternal and child health (1975–) R UNICEF—To improve the efficiency of the maternal and child health services and extend their coverage to 80% of mothers and children; to extend prenatal care, hospital deliveries and attended home deliveries; to increase the level of immunization of pregnant women and preschool children; and to establish a family life education programme directed primarily to adolescents and women of childbearing age.

HMD 001 Sanitary engineering education (1966–76) PR—To develop short courses in sanitary engineering and environmental sanitation subjects.

MPD 001 Malaria eradication programme (1956–80) PR

VBC 001 Aedes aegypti eradication (1972–) PR—To maintain the present A. aegypti-free status and organize a surveillance programme for the prompt detection of reinfestation and the immediate application of eradication measures.

BSM 001 Engineering and environmental sciences (1971–) PR—To develop a national programme of environmental sanitation, including the provision of water supply and sewerage services to urban and rural communities.

BSM 003 Water supply and sewerage, Belize City (1974–79) PG: Canadian International Development Agency—To develop for Belize City a large-scale environmental health project, including water supplies, sewerage, surface drainage and solid waste management.

Bolivia

SHS 001 Programme planning and general activities (1975–) PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Medical care services (1972–78) R PR—To improve the administration of the medical care services, restructure the main hospitals, and train personnel in hospital administration.

SHS 004 Nursing services (1975–) R—To improve the level of nursing care in hospitals and community health centres, extend coverage to the rural areas, and to define and develop the system of nursing required to attain the health goals of the decade.

SHS 007 (formerly SHS 001) Health services (1955–) R—To improve and extend the health services in urban and rural areas and train health personnel.

SHS 009 Development of health services, Chuquisaca and Tarija (1975–) UNFPA—To develop comprehensive health care programmes for mothers and children in order to reduce maternal and child mortality and morbidity rates.

NUT 001 Nutrition (1971–) PR—To improve levels of nutrition, particularly among mothers, children and hospital patients.

NUT 002 Control of endemic goitre (1973–) PH (Research Corporation, USA)—To administer iodized oil, orally or intra-muscularly, in 4 towns with a high prevalence of endemic goitre, in order to test the efficacy of both methods as an interim measure until iodized salt is readily available.

NUT 003 Effects of iodine deficiency and its correction on the mental development of children (1973–) PG: Medical Research Council, USA—To assess mental performance, nutritional status, and thyroid function in schoolchildren before and after iodine supplementation.

HMD 001 Medical education (1968–78) R—To revise the programme of the 3 medical schools and incorporate concepts of social and preventive medicine into the curricula.

HMD 002 Sanitary engineering education (1964–) PR—To improve the university training of sanitary engineers and train practising engineers and auxiliary staff in environmental sanitation subjects.

HMD 003 Dental education (1968–78) R—To improve the teaching of dentistry in the faculties of health sciences that are being established and adapt the curricula to the needs of the country.

HMD 004 Nursing education (1973–78) R—To improve the training of nursing personnel by strengthening curricula and teaching methods and training nursing teachers.

ESD 001 Epidemiology (1968–) R PR—To carry out epidemiological studies, and establish and develop programmes for the surveillance, control and eradication of communicable diseases.

MPD 001 Malaria eradication programme (1957–) PR
SME 001 Smallpox eradication (1962-74) R UNDP—To keep the country free from smallpox through epidemiological surveillance and maintenance vaccination. Provided—long-term staff and consultants.

Mass vaccination was started in 1963 and continued in subsequent years. The last cases of smallpox were reported in 1964, and epidemiological studies carried out since 1971 have shown that the country remained free from the disease.

Maintenance work is being continued under the health services project Bolivia SHS 007.

MBD 001 Tuberculosis control (1963–) PR—To implement a national tuberculosis control programme, integrated into the general health services.

VPH 001 Zoonoses control (1971–) R—To implement demonstration programmes for the control of rabies and other zoonoses of public health importance, with a view to developing work methods adapted to the country's requirements and training personnel.

VPH 002 Veterinary medical education (1967-77) R—To improve the teaching of veterinary medicine, and particularly the preventive and social aspects, at the University of Santa Cruz de la Sierra.

VBC 001 Typhus control (1968-74) R—To carry out a pilot programme for control of typhus. Provided—advisory services by regional headquarters staff and supplies and equipment, including kits for determining the susceptibility or resistance of lice to insecticides.

Following preparatory work, field trials of a live strain E vaccine were conducted. Follow-up observation of reactions after vaccination were made and the findings were published; immediate and late reactions were slight and readily controlled with antipyretics. A total of 450 postvaccinal blood samples were taken to study the serological changes induced by the vaccine and are being analysed.

BSM 001 Engineering and environmental sciences (1969–) R—To improve the levels of environmental health and sanitation.

BSM 002 Water supplies (1960-70; 1972–) R—To provide water supplies and sewerage services to urban and rural communities.

HWP 001 Occupational health (1971-77) UNDP—To expand the industrial hygiene and occupational medical programmes in order to reduce mortality, morbidity and economic losses due to occupational diseases and accidents in the mining and other industries.

SES 001 Water and sewerage services administration (1972-74) PW (National Water and Sewerage Corporation)—To strengthen the administration and operation of the National Water and Sewerage Corporation. Provided—7 consultants (3 in 1973 and 4 in 1974), advisory services by Zone Office staff and staff of project Bolivia BSM 001, and a fellowship.

Assistance was provided for planning, organization and methods, personnel management, promotion of community participation, accounting and budgeting, billing and collection of rates, and well drilling. By the end of the project 50% of the recommendations made had been implemented. Assistance in implementing the remainder is being provided under project Bolivia BSM 001.

SES 002 Water and sewerage services administration, Cochabamba (1971–) PW (Municipal Water, Sewerage and Drainage Service)—To strengthen the Municipal Water, Sewerage and Drainage Service and improve its administration.

DHS 001 Health statistics (1968–) PR—To develop a national statistics system to provide the data required for planning and programming in the health sector; and to set up a programme of staff training and a standard records system.

Brazil

SHS 001 Programme planning and general activities, north-eastern region (1975–) R PR UNICEF; SHS 002 South-eastern region (1975–) PR; SHS 004 Amazon basin region (1975–) PR; SHS 005 Southern region (1975–) PR—To strengthen and extend the health services in the region, with development of regional planning and local programming; to implement and evaluate plans and programmes at the regional and local levels; and to extend the coverage of the health services, especially in rural areas.

SHS 006 Nursing services (1974–) R PR—To strengthen and coordinate the nursing services, improve the utilization of available resources, and train personnel.

SHS 007 Administrative methods and practices in public health (1973–) R—To improve the organizational structure and administrative procedures of the health services.

SHS 009 Medical care services (1966–) PR—To improve the organizational structure of the medical care services so as to increase their productivity, raise the quality of services, reduce costs, and achieve wider geographical and population coverage.

SHS 010 Rehabilitation training centre, Brasilia (1973–) R—To provide training in medical rehabilitation techniques for doctors, and refresher training for physical and occupational therapists and for prosthetists.

SHS 012 Administrative methods and practices in public health, south-eastern region (1975–) R—To develop, within the context of national health policy and in accordance with state and national development plans, the administration and planning of health services in the south-eastern region; to promote coordination of the health sector in order to extend coverage of services, especially in rural areas; and to strengthen the basic programme of medical care, the control of communicable diseases, immunization, nursing care, statistics, and training of personnel.

SHS 013 Nursing services, north-eastern region (1975–) R UNICEF; SHS 014 Southern region (1975–) R—To establish for the region a system of nursing in which the number and type of personnel necessary to achieve the objectives of the state health plans, and the programmes required for the training of such personnel, are clearly specified.

SHS 015 (formerly SHS 004) Health services, Amazon basin (1971–77) R—To organize the health services in the Amazon basin.

SHS 016 (formerly SHS 001) Health services, north-eastern region (1958–) R UNICEF—To improve the organization of the health and sanitation sectors.

SHS 017 (formerly SHS 011) Health services, west-central region (1973–) R—To develop the administration and planning of health activities within the context of the national health policy and in accordance with regional and state development plans.

SHS 018 (formerly SHS 002) Health services, south-eastern region (1972–79) PR—to develop the administration and planning of health and sanitation programmes in the south-eastern states.
Brazil (continued)

**SHS 019 (formerly SHS 005)** Health services, southern region (1968- ) R PR—To strengthen the planning and administration of the health services in the southern region, including the states of Paraná, Rio Grande do Sul, and Santa Catarina.

**SHS 020** Nursing services, Amazon basin (1975-77) PR—To establish, in the Amazon basin region, a system of nursing in which the number and type of personnel necessary to achieve the objectives of the state health plans, and the programmes required for the training of such personnel, are clearly specified.

**SHS 021** Medical care, south-eastern region (1975- ) PR—To improve the quality and expand the service capacity of the large hospital complexes in the south-eastern region.

**SHS 023** Administrative methods and practices in public health, southern region (1975- ) PR—To develop, within the context of the national health policy and in accordance with national and state development plans, the administration and planning of health services in the southern region (states of Rio Grande do Sul, Santa Catarina and Paraná).

**MCH 002** Demography and population dynamics (1971-74) PK PG: USAID—To carry out research and provide university-level courses in population dynamics, with emphasis on the relationship between health and population structure. Provided—grants to the Centre for Population Studies, School of Hygiene and Public Health, University of São Paulo.

A number of multidisciplinary courses were held on the relation of demography and population dynamics to public health and research on fertility and related socioeconomic variables was carried out.

**MCH 003** Maternal and child health (1971- ) R—To reduce maternal and infant morbidity and mortality by means of a coordinated programme of health assistance during the perinatal period, and carry out the necessary teaching and research work.

**NUT 001** Nutrition (1974- ) R PR—To formulate the national food and nutrition policy and develop a broad food and nutrition programme for the whole country.

**NUT 002** Institute of Nutrition, Recife (1964- ) PR—To strengthen the structure and activities of the Institute of Nutrition of the Federal University of Pernambuco (formerly the University of Recife), to enable it to contribute more effectively to the solution of regional nutrition problems.

**HED 001** Health education (1968- ) R—To reorient health education activities in the technical health education units and in teaching institutions.

**HMD 001** Development of human resources (1971-78) R PR—To increase the number and improve the quality of health personnel by improving the effectiveness of educational institutions, particularly the National School of Public Health, Rio de Janeiro.

**HMD 002** Medical education (1965- ) R—To strengthen the medical education programme and improve the administration of the School of Medical Sciences of the Guanabara State University.

**HMD 003** Biomedical information network, São Paulo (1973-76) UNDP—To improve the country's biomedical information system.

**HMD 004** Latin American Centre of Educational Technology for Health (1972-77) PR PH (Kellogg Foundation)—To improve the teaching-learning process in health sciences education through the provision of services in education technology.

**HMD 007** Sanitary engineering education (1973-77) R PR—To establish training programmes at undergraduate, graduate and continuing education levels for personnel working in sanitary engineering, particularly in connexion with the national water supply programme.

**HMD 008** Medical textbooks (1967- ) R PR—To make low-cost textbooks available to medical and nursing students.

**HMD 009** Dental education (1975-80) R—To develop the programme of dentistry throughout the country, and in particular the programme of the Faculty of Dentistry, Piracicaba; to carry out research and training in dental epidemiology, oral biology, educational technology and community health; to provide community dental services through the clinics of the Faculty and other services; and to train auxiliary dental personnel.

**ESD 001** Epidemiology (1969- ) R PR—To develop and coordinate programmes for the control of communicable diseases, organize epidemiological services and surveillance systems and train personnel in epidemiology.

**ESD 002** Surveillance and research on infectious diseases along the Trans-Amazon Highway (1973-78) PG: US Army Medical Research and Development Command—To carry out, in areas adjacent to the Trans-Amazon Highway, multidisciplinary studies on (i) diseases and their causative agents introduced by the work force and colonists coming from other parts of Brazil, and (ii) local diseases and infectious agents of the Amazon area that may affect the immigrants.

**ESD 003** Infectious disease transmission along the Trans-Amazon and the Cuiabá-Santárém Highways (1973- ) R PR PG: US Army Medical Research and Development Command—To study the epidemiology of disease transmission among various population groups along the Trans-Amazon and Cuiabá-Santárém Highways, and to make investigations in the same area on the relation of ecological changes to frequency of disease transmission.

**ESD 004** Epidemiology, north-eastern region (1975- ) R—To organize, conduct and evaluate programmes for the study, prevention and control of communicable and parasitic diseases.

**MPD 001** Malaria eradication programme (1958- ) R PR

**MPD 002** Schistosomiasis (1971- ) R—To carry out clinical and epidemiological research on hycanthone therapy; and to clarify the taxonomy of schistosomiasis snails of medical interest.

**MPD 003** Chagas' disease (1973- ) R PS—To develop a national campaign for the control of Chagas' disease.

**MPD 004** Parasitic diseases (1972; 1974-75) VD—To study the epidemiology of cutaneous leishmaniasis.

**SME 001** Smallpox eradication (1973- ) R—To maintain the level of immunization against smallpox in the population and carry out epidemiological surveillance work.

**MBD 001** Tuberculosis control (1966- ) R—To develop a network of tuberculosis bacteriological laboratories as the first part of a programme for integrating tuberculosis control work into the general health services.
MBD 002 Leprosy control (1975- ) PR—To carry out measures for the control of leprosy, reduce disabilities and ultimately reduce the incidence of the disease.

VPH 001 Veterinary public health (1969-76) R PG; Government of Brazil—To extend programmes for control of the principal zoonoses, particularly rabies; to establish a technical and administrative structure for standardizing rabies vaccine production and application; and to carry out epidemiological research on rabies and other zoonoses.


VPH 006 National programme for rabies control (1975- ) R—To control canine rabies in urban areas and reduce the risk of transmission of rabies to man.

VPH 007 National veterinary reference and training laboratory (1975-79) PG; Government of Brazil—To establish a programme for the training of personnel in order to develop the functioning of the laboratory.

VBC 001 Plague research (1965- ) R—To plan and carry out a research programme that could serve as a basis for a reorientation of the control of plague in the country.

VBC 002 Aedes aegypti eradication (1970- ) R

CAN 001 Cancer control (1971-77) R—To carry out a cancer control programme including early detection and treatment of cancer, the setting up of cancer registries in certain areas, the promotion and organization of antismoking campaigns, and the putting into operation of integrated medical care systems.

CVD 001 Pan American cardiovascular research centre (1974- ) R—To set up a centre for research and training in cardiovascular and other chronic diseases that will eventually also serve other countries of the Region.

OCD 001 Control of chronic diseases (1975- ) PR

MNH 001 Mental health (1968-77) PR—To implement a comprehensive mental health programme covering modernization of psychiatric hospitals, development of ambulatory and community services, training of staff and promotion of research.

IMM 001 Immunology research and training centre (1973- ) R—To provide, at the immunology research and training centre in the Butantan Institute, São Paulo, postgraduate training in immunology to students from Brazil and other countries of the Americas; and to develop, at the Institute, a research programme in basic immunological mechanisms and their application to local public health problems.

SQP 001 National drug quality institute (1973- ) UNDP—To guarantee the quality and purity of drugs produced and consumed in Brazil by ensuring that drug manufacturers and official drug control agencies have well-trained staff and use the latest techniques in their quality control programmes.

ISB 001 Yellow fever laboratory (1950- ) PR—To support the continent-wide campaign against yellow fever by providing laboratory diagnostic services and supplying yellow fever vaccine.

ISB 002 Vaccine programme, Adolfo Lutz Institute (1974- ) PR—To strengthen the research programme at the Adolfo Lutz Institute.

BSM 001 Engineering and environmental sciences (1952-77) R PR—To improve environmental sanitation, with emphasis on the development of urban and rural water supplies, water and air pollution control, housing, industrial hygiene, and training of personnel.

BSM 002 Environmental pollution control, São Paulo State (1971-76) UNDP PG; Technological Centre of Basic Sanitation, Brazil—To develop an environmental pollution control programme (covering air, water and soil pollution) for the state.

BSM 003 Environmental pollution control, Guanabara State (1973- ) UNDP—To find long-term solutions to the problem of environmental pollution through research, training and pre-investment studies.

BSM 004 Water supply and sewerage (1962- ) R—To intensify the development of water and sewerage services in urban and rural areas.

BSM 005 Environmental sanitation, Amazon basin (1975-77) R—To develop the environmental sanitation programmes in the states of Pará, Amazonas, Roraima and Amapá.

BSM 006 Environmental sanitation, north-eastern region (1975- ) R UNICEF—To develop the environmental sanitation programmes in the north-eastern region (states of Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia).

BSM 007 Environmental sanitation, southern region (1975- ) R—To develop the environmental sanitation programmes in the southern region (states of Rio Grande do Sul, Paraná and Santa Catarina).

SES 002 Water and sewerage services administration, Espirito Santo (1972-) PW—To improve the technical services and administration of the Espirito Santo Sanitation Company.

SES 003 Water and sewerage services administration, Minas Gerais (1972-) PW (Minas Gerais Water and Sewerage Company)—To improve the technical services and administration of the Minas Gerais Water and Sewerage Company.

SES 004 Water and sewerage services administration, Paraná (1972-) PW (Paraná Sanitation Company)—To improve the technical services and administration of the Paraná Sanitation Company.

SES 005 Water and sewerage services administration, Santa Catarina (1974-) PW (Santa Catarina Water and Sewerage Company)—To improve the technical services and administration of the Santa Catarina Water and Sewerage Company.

SES 006 National programme in water supplies and sewerage (1974-78) PW—To strengthen and develop the technical and administrative capacity of the state water and sewerage companies through implementation of the national sanitation plan.

DHS 001 Health statistics (1963- ) R—To improve health statistics and their use in the planning, implementation and evaluation of health programmes, and to train statistical staff.

DHS 002 Health information system (1973-77) R—To plan a health information system as part of the general health system, define its subsystems, and determine its relations with other systems.
Brazil (continued)

DHS 003 Health statistics, Amazon basin (1975– ) R; DHS 004 Southern region (1975– ) R; DHS 005 North-eastern region (1975– ) PR UNICEF; DHS 006 South-eastern region (1975–) PR—To strengthen the regional and state health statistics units, improve the health statistical system, and promote training of personnel in health statistics.

Canada

SHS 001 Consultants in specialized fields (1974– ) PR—To study special problems related to health.

SHS 002 Health planning (1973–78) PG: Government of Canada—To improve the health planning process in Quebec Province, especially as regards the study of the requirements for health services and the characteristics of the existing services; and to train personnel in research methodology and biostatistics.

HMD 001 Conference on Health Manpower Planning (1973–78) PG: Government of Canada—To conduct studies on priority areas as identified by the Conference on Health Manpower Planning held in September 1973. These studies will complement or reinforce ongoing research programmes in the country.

HMD 099 Fellowships R PR

Chile

SHS 001 Programme planning and general activities (1975–78) PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Health manpower studies (1968– ) PR—To carry out studies on health manpower requirements and utilization.

SHS 003 Nursing services (1975– ) PR—To define the standards required to ensure the provision of an adequate level of nursing care and to determine the system of nursing required to achieve the goals of the health programme.

SHS 004 Medical care services (1975– ) PR—To implement a medical care policy designed to meet the demand for services.

SHS 005 Hospital maintenance (1971–77) PR—To develop a national programme for the maintenance of health care facilities.

SHS 006 Rehabilitation (1960– ) R UNDP—To train supervisory staff for rehabilitation programmes.

SHS 008 (formerly SHS 001) Health services (1961–79) R—To strengthen the administration of the national health services.

SHS 009 Management of health services (1975– ) PR—To promote and support necessary changes in the management of the health service delivery system.

SHS 010 Emergency assistance (1974–75) PG: Organization of American States (Office of the United Nations Disaster Relief Coordinator)—Supplies and equipment were provided to assist in bringing relief to the victims of the floods that occurred in 13 provinces in July 1974.

MCH 004 Extension of maternal and child health and family welfare services (1972–76) R UNFPA—To improve maternal and child health and family wellbeing through extension of the coverage and improvement of maternal and child health services, including fertility regulation activities.

MCH 006 Clinical and social paediatrics courses (1967–77) R—To provide intensive training in social and clinical paediatrics and in the administration of health services for infants and children.

MCH 007 Programme of early neuropsychological stimulation (1975– ) UNDP—During the period under review a long-term fellowship was awarded for the study of prevention of mental retardation and related disorders.

NUT 001 Nutrition (1971– ) PR—To develop and strengthen nutrition programmes and include nutrition activities in local health services.

NUT 002 Training in nutrition and human growth and development (1968–75) PR—To develop a training programme for research workers in nutrition and human growth and development. Provided—a consultant and supplies and equipment to the University of Chile.

The Medical School of the University of Chile, the Institute of Human Nutrition, Columbia University and Cornell University (USA) carried out a joint programme which enabled the University of Chile Medical School to set up a unit for research on metabolism at the Hospital del Río, Santiago, where several fellows, mainly from Chile, have received postgraduate training in nutrition and human development.

MCH 001 Medical education (1962– ) R PR—To expand and strengthen medical education, and to develop a programme of medical internships in rural hospitals for students of the medical professions.

MCH 003 Sanitary engineering education (1965– ) R—To train professional, technical and auxiliary personnel needed for environmental sanitation programmes; and to strengthen sanitary engineering education in universities.

MCH 004 Dental education (1965– ) R—To improve dental education in the universities, particularly as regards training in biology and in the preventive and social aspects of dentistry.

ESD 001 Communicable disease control (1973–78) PR—To improve measures for the treatment and control of communicable diseases.


VPH 003 Veterinary medical education (1966– ) PR—To strengthen the teaching programmes in veterinary medicine, public health and epidemiology in the schools of veterinary medicine of the University of Chile and the Austral University of Valdivia.

OCD 001 Chronic diseases (1973–78) PR—To organize a comprehensive programme for the control of chronic diseases that includes primary prevention, the strengthening and coordination of medical care facilities, the detection and treatment of early cancer, and radiation protection.

DNH 001 Centre for oral pathology (1973– ) PR—To develop, in the Department of Oral Pathology of the Faculty of Dentistry, University of Chile, a reference centre for the systematic collec-
Following an analysis of the situation, policies were defined, and working groups were established for problem areas. Staff.

LAB 001 Bacteriological Institute (1972–78) UNDP—To expand and improve the Institute, and strengthen the network of health laboratories.

BSM 001 Engineering and environmental sciences (1968–76) R—To extend the coverage of environmental sanitation services and to improve the administration and expand the operating capacity of national sanitation agencies.

Colombia

SHS 001 Programme planning and general activities (1975– ) PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Administrative development of health services (1972–76) UNDP—To develop the health services administration, in accordance with the policy for redesign of the health system.

SHS 003 Health planning (1974– ) PR—To establish the national health system.

SHS 004 Hospital maintenance and engineering (1972– ) UNDP—To establish a national centre to train personnel and carry out repair and maintenance of hospital equipment.

SHS 005 Medical rehabilitation (1973– ) UNDP—To develop medical rehabilitation services throughout the country and provide basic or refresher training for physical and occupational therapists and for prosthetists for these services.

SHS 007 Medical care administration (1973– ) PR PG: Government of Colombia—To develop and maintain the physical plant in establishments of the national health system, and to strengthen the structure of the National Hospital Fund, which is the entity of the Ministry of Public Health responsible for the technical and financial management of the national hospital planning system.

SHS 009 (formerly SHS 001) Health services (1951– ) R UNDP PG: Government of Colombia—To extend the coverage of the health services and improve their structure and operation.

SHS 010 (formerly Colombia 4802) Hospital administration, Cundinamarca (1974) PG: Government of Colombia—To improve the policies, structure and administrative systems of the medical care institutions and hospitals of the Cundinamarca Welfare Agency, prepare manuals for setting up the new systems, and train personnel. Provided—an administrator and advisory services by regional headquarters, zone office and country project staff.

A technical committee was formed to implement the project and working groups were established for problem areas. Following an analysis of the situation, policies were defined, and a strategy for the introduction of changes in each area was worked out. Studies were made for improvement of the organization and operation of some departments of the Welfare Agency. Five seminars were held, and 7 manuals were completed or in course of preparation.

MCH 003 Health and population dynamics (1968–78) UNFPA—To expand the maternal and child health and family planning services.

MCH 005 Clinical and social paediatrics (1964–74) R UNICEF (UN) (FAO) (UNESCO)—To organize 3-month postgraduate courses in clinical and social paediatrics for physicians and nurses having supervisory and teaching responsibilities in maternal and child health programmes. Provided—advisory services, supplies and equipment, and (with UNICEF assistance) 86 fellowships.

Nine courses were held under the sponsorship of the Ministry of Public Health and the University of Antioquia, Medellin. They were attended by a total of 166 professionals, mostly paediatricians working in maternal and child health services, from Colombia and other countries of the Region.

HMD 002 Health manpower development (1959– )—To improve the preparation of medical teachers and expand extramural instruction by means of short courses and the issue of periodicals.

HMD 005 Dental education (1961– ) PR—To develop the dental education programmes at the National University, Bogotá, and the Universities of Valle, Antioquia and Javeriana.

HMD 007 Human resources for the development of the infrastructure (1975– ) R PR—To provide training for national health personnel.

HMD 008 Human resources for environmental services (1975–76) R PR—To improve and expand environmental engineering education in the schools of engineering and of public health.

HMD 009 Dental education, University of Valle (1975– ) PH (University of Valle) (Kellogg Foundation)—To purchase dental and medical equipment for the teaching of students.

ESD 001 Epidemiology (1975–77) R—To conduct training courses in epidemiology and epidemiological surveillance as part of the epidemiological surveillance programme of the Ministry of Public Health.

MPD 001 Eradication of malaria and Aedes aegypti (1958– ) PR

VPH 001 Veterinary public health (1971– ) R—To control the main zoonoses affecting the country and coordinate the control programmes carried out by the Ministries of Public Health and of Agriculture.

VPH 003 Foot-and-mouth disease control (1973–76) PR—To develop a national foot-and-mouth disease control or eradication programme.

DNH 001 Coordinated dental programme, University of Detroit–University of Valle (1975– ) PH (University of Detroit, USA)—To provide housing for graduate students and visiting faculty at the Department of Stomatology of the University of Valle.

LAB 002 National Institute of Health (Carlos Finlay) (1950– ) PR—To integrate the activities of the National Institute of Health into a national system of health laboratories and to improve and expand the Institute's production of biologics in order to meet the domestic requirements and provide surplus for export.
BSM 001 Engineering and environmental sciences (1970-76) R—To improve the national, regional and local environmental sanitation programmes, including those covering provision of water supply and sewerage systems, and water pollution control.

CEP 002 (formerly SES 001) Studies on water quality (1969-71) PW—To conserve and improve the utilization of the water resources in the area under the jurisdiction of the Regional Autonomous Corporation of the Bogotá Savanna.

SES 003 Water and sewerage services administration (1971-76) PW (National Institute of Municipal Development)—To strengthen and improve the organization and administration of the National Institute of Municipal Development.

SES 004 Development of the Cauca River basin (1973-74) PG; Cauca Valley Regional Autonomous Corporation—To establish policies for controlling water pollution and planning the use of water resources in connection with the development of the Cauca River valley.

DHS 001 Redesign of health information system (1972-76) UNDP—To redesign the system so as to provide the information required for decision-taking at all levels of the health system.

Costa Rica

BSM 001 Programme planning and general activities (1975-76) PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Health planning (1973-77) UNDP UNICEF—To carry out a programme of evaluation leading to reorganization of the infrastructure of the health sector; and to design the administrative and control units required in order to execute health programmes more scientifically.

SHS 004 Medical care services (1967-76) R—To improve the organization and administration of the medical care services and to train personnel.

SHS 009 (formerly SHS 001) Health services (1959-76) R UNICEF—To improve and extend the health services and train personnel.

MCH 001 Health and population dynamics (1974-76) PG: Costa Rican Demographic Association—To determine priorities for research on the relation between demographic trends and socioeconomic development and to draw up a plan for the development of population research and for the training of personnel in this field.

The activities under this project between 1971 and 1973 are described in the Annual Report for 1974.1

HMD 001 Medical education (1971-76) R—To strengthen the basic professional education of physicians.

HMD 002 Advanced nursing education (1959-74) PR—To improve the education programmes in nursing and obstetrics and incorporate them into the country’s higher educational system.

HMD 003 Sanitary engineering education (1965-78) PR—To strengthen the teaching of sanitary engineering at the School of Engineering of the University of Costa Rica and provide short intensive courses on sanitary engineering subjects for personnel working on environmental health programmes.

MAD 001 Malaria eradication programme (1957-78) RP PR

MBD 001 Tuberculosis control (1971-74) PR—To incorporate tuberculosis control work into the general health services and train personnel of the services in control methods and techniques. Provided—advisory services of regional headquarters, zone office and project staff, a consultant for 3 weeks to advise on the organization of laboratory diagnosis, and 4 fellowships for tuberculosis courses.

The project began with a review of the technical and administrative standards for the training of health service staff (medical officers, nursing personnel and laboratory technicians). BCG vaccination was made a routine procedure in maternity clinics and reached a coverage of 85% of all infants born in health institutions. Direct BCG vaccination of children entering primary school was intensified. A demonstration area was established in Guanacaste to evaluate the results of supervised ambulatory treatment. Tuberculosis control work was incorporated into 80% of the health services, the Carlos Durán Tuberculosis Hospital was closed, and a new department of the Ministry of Public Health’s Epidemiology Division was set up to assume responsibility for the national control programme. The first issue of a semi-annual tuberculosis epidemiological surveillance bulletin, written for the medical profession, was published in 1974.

RAD 001 Radiation protection (1972-76) PR—To develop a national radiation protection programme including a census of radiation sources, a personnel radiation dosimetry monitoring service, and field inspections and consultations.

LAB 001 Laboratory services (1970-76) PR—To improve and expand the health laboratory services at the central, regional and local levels.

BSM 001 Engineering and environmental sciences (1969-76) R PR—To extend the coverage of environmental sanitation services, expand the operating capacity of national agencies, and improve the control of factors affecting the environment.

BSM 002 Water supply and sewerage (1960-76) R PR (National Water and Sewerage Service)—To improve the structure and administration of the National Water and Sewerage Service; and to plan and carry out programmes for the construction and extension of water supply and sewerage systems in urban and rural areas.

CEP 001 Air pollution (1970-72) PR—To determine the characteristics of air pollution in San José, and the trends in pollution levels.

DHS 001 Biostatistics education (1966-76) R—To train medical records librarians for hospitals in Costa Rica and other Latin American countries.

Cuba

SHS 001 Programme planning and general activities (1975-76) R—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health

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To strengthen the national programmes of occupational health and safety, including training.

**Dominican Republic**

**SHS 001** Programme planning and general activities (1975–76) PR UNICEF—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

**SHS 002** Nursing services (1975–76) R UNDP UNICEF—To define the system of nursing required in order to achieve the goals of the health programme, develop the nursing component of the health services, and improve the quality of nursing care.

**SHS 005** (formerly SHS 001) Health services (1953–76) R UNICEF—To develop the health services and improve their organization and functioning.

**NUT 001** Nutrition (1965–76) R—To implement a national food and nutrition policy, and develop nutrition education and food supplement programmes.

**HMD 001** Health manpower development (1968–78) R—To develop a programme for training professional and technical health personnel in accordance with the country’s needs.

**HMD 002** Sanitary engineering education (1969–78) R—To train professional and technical staff of sanitation programmes and strengthen sanitary engineering education.

**HMD 003** Nursing education (1975–76) R—To train professional and technical staff of sanitation programmes and strengthen sanitary engineering education.

**HWP 001** Industrial hygiene and occupational health (1969–78) PR—To strengthen the national programmes of occupational health and safety, including training.

**VPH 001** Veterinary public health (1973–77) R PR—To carry out an animal health programme as part of an integrated programme of agricultural development.
Dominican Republic (continued)

BSM 001 Engineering and environmental sciences (1971–79) R—To implement a programme for the installation of latrines, mainly in the communities covered by the rural water supply plan of the National Water Supply and Sewerage Institute.

BSM 002 Water supply and sewerage (1962–78) PR (National Water Supply and Sewerage Institute)—To provide water supply facilities to 62% of the urban and 25% of the rural population and sewerage facilities to 17% of the urban population; to integrate into the National Water Supply and Sewerage Institute 45% of the systems operated by the municipalities; and to strengthen the administration of the Institute.

BSM 003 Water and sewerage services administration, Santo Domingo (1973–77) PW (Santo Domingo Water and Sewerage Corporation)—To improve the organization of the technical and administrative units of the Santo Domingo Water and Sewerage Corporation.

Ecuador

SHS 001 Programme planning and general activities (1975– ) R—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Modernization of rural life (1972–77) PR—To extend health services to rural areas and coordinate them with agricultural, educational and communications services.

SHS 003 Strengthening of the health sector (1973– ) UNDP—To improve the health services and extend them to rural areas by building up first the infrastructure of the Ministry of Public Health and later that of the whole health sector, with emphasis on planning and management and on the use of statistical and epidemiological information.

SHS 004 Management of health services (1971– ) PR—To develop and modernize administrative systems in the health sector and train the necessary staff.

SHS 005 Health planning (1969– ) PR—To develop the infrastructure of the Ministry of Public Health and institute planning, information and control mechanisms with a view to establishing the best possible national health system.

SHS 006 Medical care services (1971; 1973–76) PR PG: Government of Ecuador—To develop medical care services and improve the utilization of services.

SHS 007 Nursing services (1975– ) R—To develop the nursing services required for achieving the goals of the Ten-year Health Plan for the Americas, especially as regards the programmes for communicable disease control, maternal and child health, rural health services and medical care; and to improve the level of nursing care.

SHS 009 (formerly SHS 001) Health services (1953– ) R PG: Government of Ecuador—To provide basic health services to 70% of the population.

SHS 011 Planning and equipping of hospitals and other health facilities (1975–77) PG: Government of Ecuador—To improve and develop 8 key hospitals in the regionalized scheme of services and to define the needs for medical and surgical equipment in accordance with their functions under the national health care system; also to identify their personnel needs and establish the requisite training programmes.

MCH 001 Maternity-centred family planning programme (1975– ) UNFPA PR—To carry out research on fertility and sterility and provide services and information as part of the national maternal and child health and family welfare programme.

The activities under this project between 1972 and 1974 are described in the Annual Report for 1974.1

MCH 004 Mother and child food programme (1975–77) UNDP—To develop and produce a low-cost food mixture of high nutritive value to be made available to mothers and children through primary health centres and other institutions.

NUT 001 Nutrition (1971– ) R—To reduce the incidence of nutritional deficiency diseases by means of integrated health activities coordinated with action in the agricultural and educational fields; and to implement measures for achieving an optimal nutritional level in the population.

HED 001 Health education (1972– ) R—To reorganize the health education services to relate them to community needs, as part of the national programme.

HMD 001 Medical education (1965– ) R PR—To improve medical education at the undergraduate and postgraduate levels and carry out programmes of continuing education.

HMD 002 Nursing education (1957– ) PR—To strengthen the teaching in the schools of nursing and expand inservice training for nurses and nursing auxiliaries.

HMD 003 Sanitary engineering education (1965– ) PR—To strengthen the teaching of sanitary engineering in the universities, provide short intensive courses in specific sanitary engineering subjects, and train technical and auxiliary personnel working on environmental sanitation programmes.

HMD 004 Dental education (1963– ) R—To strengthen the teaching of dentistry at the undergraduate and postgraduate levels and provide continuing education for practising dentists.

ESD 001 Communicable disease control (1967– ) R PR—To organize programmes for the surveillance and control of communicable diseases.

MPD 001 Malaria eradication programme (1956– ) PR PG: Government of Ecuador

VPH 001 National veterinary laboratories (1973–77) UNDP—To improve and expand the national veterinary laboratory system and carry out research in support of the zoonoses control programme.

VPH 002 Veterinary medical education (1971– ) R—To improve veterinary medical education and adapt it to the conditions in and requirements of the country.

VPH 003 Zoonoses control (1975–76) R—To develop the veterinary medical services for the control and eradication of zoonoses.


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1 WHO Official Records No. 221, 1975, p. 221.
OCD 001 Goitre prevention (1975- ) PR—To complete the longitudinal study on endemic goitre and cretinism and their control by means of parenteral administration of iodized oil in the communities of Tocachi and La Esperanza. The work carried out between 1966 and 1974 is described (under project NUT 002) in the Annual Report for 1974.1

LAB 001 National Institute of Health (1952- ) PR—To strengthen the Institute and extend the health laboratory services.

BSM 001 Engineering and environmental sciences (1968- ) R—To improve national, regional and local programmes for environmental sanitation, water supply and sewerage.

BSM 002 Development of the Guayas River basin (1975- ) PR—To extend the health service coverage of the inhabitants of the Guayas River basin and carry out sanitation works and activities.

SES 001 Sewerage administration, Guayaquil (1972- ) PW—To develop the Guayaquil Municipal Sewer Company and train its staff, so as to facilitate the construction of a sewerage system for the city.

SES 002 Institute of Hydraulic Resources (1973-77) PR—To investigate water quality as part of a comprehensive study of the development of watersheds, including the Guayas River basin.

SES 003 Training of staff of the Ecuadorean Institute of Sanitary Works (1974- ) PW(Ecuadorean Institute of Sanitary Works)—To provide training to the staff of the Institute in order to improve its management and services.

SES 004 Institutional development, Ecuadorean Institute of Sanitary Works (1974- ) PW—To develop the Ecuadorean Institute of Sanitary Works for the efficient performance of its work in urban and rural water supply and sewerage, solid wastes disposal, pollution control, food control, and hospital construction.

El Salvador

SHS 001 Programme planning and general activities (1975-76) PR UNICEF (FAO) (UNESCO)—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Nursing services (1972-76) PR—To develop nursing services and improve nursing education programmes.

SHS 003 Management of health services (1973- ) PR—To improve the administration of health services under a programme for increasing their productivity.

SHS 004 Medical care services (1970-76) R PR—To improve the organization and administration of hospitals under a system of regionalization aimed at the integration of preventive and curative care; and to train personnel.

SHS 006 Laboratory services (1970-77) PR—To plan and organize a national system of laboratories integrated with health agencies, on the basis of regionalization and adaptation of public health laboratories.

1 WHO Official Records, No. 221, 1975, p. 221.

SHS 007 (formerly SHS 001) Health services (1963-76) R—To develop the basic health services.

HMD 001 Medical education (1965-76) PR—To improve the organization of the School of Medicine and its faculty and teaching activities; and to increase the use of practical instruction in preventive medicine and public health.

HMD 002 Sanitary engineering education (1965- ) PR—To strengthen the teaching of sanitary engineering at the University of El Salvador and improve the preparation of professional and auxiliary personnel engaged in environmental sanitation programmes.

ESD 001 Epidemiology (1972- ) R—To reduce morbidity and mortality caused by communicable diseases preventable by vaccination and to implement a national tuberculosis control programme.

MPD 001 Malaria eradication programme (1955-78) R PR

MPD 002 Research on the epidemiology of malaria in problem areas (1967-76) R PR—To investigate possible methods of interrupting the transmission of malaria in areas where technical problems have been encountered.

VPH 001 Zoonoses control (1974-77) R—To develop the infrastructure of the animal health services of the Ministry of Agriculture and of the veterinary public health services of the Ministry of Public Health and Social Welfare, in order to coordinate programmes for the control or eradication of the most prevalent zoonoses; to carry out research as needed; and to train professional and auxiliary personnel.

RAD 001 Radiation protection (1975- ) PR—To install a prototype simplified X-ray apparatus, battery operated, in order to study the possibilities of using this type of apparatus in rural areas.

BSM 001 Engineering and environmental sciences (1971- ) UNDP—To coordinate and plan sanitation work, improve sanitation services, and protect natural resources against pollution.

BSM 002 Water supply and sewerage (1961- ) PR—To plan and develop national programmes of water supply and sewerage systems for urban and rural areas.

CEP 001 Air pollution (1970- ) PR—To monitor and control air pollution.

French Antilles and Guiana

HMD 009 Fellowships PR

MPD 001 Malaria eradication programme (1963- ) PR

MPD 002 Parasitic diseases (1974- ) PR—To control schistosomiasis, principally through measures to eliminate the vector snail.

LAB 001 Laboratory services (1967- ) PR—To develop the virus research laboratory of the Pasteur Institute in Cayenne, which is carrying out research on the transmission, reservoirs and epidemiology of virus diseases in the rain forest of French Guiana.

Grenada

SHS 001 Health services (1974- ) PR—To improve the health care delivery system.
Grenada (continued)

SHS 002 Hospital administration (1974–76) UNDP—To improve the administration of medical care facilities and train the necessary staff.

BSM 001 Engineering and environmental sciences (1972–75) UNDP—To develop a sewage disposal system for the Grand’ Anse-Morne Rouge beach area of St George. Provided—a sanitary engineer, fellowships, and supplies and equipment.

Detailed technical economic and feasibility studies and preliminary designs were completed and will be used by the Government of Grenada for the financing of final design plans and construction of the sewerage system.

Guatemala

SHS 001 Programme planning and general activities (1975– )
PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Nursing services (1975– )
R—To define the system of nursing required to attain the goals of the health programme, and to develop the necessary nursing services.

SHS 003 Medical care services (1968– )
PR—To strengthen the programmes of medical care.

SHS 007 (formerly SHS 001) Health services (1954– )
R—To improve the organization of the health services and develop them in accordance with the national health plan.

HMD 001 Medical education (1966– )
PR—To improve the training of medical teachers and revise the curricula of schools of medicine under a 10-year plan, placing suitable emphasis on the social approach to medical education.

HMD 002 Sanitary engineering education (1967– )
PR VD—To improve teaching and research, and organize a programme of continuing education, at the Regional School of Sanitary Engineering for Central America and Panama, University of San Carlos.

HMD 003 Dental education (1969– )
PR—To strengthen dental education through the training of teaching staff, the reorganization of the school of dentistry, and the orientation of teaching towards a knowledge of health problems and the factors influencing them.

ESD 001 Communicable disease control (1973– )
R—To improve the surveillance and control of communicable diseases.

MPD 001 Malaria eradication programme (1955–78)
R PR

VPH 001 Veterinary medical education (1962–77)
PR—To strengthen training in veterinary medicine, particularly as regards the preventive and public health aspects.

VPH 002 Rabies vaccine (1972– )
PR—To reorganize and improve the Institute of Biology with a view to making it the supply centre for rabies vaccine for human and animal use in Central America and Panama.

VPH 003 VIII Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control, Guatemala City (16-19 April 1975)
PG: Government of Guatemala—A meeting of Ministers of Agriculture at which resolutions were adopted on a number of subjects, including mass communication for the control and eradication of livestock diseases in Central America and Panama, technical assistance for the production of small animal species, leptospirosis, laboratory facilities for the diagnosis of vesicular diseases in Central America and Panama, tick control in relation to health and animal production, control of equine encephalitis, and an integrated inter-American network of animal pathology diagnostic laboratories. Provided—meeting costs.

BSM 001 Engineering and environmental sciences (1969–)
PR—To develop water supply and environmental sanitation programmes in urban and rural areas and to train personnel.

CEP 001 Air pollution (1971–)
PR—To install and maintain air sampling stations for determining the levels of air pollution in Guatemala City.

CEP 002 Radiation protection (1974-76)
PR—To develop a national radiation health programme, including a personnel radiation dosimetry monitoring service, the calibration of radiation therapy machines, and the maintenance and repair of radiological equipment.

FSP 001 Unified food control laboratory (1974-77)
PR PG: Government of Guatemala—To develop, in the Institute of Nutrition of Central America and Panama, a food reference laboratory to arbitrate between and cooperate with the national food control laboratories of the countries of the Central American Common Market.

DHS 001 Health statistics (1972–)
PR—To improve the health statistics system and train the necessary personnel.

Guyana

SHS 001 Programme planning and general activities (1975–)
R PR UNICEF—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Nursing services (1975–)
UNDP PR—To establish a dental health unit, expand dental services through the provision of equipment and materials, train auxiliary dental staff and promote dental health by means of educational and preventive measures.

SHS 003 Medical care services (1967–)
PR—To improve the organization of the health services and develop them in accordance with the national health plan.

HMD 001 Medical education (1966–)
PR—To improve the training of medical teachers and revise the curricula of schools of medicine under a 10-year plan, placing suitable emphasis on the social approach to medical education.

HMD 002 Sanitary engineering education (1967–)
PR VD—To improve teaching and research, and organize a programme of continuing education, at the Regional School of Sanitary Engineering for Central America and Panama, University of San Carlos.

HMD 003 Dental education (1969–)
PR—To strengthen dental education through the training of teaching staff, the reorganization of the school of dentistry, and the orientation of teaching towards a knowledge of health problems and the factors influencing them.

ESD 001 Communicable disease control (1973–)
R—To improve the surveillance and control of communicable diseases.

MPD 001 Malaria eradication programme (1955–78)
R PR

VPH 001 Veterinary medical education (1962–77)
PR—To strengthen training in veterinary medicine, particularly as regards the preventive and public health aspects.

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BSM 001 Engineering and environmental sciences (1969–)
PR—To develop water supply and environmental sanitation programmes in urban and rural areas and to train personnel.

CEP 001 Air pollution (1971–)
PR—To install and maintain air sampling stations for determining the levels of air pollution in Guatemala City.

CEP 002 Radiation protection (1974-76)
PR—To develop a national radiation health programme, including a personnel radiation dosimetry monitoring service, the calibration of radiation therapy machines, and the maintenance and repair of radiological equipment.

FSP 001 Unified food control laboratory (1974-77)
PR PG: Government of Guatemala—To develop, in the Institute of Nutrition of Central America and Panama, a food reference laboratory to arbitrate between and cooperate with the national food control laboratories of the countries of the Central American Common Market.

DHS 001 Health statistics (1972–)
PR—To improve the health statistics system and train the necessary personnel.

Guyana

SHS 001 Programme planning and general activities (1975–)
R PR UNICEF—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Nursing services (1975–)
UNDP PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Medical care services (1967–)
PR—To improve the organization of the health services and develop them in accordance with the national health plan.

HMD 001 Medical education (1966–)
PR—To improve the training of medical teachers and revise the curricula of schools of medicine under a 10-year plan, placing suitable emphasis on the social approach to medical education.

HMD 002 Sanitary engineering education (1967–)
PR VD—To improve teaching and research, and organize a programme of continuing education, at the Regional School of Sanitary Engineering for Central America and Panama, University of San Carlos.

HMD 003 Dental education (1969–)
PR—To strengthen dental education through the training of teaching staff, the reorganization of the school of dentistry, and the orientation of teaching towards a knowledge of health problems and the factors influencing them.

ESD 001 Communicable disease control (1973–)
R—To improve the surveillance and control of communicable diseases.

MPD 001 Malaria eradication programme (1955–78)
R PR

VPH 001 Veterinary medical education (1962–77)
PR—To improve the utilization of the resources available for the health services.

VPH 002 Rabies vaccine (1972–)
PR—To reorganize and improve the Institute of Biology with a view to making it the supply centre for rabies vaccine for human and animal use in Central America and Panama.

VPH 003 VIII Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control, Guatemala City (16-19 April 1975)
PG: Government of Guatemala—A meeting of Ministers of Agriculture at which resolutions were adopted on a number of subjects, including mass communication for the control and eradication of livestock diseases in Central America and Panama, technical assistance for the production of small animal species, leptospirosis, laboratory facilities for the diagnosis of vesicular diseases in Central America and Panama, tick control in relation to health and animal production, control of equine encephalitis, and an integrated inter-American network of animal pathology diagnostic laboratories. Provided—meeting costs.

BSM 001 Engineering and environmental sciences (1969–)
PR—To develop water supply and environmental sanitation programmes in urban and rural areas and to train personnel.

CEP 001 Air pollution (1971–)
PR—To install and maintain air sampling stations for determining the levels of air pollution in Guatemala City.

CEP 002 Radiation protection (1974-76)
PR—To develop a national radiation health programme, including a personnel radiation dosimetry monitoring service, the calibration of radiation therapy machines, and the maintenance and repair of radiological equipment.

FSP 001 Unified food control laboratory (1974-77)
PR PG: Government of Guatemala—To develop, in the Institute of Nutrition of Central America and Panama, a food reference laboratory to arbitrate between and cooperate with the national food control laboratories of the countries of the Central American Common Market.

DHS 001 Health statistics (1972–)
PR—To improve the health statistics system and train the necessary personnel.
BSM 001 Development of potable water supply, sanitary sewerage and storm drainage (1972-76) UNDP—To carry out a sector study on water supply and sewerage, including technical and economic feasibility studies for water supply, sewerage and storm drainage, in Greater Georgetown, Linden and New Amsterdam; to improve the management and administration of the Guyana water authority; and to train personnel.

BSM 002 Water supplies (1960- ) PR (Metropolitan Water Authority)—To improve the water supply system of the metropolitan area of Port-au-Prince and the systems of other urban and rural areas.

Honduras

SHS 001 Programme planning and general activities (1975- ) R PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Public health services (1972-77) R UNDP UNICEF—To develop the district of Les Cayes as an experimental area for the preparation of a system of public health services suitable for the whole country.

SHS 003 Nursing services (1975- ) PR—To improve the nursing services.

Haiti

SHS 004 Medical care services (1965- ) R PR—To improve the medical care services, including those of the social security institutions.

HMS 005 Hospital planning and administration (1973-76) PG: Inter-American Development Bank; Government of Honduras—To plan and construct the Tegucigalpa Teaching Hospital and establish an administrative structure to enable educational activities and medical care services to be integrated for the provision of hospital care; and to train professional, technical and auxiliary health personnel.

SHS 008 (formerly SHS 004) Health services (1966- ) R PR—To develop the health infrastructure in the health districts of Les Cayes, Petit-Goave and Cap Haitien, train health manpower, and improve the utilization of facilities of the State University Hospital.

HMD 001 Medical education (1968- ) PR—To improve the physical facilities, the educational programme, and the system of examinations, of the faculty of medicine.

HMS 003 Medical textbooks and teaching materials (1975- ) PR—To raise the level of medical education by providing suitable low-cost textbooks to students, and to establish a revolving fund to ensure continuity of the programme.

MPD 001 Malaria eradication programme (1961- ) PR

VPH 001 Veterinary public health (1973- ) PR—To establish a veterinary section that, in conjunction with the Ministry of Public Health, will be able to determine the extent of the zoonoses problems and draw up control procedures.

BSM 001 Engineering and environmental sciences (1971- ) R PR—To construct wells and install latrines in isolated rural communities.

BSM 002 Water supplies (1960- ) PR (Metropolitan Water Authority)—To improve the water supply system of the metropolitan area of Port-au-Prince and the systems of other urban and rural areas.
Honduras (continued)

BSM 002 Water supply and sewerage (1960–78) R PW—To improve and expand urban and rural water and sewerage services.

BSM 003 Water supply and sewerage, San Pedro Sula (1974–75) PW (San Pedro Sula Municipal Corporation)—To develop the water supply and sewerage services of San Pedro Sula through an administratively autonomous water agency.

BSM 004 Water supply and sewerage, San Pedro Sula (administrative aspects) (1975–77) PW (San Pedro Sula Municipal Corporation)—To develop and improve the administration of the San Pedro Sula water supply and sewerage services.

BSM 005 Water supply development (1975–) PW (National Water and Sewerage Service)—To plan and develop a national water supply and sewerage programme for urban and rural areas.

Jamaica

SHS 001 Programme planning and general activities (1975–) R PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Rehabilitation (1972–) R—To establish, at the University of the West Indies, a centre for training physical therapists for the part of the Caribbean area where English is spoken.

SHS 004 Administrative methods and practices in public health (1975–) R PR—To improve the organizational structure and the administrative procedures of the health services.

SHS 007 (formerly SHS 001) Health services (1965–) PR—To reorganize the Ministry of Health to facilitate the management of expanded integrated services in urban and rural areas, and to decentralize the hospital services.

SHS 008 Health care facilities maintenance (1975–) UNDP

HMD 001 Sanitary engineering education (1971–) R—To provide short intensive courses in sanitary engineering and environmental sanitation subjects for professional, technical and auxiliary personnel.

ESD 001 Epidemiological surveillance (1975–) PR—To strengthen the epidemiological surveillance of selected diseases.

VPH 002 Animal health (1973–) UNDP—To develop a national animal health and veterinary public health programme with a permanent infrastructure.

VBC 001 Aedes aegypti eradication (1975–) PR

MNH 001 Mental health (1964–) R PR—To decentralize and improve psychiatric care.

BSM 001 Engineering and environmental sciences (1968–) PR—To improve environmental conditions by the establishment of health standards and programming for water supply, sewerage, solid waste disposal, food sanitation, industrial health, and air, water and soil pollution control.

SES 001 Water and sewerage services administration (1973–76) R PW (Canadian International Development Agency) (National Water Authority, Jamaica)—To improve the operation of the National Water Authority and the Water Commission.

FSP 001 Caribbean regional drug testing laboratory (1974–) PR—To establish, in Kingston, a drug testing laboratory for the Caribbean area, able to perform microbiological and pharmacological testing of drugs and thus complementing the area’s existing national laboratories, which test drugs only by chemical procedures.

DHS 001 Biostatistics education (1974–) PR—To establish, at the College of Arts, Science and Technology, Kingston, a national centre for training in health records and statistics that will also serve the needs of other Caribbean islands where English is spoken.

Mexico

SHS 002 Health services, Chiapas (1971–) PR UNICEF (UN Department of Economic and Social Affairs) (FAO) (UNESCO)—To improve the health and nutritional status of vulnerable groups of the population, as part of the overall social and economic development process.

SHS 005 Rehabilitation (1972–) R—To expand and improve the rehabilitation services.

SHS 010 (formerly SHS 001) Health services (1966–) R—To improve the health services and extend them to the rural population and marginal groups in the cities, train technical and auxiliary health personnel, and develop health planning in the context of socioeconomic development planning.

MCH 001 Health and population dynamics (1974–) UNFPA—To extend family planning services to health centres of the Ministry of Health and Welfare.

Work done under this project in 1972 and 1973 is described in the Annual Report for 1974.1

HMD 001 Development of human resources (1973–76) R PR—To develop a programme for the training of health manpower in various professions and at various levels.

HMD 002 Latin American Centre of Educational Technology for Health (1972–78) R PR PH (Kellogg Foundation)—To improve the teaching-learning process in education in the health sciences through the provision of services in educational technology.

HMD 003 Nursing education (1958–78) PR PH (Kellogg Foundation)—To improve nursing education and establish a structure and organization based on uniform criteria for the training of nursing personnel and an overall plan consistent with the country’s requirements and possibilities.

HMD 004 Sanitary engineering education (1961–76) R PR—To strengthen environmental engineering education at the undergraduate and postgraduate levels and to conduct training programmes for staff of official agencies in charge of environmental sanitation programmes.

HMD 006 Educational technology in dentistry (1975–77) PR PH (Kellogg Foundation)—To develop the dental programme of the Centre of Educational Technology for Health; and to produce and make available dental educational materials and information through programmes of the Ministry of Health and Welfare and the Mexican Association of Dental Schools.

HMD 007 Community development and health promotion training (1975–76) UNDP/UN—To raise the health level of the rural population by making optimum use of the human, technical and financial resources available for rural development, and to promote the participation of the communities in their own development plans.

MPD 001 Malaria eradication programme (1956– ) R PR

VPH 001 Zoonoses control (1966; 1970–77) R—To plan and implement programmes for the control of zoonoses, especially brucellosis, rabies and bovine tuberculosis.

VPH 002 Rabies control, Mexico/United States border (1966– ) PR PG: US Public Health Service Center for Disease Control

VPH 003 Veterinary medical education (1969– ) R—To develop the teaching of preventive medicine and public health in the schools of veterinary medicine.

DNH 001 Human and material resources in dentistry, University of Yucatán (1975– ) PH (University of Yucatán)—To provide educational materials and equipment for the Faculty of Dentistry of the University of Yucatán.

IMM 001 Immunology research and training centre (1968–78) PR—To develop the centre, which carries out research, trains personnel, publishes scientific documents, and coordinates the activities of the various laboratories participating in the country’s immunology programme.

ISB 001 Production of oral poliomyelitis vaccine (1968– ) PR—To increase the production of live poliomyelitis vaccine at the National Institute of Virology to meet the needs of the Latin American countries.

ISB 002 National health laboratories (1970–78) UNDP—To modernize the national health laboratories responsible for the production of vaccines and sera, control of food and drugs, diagnosis of infectious diseases, training of personnel and research into public health problems.

BSM 001 Improvement of the environment (1973–77) UNDP—To coordinate programmes for the improvement of the environment and for the prevention and control of contamination.

BSM 002 Water supply and sewerage (1960–77) R PR—To provide water supply and sewerage services to 80% of the urban population, excluding the Federal District, and to 35% of the rural population.

CEP 001 Control of environmental pollution (1972–77) PR—To control air, water and soil pollution, and to train the necessary personnel.

Netherlands Antilles

HMD 099 Fellowships R

VBC 001 Aedes aegypti eradication (1969– ) PR

Nicaragua

SHS 001 Programme planning and general activities (1975– ) R—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Emergency relief and rehabilitation services (1975– ) PG: Governments of Guinea, Thailand and United Republic of Cameroon—To continue the rehabilitation of the health services of Managua that were destroyed by the 1972 earthquake.

The work done under this project in 1973 and 1974 is described in the Annual Report for 1974.1

SHS 003 Medical care services (1972– ) R—To improve and adjust the administrative structures of the medical care service system, establish programmes for the regionalization and development of hospital services, formulate a hospital maintenance plan, and train the necessary personnel.

SHS 004 Rehabilitation of hospitals (1974–76) UNDP—To organize hospital administration and set up a maintenance and equipment department during the phase of reconstruction of hospital services in Managua.

SHS 005 Nursing services (1975– ) R—To develop the nursing services required for the improvement and extension of the health care delivery system.

SHS 009 (formerly SHS 001) Health services (1963– ) R—To strengthen the institutions of the health sector, develop and evaluate their services, and train health personnel.

NUT 001 Nutrition (1972– )—To plan and organize training in nutrition at the national level.

HMD 001 Medical education (1965–76) R—To strengthen medical education by improving the training of teachers of basic medical sciences and of preventive and social medicine.


HMD 003 Dental education (1966– ) R—To improve the training of dentists to equip them for more effective participation in public health programmes, and to promote the training of dental auxiliaries.

MPD 001 Malaria eradication programme (1957–78) R PR

LAB 001 (formerly SHS 008) Laboratory services (1967– ) R—To improve and expand the central, regional and local laboratory services of the Ministry of Public Health.

BSM 001 Water supply and sewerage (1962– ) R—To improve and extend water supply and sewerage services.

BSM 002 Engineering and environmental sciences (1974–76) UNDP—To continue basic rural sanitation programmes started after the 1972 Managua earthquake, which caused the displacement to rural areas of large numbers of the affected population.

BSM 003 Environmental pollution (1975– ) PR—To initiate measurement of at least 3 of the commoner air pollutants through the installation and maintenance of air sampling stations at Managua as a part of the Pan American air pollution sampling network.

SES 003 Institutional development, National Water Supply and Sewerage Department (DENACAL) (1974– ) PW (DENACAL)—To improve further the organization and administration of the National Water Supply and Sewerage Department.

Panama

SHS 001 Programme planning and general activities (1975–) PR
R UNICEF (FAO) (UNESCO) — To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Health planning (1972–) UNDP — To improve the national health planning system by coordinating the programmes of health institutions under a national health plan integrated into the overall socioeconomic development plan; and to train personnel.

SHS 004 Medical care services (1974–) PR — To improve and extend medical care services, particularly in rural and suburban areas.

SHS 007 (formerly SHS 001) Health services (1965–) R UNICEF (FAO) (UNESCO) — To strengthen and extend the health services and improve their administration.

MCH 002 Maternal and child health (1971–) R — To develop integrated maternal and child health and family welfare work within the context of the national health plan.

HMD 002 Nursing education (1966–) R — To improve basic nursing education, establish postbasic and postgraduate courses in nursing specialties and prepare nurses for teaching posts.

HMD 003 Sanitary engineering education (1965–78) PR (National Water and Sewerage Institute) — To improve the teaching of sanitary engineering at the University of Panama and organize short intensive courses in sanitary engineering subjects.

HMD 004 Dental education (1966–) R — To improve the teaching at the school of dentistry of the University of Panama, especially as regards the preventive and social aspects, and to train auxiliary dental personnel.

ESD 001 Epidemiology (1973–) UNDP — To organize an epidemiological surveillance system under the malaria eradication programme.

MPD 001 Malaria eradication programme (1956–) R PR
VPH 001 Foot-and-mouth disease control (1974–) PR — To keep the country free from foot-and-mouth disease.

VBC 001 Aedes aegypti eradication (1969–) PR
LAB 001 Laboratory services (1970–) R PR — To improve and expand the laboratory services of the Ministry of Public Health.

BSM 001 Engineering and environmental sciences (1970–) PR — To strengthen the technical and administrative structure of the Department of Sanitary Engineering of the Ministry of Public Health, to plan and develop environmental sanitation programmes, and to train sanitation personnel.

BSM 002 Water supply and sewerage (1960–73) PR PW (National Water and Sewerage Institute) — To improve the operating capacity of the water supply agency and implement national programmes for the construction of water supply and sewerage systems.

Paraguay

SHS 001 Programme planning and general activities (1975–) PR — To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Health services in developing areas (1972–) PR — To organize a programme of minimum rural health services, provided under a regional medical care system, to permit coverage of 80% of the rural population within 10 years.

SHS 003 Medical care services (1970–) PR — To develop the medical care services and improve their administration; and to train staff.

SHS 006 (formerly SHS 001) Health services (1955–) PR — To plan health services at the national level and develop the health service infrastructure to permit coverage of 80% of the population by 1980.

MCH 001 Health and population dynamics (1971–) R — To reduce morbidity and mortality among mothers and children.

NUT 001 Nutrition (1960–66; 1971–) R — To strengthen nutrition programmes, particularly for protection of the most vulnerable population groups, through expansion of supplementary feeding and nutrition education and training of personnel; and to coordinate the nutrition work of the health, education and extension services.

HMD 001 Medical education (1964–) PR — To strengthen medical education by promoting teaching programmes in preventive and social medicine at the undergraduate and postgraduate levels and improving teaching methods.

HMD 004 Dental education (1966–) PR — To strengthen the teaching at the dental school of the National University, Asunción, particularly as regards the integration of preventive and social dentistry into basic and clinical courses, and to develop field training programmes for dental students.

HMD 005 Development of human resources (1974–) PR — To define objectives, methodology and procedures for a survey of human resources as a basis for planning the training of health manpower according to the country’s requirements.

MPD 001 Malaria eradication programme (1957–78) PR

CAN 001 Chronic diseases: cancer (1974–) PR — To establish a register of tumoral pathology.

OCD 001 Study of diseases of unknown origin (1974–) PR — To carry out investigations to discover the cause of a disease of undetermined origin, known as “necrotizing acute enteritis”.

MNH 001 Mental health (1972–) R — To determine the prevalence of mental illness, formulate a mental health policy, and set up the organization for its implementation, coordinating the activities of the institutions working in this field.

BSM 001 Engineering and environmental sciences (1969–76) UNDP PR — To develop environmental sanitation programmes, including programmes for water supply and sewerage, industrial hygiene, waste disposal, housing, and food hygiene.
DHS 001 Health statistics (1971–) PR—To improve the coverage and quality of vital and health statistics and train statistical personnel.

Peru

SHS 001 Programme planning and general activities (1975–) R—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Health services, north-western region (1970–) R UNDP PR UNICEF—To develop and extend health services in the north-western region.

SHS 003 Development of health services, eastern region (1973–) UNDP PR—To provide basic health services and carry out epidemiological surveillance of communicable diseases in the jungle area (Loreto, San Martín and part of Huánuco Departments).

SHS 004 Medical care services (1970–77) PR—To improve the quality of medical care and the organization of services through the establishment of a progressive care system, the increase of installed capacity and the training of staff.

SHS 005 Hospital maintenance and engineering (1974–) PR—To construct, remodel, equip and maintain health institutions, and to establish a national centre for training the required professional, technical and auxiliary personnel.

SHS 008 (formerly SHS 001) Health services (1956–) R PR—To strengthen and extend the health services in accordance with the national health plan.

HMD 001 School of public health (1963–76) R PR—To strengthen the School of Public Health, which trains professional and middle-grade technical personnel and health auxiliaries for the public health services.

HMD 002 Regionalization of health services and of education of health personnel (1972–76) PR—To use regional installed capacity to improve the training of health personnel at the professional, intermediate and auxiliary levels; to provide continuous education and inservice training; and to improve the use of training and service resources for health care.

HMD 003 Medical education (1964–) PR—To strengthen the training of physicians at the undergraduate and postgraduate levels, improve the training of teachers, and introduce curriculum changes to place more emphasis on the preventive and social aspects of medical practice.

HMD 005 Nursing education (1959–) R—To adjust the nursing education programme to the country's new educational structure.

HMD 006 Training of nursing auxiliaries (1974–) PR—To train a sufficient number of auxiliary nursing personnel of adequate quality to meet the health needs of the country.

HMD 007 Sanitary engineering education (1964–76) PR—To strengthen the teaching of sanitary engineering and public health at the National University of Engineering and the School of Public Health; and to provide advanced training for staff of environmental sanitation programmes.

HMD 008 Dental education (1969–) PR PH (Kellogg Foundation)—To review the curricula of the schools of dentistry and strengthen the teaching programmes, especially as regards the social and preventive aspects of dentistry.

ESD 001 Communicable diseases (1974–) R—To carry out communicable disease control programmes and develop the epidemiological surveillance services.

MPD 001 Malaria eradication programme (1957–) PR

MPD 002 Chagas' disease (1970–77)—To carry out surveys to determine the extent of infection with Chagas' disease and to undertake clinical and epidemiological studies and vector control measures.

SME 001 Smallpox eradication (1967–74) R—To protect the country against smallpox by means of systematic vaccination and epidemiological surveillance carried out by the health services. Provided—advisory services by staff of other projects, and supplies.

By 1974 nearly the whole country had been covered by mass vaccination operations, and the level of immunity attained was high enough to maintain the country free from smallpox. In 1974 field operations were extended to areas not previously reached; over 606 000 persons were revaccinated and over 218 000 persons vaccinated for the first time. Since 1968 production of freeze-dried smallpox vaccine has been about 5 million doses a year, which is sufficient to meet domestic demands and supply other countries in the area.

Maintenance activities are being carried out under the health services project Peru SHS 008.


VPH 005 Veterinary medical education (1965–) R—To strengthen veterinary education and adjust the university curricula to the country's requirements.

VBC 001 Plague control (1963–) R—To carry out epidemiological studies of plague and implement a control programme.

CAN 001 Cancer control (1971–) PR—To reduce morbidity and mortality from cancer of the uterine cervix by enlisting the cooperation of the greatest possible number of establishments in work related to its prevention, study and diagnosis; and to train cytotecnicians.

RAD 001 Radiation protection (1968–) R—To establish a national radiation protection programme.

LAB 001 Laboratory services (1973–) PR—To improve and extend laboratory services, developing diagnostic and research work and expanding the production and control of biological products; and to train the necessary personnel.

LAB 002 National health laboratories (1975–77) PG: Government of Peru—To train personnel of the National Institutes of Health in fields related to the Institutes' integrated development.

BSM 001 Engineering and environmental sciences (1968–) PR—To plan and carry out environmental sanitation work including the establishment and improvement of water and sewerage systems, waste disposal, air and water pollution control, housing and urbanization, food sanitation, and training of engineers and auxiliary personnel.

BSM 002 Water supply and sewerage (1960–) R—To extend water supply and sewerage facilities.
Peru (continued)

CEP 001 Air pollution (1967– ) PR—To determine air pollution levels, plan control measures, and train professional and auxiliary personnel for their implementation.


SES 001 Water and sewerage services administration (1972– ) PW (Sanitary Works Department)—To improve the administrative and technical aspects of the national and municipal water and sewerage services.

HSM 001 Development of health statistics for rural areas (1975– ) PR—To design and test methodologies for obtaining rapidly reliable information on vital and health statistics in rural areas.

DHS 001 Health statistics (1974– ) R—To extend the coverage of the health statistics systems, improve their reliability, and accelerate the process of collecting, analysing and publishing the information.

Surinam

SHS 001 Programme planning and general activities (1975– ) PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Management of health services (1974– ) R—To strengthen the administrative structure at the central level of the Ministry of Health.

SHS 003 Nursing services (1974– ) R—To strengthen the organization and administration of nursing schools at the auxiliary, professional and postbasic levels; to adapt curricula to the needs of the health sector and the sociocultural situation; and to train nurse tutors.

SHS 006 (formerly SHS 001) Health services (1956– ) PR—To improve and extend the health services in accordance with the national health plan, improve their administration, and train health personnel.

HMD 001 Medical education (1967– ) PR—To strengthen and improve medical education at the University of Surinam, Paramaribo.

MPD 001 Malaria eradication programme (1957–79) R

MPD 002 Schistosomiasis (1973–76) R—To control schistosomiasis in all areas where the disease is prevalent.

VBC 001 Aedes aegypti eradication (1969– ) PR PG: Government of Surinam

BSM 001 Engineering and environmental sciences (1971– ) PR—To plan and implement a general environmental sanitation programme and a rural water supply programme.

Trinidad and Tobago

SHS 001 Programme planning and general activities (1975– ) R PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Management of health services (1974– ) R PR—To promote and support necessary changes in the management of the health service delivery system.

SHS 006 (formerly SHS 001) Health services (1968– ) R—To improve the planning and organization of the health services.

SHS 007 Hospital administration (1974–75) UNDP—Two short-term fellowships were awarded in support of the hospital administration programme.

SHS 008 Health and maintenance services (1975– ) PG: Government of Trinidad and Tobago; Inter-American Development Bank—To improve the management of medical records, train registered nurses and set up a programme of maintenance of health services.

ESD 001 Epidemiology (1969– )—To organize and develop programmes of epidemiological surveillance of diseases and to train staff in communicable disease control measures.

VPH 001 Veterinary public health (1971– ) R—To develop veterinary public health work as part of the programme of the Ministry of Health, and train the necessary professional and auxiliary staff.

VPH 003 Development of curriculum for animal health assistants (1974–77) UNDP—To develop a curriculum for the training of animal health assistants in a course to be given at the Eastern Caribbean Institute of Agriculture and Forestry.

DNH 001 Training school for dental nurses (1974–78) UNDP—To establish a government dental service with a staff of well-trained dental nurses, particularly for providing dental care for schoolchildren.

BSM 001 Engineering and environmental sciences (1969–76) PR—To reorganize the environmental health services of the Ministry of Health and train professional and auxiliary personnel for environmental sanitation work.

BSM 002 Instruction and training in water supplies and sewerage (1974–77) UNDP—To establish a programme for training certain staff of the Water and Sewerage Authority to act as instructors for the training, on a continuing basis, of other employees of the Authority.

DHS 001 Health statistics (1969– ) R—To establish, in the Ministry of Health, a health statistics system to provide data for use in planning, evaluating and operating the health services.

United States of America

SHS 001 Consultants in specialized fields (1958– ) R PR—To provide consultant services on specialized problems in public health.

SHS 002 Public health services, United States/Mexico border (1952– ) R PR—To cooperate in the joint study and planning of health activities along the United States/Mexico border; promote the exchange of epidemiological information between the two countries; and carry out the duties of secretariat of the United States/Mexico Border Public Health Association.
To develop and train staff for the health services.

Hospital services and train personnel.

UNDP - To reorganize and improve the medical care and nursing problems, improve nursing services, and train personnel.

SHS 003 National coordination mechanisms in matters related to inter-programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 004 Medical care and hospital administration (1966- ) UNDP—To identify nursing problems, improve nursing services, and train personnel.

Nursing services (1972- ) UNDP—To identify nursing problems, improve nursing services, and train personnel.

SHS 007 (formerly SHS 001) Health services (1955- ) R PR—To develop and train staff for the health services.

HMD 009 Fellowships R PR

Uruguay

SHS 001 Programme planning and general activities (1975- ) R PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 003 Nursing services (1972- ) R UNDP—To identify nursing problems, improve nursing services, and train personnel.

SHS 004 Medical care and hospital administration (1966- ) UNDP—To reorganize and improve the medical care and hospital services and train personnel.

SHS 007 (formerly SHS 001) Health services (1955- ) R PR—To develop and train staff for the health services.

SHS 008 Maintenance and improvement of health installations (1975- ) PR—To plan and implement a long-term programme for the remodelling, construction and maintenance of health facilities.

MCH 001 Maternal and child health services (1974- ) R PR—To expand and improve health services for mothers and children.

The work done under this project in 1972 and 1973 is described in the Annual Report for 1974. 1

HMD 001 Training of health personnel (1971- ) R PR—To provide training (short courses, seminars and working groups) for staff with technical and administrative responsibilities in the health services.

HMD 002 University of the Republic (1971- ) R—To strengthen the programme of the various schools of the University of the Republic, specifically with regard to the teaching of medicine, veterinary medicine, odontology, chemistry, pharmacy, and engineering.

HMD 003 Sanitary engineering education (1965-78) R—To improve the teaching of sanitary engineering in the regular civil engineering courses and implement a programme of applied research and of short courses for the continuing education of professional sanitary engineering personnel.

ESD 001 Communicable disease control (1972-78) PR—To improve the control of communicable diseases within the regular health programmes, and promote the epidemiological approach to the problems of cardiovascular diseases, tumours, and accidents.

MPD 001 Chagas' disease (1968- ) R—To carry out a programme, based on the systematic spraying of houses with insecticides, for the control of Chagas' disease.

1 WHO Official Records, No. 221, 1975, p. 231.

Venezuela

SHS 001 Programme planning and general activities (1975- ) PR—To strengthen and extend the national health services system, with development of national planning and local programming; to implement and evaluate plans and programmes at the national, regional and local levels; to extend the coverage of the health services, especially in rural areas; and to improve national coordination mechanisms in matters related to international cooperation.

SHS 002 Nursing services (1972- ) PR—To prepare and implement a long-term plan for the delivery of nursing care, including the preparation of the necessary personnel, in accordance with the country's health policy and its socioeconomic situation.

SHS 003 Administrative methods and practices in public health (1972- ) R PR—To improve the administration of the health services and prepare relevant legislation.

SHS 004 Medical care services (1966- ) R—To coordinate the medical care services provided by the hospitals and health centres, extend medical care facilities, and train the necessary personnel.

SHS 005 National system of maintenance and engineering of health care facilities (1972- ) UNDP PG: Government of Venezuela—To develop a national system of engineering and maintenance of hospitals and other health care facilities.

SHS 006 Rehabilitation (1967- ) R—To strengthen and develop rehabilitation services and train personnel, including orthotics and prosthetics technicians.
Venezuela (continued)

SHS 008 (formerly SHS 001)  Health services (1964–76)  R—To improve the administration and organization of the health services and extend their coverage; and to train health personnel.

NUT 001  Nutrition (1965–76)  R—To establish a national food and nutrition policy; to strengthen programmes (supplementary feeding, salt iodization, iron supplementation, and nutrition education) for improving the nutritional status of the population; and to train personnel.

HMD 001  School of public health (1961–76)  R—To develop the school and improve its programmes of study.

HMD 002  Medical education (1958–76)  R—To improve programmes for the teaching of medicine to bring them into line with the country's health needs, improve the administration of the schools of medicine, and develop undergraduate, postgraduate and continuing education programmes.

HMD 003  Nursing education (1973–76)  R—To establish a system for training nurses in line with the general educational system and adapted to the socioeconomic and cultural situation in the country.

HMD 004  Environmental pollution control research centre (1971–76)  UNDP—To establish a comprehensive research programme on protection of the environment and improvement of environmental conditions, and to develop and coordinate human and material resources for the purpose.

HMD 005  Dental education (1966–78)  R—To train auxiliary dental personnel and strengthen the programme for the teaching of dentistry, particularly as regards the preventive and social aspects.

HMD 007  Development of human resources (1974–76)  PR—To strengthen the Division of Human Resources of the Ministry of Health.

MBD 001  Tuberculosis control (1974–76)  PR—To develop a methodology for the operational and technical evaluation of an integrated programme of tuberculosis control, covering immunization, case-finding and treatment.

VPH 001  Veterinary public health (1972–77)  PG: Government of Venezuela—To plan and implement national programmes for the prevention and control of zoonoses and conduct programmes of continuing education for professional veterinary workers.

VPH 002  Venezuelan encephalitis (1971–76)  PR—To carry out epidemiological investigations of Venezuelan encephalitis and develop a stable and effective vaccine.

VPH 004  Veterinary medical education (1966–76)  R—To improve the teaching of veterinary medicine, especially as regards preventive medicine and the basic veterinary sciences.

VPH 005  Regional centre for the production of rabies vaccines (1975–76)  PR—To improve the production and quality of rabies vaccines for human and animal use and establish a reserve of vaccines for release in emergencies.

VBC 001  Aedes aegypti eradication (1958–76)  PR

MNH 001  Occupational therapy and mental health (1973–76)  R—To improve psychiatric services, particularly as regards occupational therapy for mental patients.

RAD 001  Radiation protection (1970–76)  R—To plan and implement a national radiation protection programme.

LAB 001  Laboratory services (1974–76)  PR—To improve the national laboratory services and train personnel.

LAB 002  National Institute of Hygiene (1964–77)  UNDP—To improve the organization and programmes of the Institute.

BSM 001  Engineering and environmental sciences (1964–71; 1975–76)  R—To strengthen and improve the environmental health programmes.

CEP 001  Air pollution (1967–76)  PR—To carry out investigations for the determination of air pollution levels.

SES 001  Water supply and sewerage (1960–76)  PW—To reorganize the National Institute of Sanitary Works.

ICD 001  Latin American Centre for Classification of Diseases (1974–76)  R—To study problems related to medical certification of cause of death, and to provide instruction in the use of the International Classification of Diseases for both morbidity and mortality.

West Indies

SHS 002  Health services, Leeward Islands (1973–76)  R—To establish, in each of the states of the Leeward Islands, an efficient health administration in accordance with the needs of the country.

SHS 005  Medical care and hospital administration (1969–76)  UNDP—To improve the medical care services in order to achieve the highest possible levels of patient care and operational efficiency.

SHS 006  Hospital administration, Antigua (1972–76)  UNDP—To reorganize the administrative structure and management of the Holberton Hospital and train personnel in hospital administration.

SHS 011  Management of health services (1974–76)  R  PR—To promote and support necessary changes in the management of health services in the Caribbean area.

SHS 014  Nursing services (1975–76)  R—To develop nursing services and nursing education programmes in Antigua, Barbados, the British Virgin Islands, Grenada, Montserrat, St Kitts/Nevis and St Lucia.

SHS 017  Health services, Windward Islands (1975–76)  R—To improve the administration and organization of the health services, extend their coverage, and train health personnel.

MCH 002  Family planning programme, St Kitts/Nevis (1971–76)  UNFPA—To develop an integrated maternal and child health and family planning programme.

MCH 003  Family planning programme, Dominica (1972–76)  UNFPA—To provide family planning information and services in hospitals and health centres, as part of a comprehensive maternal and child health programme.

MCH 004  Health and population dynamics, St Vincent (1974–76)  UNFPA—To establish a national family planning programme as part of the maternal and child health services.

NUT 001  Nutrition (1962–76)  R  UNICEF (FAO) (UNESCO)  (University of the West Indies)—To improve the nutritional status of the population of the islands of the eastern Caribbean through applied nutrition programmes, nutrition education programmes and the development of nutrition services.
HMD 001 Training of nursing assistants, Cayman Islands (1971-74) UNDP—To train 30 auxiliary nurses in 3 years, through an annual 9-month inservice programme, to work as members of the health team in both preventive and curative fields. Provided—advisory services by nurses of other projects, teaching supplies and equipment, and local costs.

Assistant was provided in establishing the course, in designing the curriculum, and in reviewing the progress with the 2 local tutors. In all 35 nursing assistants were trained for the Cayman Islands and 1 for the Turks and Caicos Islands.

The project has resulted in a sound foundation being laid for a continuous programme of inservice training for all levels of nursing staff.

HMD 003 Development of nursing manpower, Turks and Caicos Islands (1974-77) UNDP—To provide a continuous inservice education programme for all categories of nursing personnel, as well as fellowships in certain nursing specialties.

VBC 001 Aedes aegypti eradication (1969-70) R—To eradicate Aedes aegypti from Anguilla, Antigua, the British Virgin Islands, the Cayman Islands, Dominica, Grenada, Montserrat, St Kitts/Nevis, St Lucia and St Vincent.

MNH 001 Mental health (1969-71) PR—To plan and develop mental health services.

LAB 001 Caribbean health laboratory services (1975-76) UNDP—To carry out a survey of health laboratory services in the Caribbean area, with a view to the establishment of a regional system of laboratory services that will serve the needs of clinical medicine, epidemiology, and veterinary public health.

BSM 005 Water supply and sewerage (1962-70) UNDP—To improve and extend water supplies in the islands of the eastern Caribbean and improve the administration and operation of the systems.

BSM 008 Water utility management, development and training (1974-76) UNDP—To develop efficient agencies for the financing, planning, construction, operation and maintenance of islandwide water and sanitation systems.

BSM 009 Water administration, plant operation and regulation, Antigua (1975-77) UNDP—To ensure an adequate supply of potable water in Antigua.

BSM 012 Solid wastes, St Lucia (1973; 1975-76) UNDP—To improve the technical and administrative aspects of the collection and disposal of solid wastes in urban areas.

DHS 001 Health statistics (1970-72) PR—To develop health statistics services in the eastern Caribbean islands and train the necessary staff.

Intercountry Programmes

SHS 001 Coordination with foundations (1973-76) PR PH—To strengthen cooperation with foundations, promote contributions from foundations in support of health projects and provide a secretariat for the Pan American Health and Education Foundation.

SHS 002 Coordination of medical research (1962-74) PR—To develop and implement a biomedical research programme in fields directly relevant to health problems of the Region; to promote cooperation among biomedical scientists of different countries in order to make the best possible use of existing resources for research and research training; to strengthen biomedical communications and resources; and to improve the returns from health expenditure through the application of operations research methods to the planning and administration of health programmes.

SHS 004 Operations research (1970-72) PR—To promote the application of operations research, systems analysis and sanitary engineering concepts and methods in health programmes.

SHS 006 Caribbean Health Ministers’ Conference (1970-71) R PR—To assist the countries of the Caribbean area in the establishment of a secretariat for conferences of the Ministers of Health.

SHS 008 PAHO Research grants programme (1973-75) PR—To support individual investigations and research training schemes in fields directly relevant to health problems in the Americas; to develop multinational programmes aimed at the best possible use of existing resources in the Region; and to support cooperative efforts in research and training.

SHS 012 Preparation for emergency situations (1973-74) R PG: Organization of American States—To collaborate with Member governments in the establishment, within their national health services, of emergency measures to cope with natural disasters.

SHS 013 Nursing services, interzone (1968-71) PR—To assist countries in the planning, organization and administration of nursing services, in developing educational programmes for professional and auxiliary nursing and midwifery personnel, and in carrying out research on nursing.

SHS 019 Hospital nursing services (1966-71; 1974-76) R—To improve the quality of nursing care, especially in surgical services.

SHS 020 Seminars on administration of nursing services (1975-76) PR—To strengthen the administration of nursing services, particularly as regards the application of defined standards of nursing care.

SHS 021 Programming for nursing (1971-74) R PR—To assist countries in developing a planning process for nursing consistent with national health and education policies and plans.

SHS 022 Standards for nursing care (1972-75) R PG: Government of Venezuela—To assist the countries of the Region in defining and applying basic standards of nursing care in hospitals and community health services.

SHS 025 Technical Advisory Committee on Nursing (1973-75) R—To formulate guidelines that will assist the development of the nursing component of health programmes.

SHS 026 Systems of nursing (1973-75) R PR—To assist countries of the Region in defining their systems of nursing.

SHS 028 Administrative methods and practices in public health, interzone (1959-75) PR—To assist countries in improving the administrative practices of their national health services.

SHS 034 Health planning, interzone (1961-75) R PR—To collaborate with governments in the establishment, development and strengthening of health planning processes as part of national development plans, in the development of joint Organization/ country programming and health information systems, and in the training of personnel.

SHS 040 Pan American programme for health planning (1968-70) UNDP—To contribute to the establishment and strengthening of health planning processes through training, research and provision of information.
Intercountry Programmes (continued)

SHS 041 Medical care services, interzone (1961–) PR—To assist countries in the improvement of medical care services, particularly as regards coordination of services and hospital administration, and in the solution of general medical care problems.

SHS 047 Hospital planning and administration, interzone (1968–) PR—To assist countries in improving hospital and medical care facilities, in establishing maintenance programmes, and in planning new facilities to meet the increasing demand for services.

SHS 048 Training for medical care and hospital administration, interzone (1967–) PR—To develop the programmes of training in administration of medical care and hospital services at schools of public health, schools of medicine and other institutions in Latin America.

SHS 053 Rehabilitation, interzone (1962–) PR—To advise countries of the Region on problems of medical rehabilitation, and assist in the development of rehabilitation services and in the training of personnel.

SHS 058 Study Group on Rehabilitation of the Blind in Latin America, Washington, DC (24-28 Feb. 1975) R—A discussion was held on the provision of adequate rehabilitation services for the blind and the visually handicapped in Latin America and on the training of personnel for this work. There were 7 participants and an observer from 6 countries of the Region. Provided—the cost of attendance of the participants.

SHS 059 (formerly SHS 042) Medical care services, Zone I (1970–) R—To assist countries and areas in the Zone in improving personal health care services and related medical care facilities.

SHS 060 (formerly SHS 035) Health planning, Zone I (1965–) PR; SHS 061 (formerly SHS 036) Zone II (1971–) R—To assist countries in improving personal health care services and related medical care facilities.

SHS 064 (formerly SHS 003) Special seminars, Zone III (1970–) R—To cooperate with the countries of Central America and with Panama in organizing meetings of Ministers of Health and of the Central American Public Health Council, and other meetings, with a view to strengthening coordination of joint action on health programmes.

SHS 065 (formerly SHS 014) Nursing services, Zone I (1959–) PR; SHS 066 (formerly SHS 015) Zone II (1963–) PR; SHS 067 (formerly SHS 016) Zone III (1963–) PR; SHS 068 (formerly SHS 017) Zone IV (1952–) PR—To assist in the development of nursing services, education and research.

SHS 070 Development of general public health systems (1975–) R—To assist governments in the implementation of specific projects, within national health plans, that are aimed at expanding the coverage or improving the effectiveness and efficiency of existing health systems in a specified area, for a predetermined population group, or in relation to a recognized health problem.

SHS 071 Hospital diagnostic and supporting services (1975–) PR—To improve the organization and stimulate the development of diagnostic and treatment services in hospitals and other health establishments; and to develop the administrative supporting services, particularly of small health units, by training middle-level staff and improving administrative procedures.

SHS 072 (formerly SHS 043) Medical care services, Zone II (1973–) PR; SHS 073 (formerly SHS 044) Zone III (1962–) PR—To assist countries of the Zone in improving personal health care services and related medical care facilities.

SHS 074 (formerly SHS 037) Health planning, Zone III (1966–) PR; SHS 075 (formerly SHS 039) Zone VI (1963–) PR—To assist governments in strengthening their health planning process.

SHS 076 (formerly SHS 029) Administrative methods and practices in public health, Zone I (1968–) PR; SHS 077 (formerly SHS 030) Zone III (1967–) PR; SHS 078 (formerly SHS 031) Zone IV (1971–) PR—To assist in improving the administrative practices of national health services.

SHS 079 (formerly AMRO 3147) Advancement of neurology and treatment of neurological disorders (1974–) PR PH (Hoffmann-La Roche Inc.)—To exert a concerted effort—involving selected centres in Canada, the United States of America, and Latin America—against specific important neurological disorders in Latin America.

SHS 080 (formerly part of SHS 047) Hospital maintenance and engineering (1968–) PR—To assist in improving the operation of existing hospitals, in planning new facilities, and in developing engineering and maintenance systems for health installations.

SHS 081 (formerly AMRO 3716) Financing the health sector (1974–) PR—To assist governments in improving the economic efficiency of the health sector.

SHS 085 Community aid fund (1975–) PH—A fund to receive resources intended for community aid projects, the nature of which depend on the purpose designated by the donor.

SHS 087 Recuperation of resources from waste materials (1975–) PH—To establish, within the Pan American Health and Education Foundation, a fund for utilizing moneys obtained from the silver recovery process.

SHS 088 Pan American Health and Education Foundation, general programme support (1975–) UNFPA PR—To assist governments in developing activities in family health and population dynamics.

MCH 006 Health and population dynamics, interzone (1968–) UNFPA PR—To assist governments in developing activities in family health and population dynamics.

MCH 007 Health and population dynamics, Zone I (1968–) R UNFPA; MCH 009 Zone III (1972–) UNFPA PR; MCH 010 Zone VI (1972–) UNFPA PR—To assist in the development of family planning programmes as part of health services and, in particular, integrated into maternal and child health care activities.

MCH 011 Education and training in health and population dynamics, interzone (1971–) UNFPA—To assist in the training of personnel in health and population dynamics to meet the needs of the programmes in this field.

MCH 016 Latin American Centre for Perinatology and Human Development (1972–78) R PR PH PG; Ford Foundation (various institutions)—To provide support for the Centre, which carries out scientific research on fetal and infant development, offers training for research and teaching in maternal and child health, and provides advisory services on perinatal problems to the countries of the Region.

MCH 017 Maternal and child health development (1974–) PR PH (Kellogg Foundation)—To provide in-service training for all
members of the health team through the use of a network of schools of health sciences and of the health services of selected communities; and to carry out operational and epidemiological studies leading to improved teaching and health care delivery programmes.

MCH 018 Maternal and child health, interzone (1971- ) R—To assist governments in the development of integrated maternal and child health programmes, including fertility regulation activities when requested, and in the progressive extension of such programmes to rural areas.

MCH 020 Work Group on the Role of Nursing/Midwifery in Maternal and Child Health Care in Latin America, Washington, DC (14-24 July 1975) R—To define the role of nursing/midwifery personnel in the extension of coverage of maternal and child health care, and to prepare a guide for use by the countries of Latin America. The meeting was attended by 19 temporary advisers (in nursing, midwifery and medicine) from 11 countries of the Region, a consultant and 4 PAHO staff members.

MCH 021 Nursing/midwifery, interzone (1961- ) PR—To assist countries in the planning, strengthening and extension of the nursing/midwifery component of maternal and child health and family planning programmes, and in training nursing and midwifery personnel.

MCH 022 Refresher courses for graduate midwives, interzone (1974- ) R—To provide 2-month travelling courses for single-purpose midwives in order to complement their preparation in maternal, neonatal and infant health, family health, population dynamics, family planning, health education, nutrition and community participation.

MCH 026 Social paediatrics programme, Central America (1975- ) PG: UNICEF—To extend the coverage and improve the operation of programmes for mothers and children in Central America and Panama, emphasizing the development of continuing education programmes in comprehensive paediatrics in rural areas.

MCH 029 (formerly MCH 008) Health and population dynamics, Zone II (1972- ) PR—To assist in the development of family planning programmes as part of health services and, in particular, integrated into maternal and child health care activities.

MCH 033 Continuing education in administration of family planning programmes (1975- ) UNFPA (University of the West Indies)—To help improve the management of family planning programmes, extend their coverage and improve the quality of the services provided; and to assist regional institutions in developing their capacity for providing training in the administration of family planning programmes and in incorporating such training in their regular programmes.

NUT 001 Nutrition advisory services, interzone (1958- ) R PR—To cooperate with the countries of the Region in preparing and implementing food and nutrition policies and in planning, executing, supervising and evaluating national nutrition programmes, particularly for vulnerable population groups; to train nutrition specialists; to promote food fortification and the production of low-cost foods of high nutritional value; and to promote nutrition research.

NUT 003 Institute of Nutrition of Central America and Panama (1949- ) R PR PA PH PN—To develop the programme of the Institute, which includes advisory services on applied nutrition programmes, training at various levels and research.

NUT 005 Caribbean Food and Nutrition Institute (1963- ) R PR PH PG: Governments of the Commonwealth (Caribbean); Ford Foundation UNICEF (Research Corporation, USA)—To assist the governments of the Caribbean area where English is spoken in improving nutrition and health through the formulation and implementation of food and nutrition policies, the training of personnel, the improvement of nutrition work at the local level, operational research, and the production of educational material on nutrition.

NUT 008 National food and nutrition policies (1975- ) PG: UNICEF—To collaborate with the governments of the Region in the formulation of national food and nutrition policies.

NUT 009 National food and nutrition policies (1972- ) PR—To assist governments, in collaboration with other international agencies, in formulating and implementing food and nutrition policies.

NUT 010 Public health nutrition education and training (1969- ) PR—To assist universities for nutritionists-dietitians, and to assist in the planning and conduct of short courses in nutrition for professional and ancillary workers and in training hospital dietary and food service personnel.

NUT 011 Teaching of nutrition in medical schools (1972- ) R—To assist in developing the teaching of nutrition in schools of medicine and public health.

NUT 013 Surveillance of nutrition status (1975- ) R—To establish guidelines for the collection and interpretation of anthropometric, clinical, biochemical and dietary data as part of national nutritional surveillance systems in each country.

NUT 016 (formerly NUT 002) Nutrition advisory services, Zone I (1961- ) R; NUT 017 (formerly NUT 004) Zone IV (1956- ) R—To assist governments in the planning, implementation and evaluation of national food and nutrition programmes.

HED 001 Health education, interzone (1968-79) PR (International Union for Health Education); HED 002 Caribbean area (1963- ) UNDP PR—To assist governments in developing health education services and in training health personnel in health education and related disciplines.

HED 004 Training of teachers in health education (1970- ) PR—To assist countries of the Region in improving the health education component of the general education programmes and in improving the training of teachers in health education.

HMD 001 Medical education: textbooks and teaching materials, interzone (1967- ) PR—To provide textbooks at a lower cost to medical students; to develop a cooperative arrangement with medical schools in order to ensure the selection of textbooks of high scientific and pedagogical quality; and to establish a revolving fund to ensure continuity of the programme.

HMD 002 Human resources development in public health, interzone (1963- ) R PR—To strengthen the schools of public health in the countries of the Region.

HMD 004 Training of paramedical personnel, Caribbean area (1972- ) UNDP PG: UNICEF—To assist in establishing, in educational institutions of the Caribbean area, regional centres for the training of professional and auxiliary health personnel.

HMD 005 Education in health sciences, interzone (1953- ) R PR—To assist the medical schools in Latin America in the solution of problems, in developing their programmes and in improving teaching methods; and to collaborate in the organization of a regional system for the collection of information relative to the training of health personnel, and in the development of studies of human resources.
Intercountry Programmes (continued)

HMD 009 Teaching of statistics in schools of medicine (1972– )
PR—To assist in improving the statistics teaching programmes in medical schools of the countries of the Region.

HMD 011 Behavioural sciences in the training of health personnel (1965– )
PR—To develop norms, principles, models and materials for teaching the behavioural sciences and for training instructors; to assist schools of health sciences in organizing and implementing teaching programmes in this field; and to collaborate in investigations on the teaching of behavioural sciences as applied to health problems.

HMD 012 Regional Library of Medicine and the Health Sciences (1970–77) R PR PH PG: Government of Brazil; Commonwealth Fund (Kellogg Foundation)—To assist the Regional Library, which was set up at the Paulista School of Medicine, São Paulo, Brazil, with the help of the Organization in 1967 (under project Brazil 6221) and which provides library support for biomedical education, research and practice in Latin America, and trains biomedical librarians at advanced level.

HMD 013 Teaching of social and behavioural sciences (1969–75)
UNDP—To assist in improving teaching and research in the behavioural sciences as applied to the solution of medical problems.

During the course of the project 7 meetings of working groups were held with 52 participants from 5 countries, as well as 21 seminars with a total of 555 participants from 11 countries, and 3 travelling seminars with 11 participants from 6 countries.

Technical assistance was given to health science faculties and postgraduate courses in social medicine in Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Peru, the United States of America, and Venezuela. Teaching models in pharmacy, puericulture and community medicine were developed, and material which served both for research and for teaching was distributed.

The School of Medicine of Rosario and the Association of Faculties of Medicine (Argentina), the Schools of Medicine of Belo Horizonte and Campinas (Brazil), the Ecuadorian Association of Medical Schools, and the Cayetano Heredia University (Peru) were each supplied with a collection of 30 basic books on social sciences, a calculator, a tape recorder and a projector.

HMD 015 Medical education, Caribbean area (1971– ) R—To assist the School of Medicine of the University of the West Indies in strengthening its administration, improving teaching methods and developing postgraduate training programmes.

HMD 017 Nursing education, interzone (1958– ) R PH—To assist countries in improving nursing education programmes.

HMD 020 Nursing education: textbooks, interzone (1971– ) R PT—To improve basic and postbasic nursing and midwifery education through revision of curricula and provision of textbooks at a cost within the reach of students.

HMD 022 Seminars on nursing education (1971– ) R—To establish minimum standards for the development of nursing education programmes at various levels in the countries of Middle and South America.

HMD 023 Training of nursing auxiliaries (1970– ) R—To make a study of the courses for training nursing auxiliaries in the countries of Middle and South America and of the work carried out by the auxiliaries; to stimulate trials of new techniques for training, and assist with programmes for training instructors.

HMD 024 Postbasic courses in nursing (1973– ) R—To adapt postbasic nursing courses in Latin America to regional and local requirements for staff for nursing education and nursing services.

HMD 025 Training of professors, administrators, and specialists in clinical areas (1975– ) PR—To establish a network of regional courses to meet the needs of the Latin American countries, taking advantage of existing resources and helping to organize new courses in priority areas.

HMD 026 Educational technology in nursing (1974– ) PR PH—To increase the educational output of the schools of nursing in Latin American countries by training teaching personnel, improving curricula, and using the resources of new educational technology to develop individualized teaching of the highest possible standard, in order to attain the goals, indicated in the Ten-year Health Plan for the Americas, of training 125,000 nurses during the present decade.

HMD 027 Sanitary engineering education, interzone (1964– ) PR—To assist countries of the Region in developing their institutions for the training of sanitary engineers and in revising curricula.

HMD 029 Dental education, interzone (1963– ) PR—To cooperate with university authorities of countries of the Region in improving teaching in schools of dentistry.

HMD 033 (formerly HMD 003) Human resources development, Caribbean area (1969– ) PR—To collaborate in programmes for the development of human resources for health work in countries of the Caribbean area.


HMD 037 (formerly HMD 018) Nursing education, Zone I (1963– ) PR—To assist in strengthening nursing education programmes.

HMD 042 (formerly SHS 005) Research training in biomedical sciences (1969– ) PG: Wellcome Trust—To increase the research capability and output of individual workers and the training potential of biomedical institutions and laboratories in Latin America and the Caribbean area.

HMD 044 The Medical Letter (1974– ) PH—To promote the reproduction and distribution of the publication Carta Médica, which is the Spanish version of The Medical Letter on Drugs and Therapeutics, by a nonprofit national organization.

ESD 001 Epidemiology, interzone (1971– ) R PR (US Public Health Service Center for Disease Control); ESD 002 (formerly ESD 003) Zone II (1965– ) PR—To assist countries in developing programmes for the control of communicable diseases, in establishing and/or strengthening epidemiological and laboratory services, and in training personnel.

ESD 012 Caribbean Epidemiology Centre (1974– ) R PR PG: Overseas Development Administration; Government of Trinidad and Tobago and other Governments of the Caribbean area; Commonwealth Caribbean Regional Secretariat—To undertake epidemiological surveillance of public health problems in the Caribbean area, provide advisory services to countries, and carry out training and research for the improvement of national systems of communicable disease control.

This project replaces the former project Trinidad and Tobago LAB 001, Trinidad Regional Virus Laboratory.
ESD 013 Diseases preventable by vaccines (1975–) R—To collaborate with countries of the Region in studying poliomyelitis, measles, whooping-cough, diphtheria, tetanus and smallpox; and to assist them in planning, carrying out and evaluating immunization programmes, and in setting up epidemiological surveillance systems.

ESD 015 (formerly ESD 004) Epidemiology, Zone III (1961–) R; ESD 016 (formerly ESD 005) Zone IV (1966–) PR; ESD 017 (formerly ESD 006) Zone VI (1958–) PR—To assist countries in developing programmes for the control of communicable diseases, in establishing and/or strengthening epidemiological and laboratory services, and in training personnel.

MPD 001 Malaria technical advisory services, interzone (1955–) R PR—To provide assistance and technical advisory services in aspects of malaria eradication for which permanent country advisers are not required.

MPD 005 Rural health services and malaria eradication campaigns (1967–) PR—To assist governments in bringing about closer coordination between the general health services and malaria eradication programmes in order to extend health services to rural areas by using, wherever possible, the resources of the malaria programmes.

MPD 006 Parasitic diseases, interzone (1966–) PR—To assist countries with programmes for the control of parasitic diseases and in the development of research on control methods.

MPD 007 Schistosomiasis (1960–) PR—To foster the development of national programmes of schistosomiasis control and research.

MPD 008 Chagas' disease (1960–) R—To determine the epidemiological characteristics of Chagas' disease, its prevalence and its severity, provide support for national control programmes and encourage related research and training activities.

MPD 010 (formerly MPD 002) Malaria technical advisory services, Zone I (1969–) PR; MPD 011 (formerly MPD 003) Zone III (1958–) PR—To provide advisory services for malaria eradication programmes and assist in coordinating activities.

MPD 012 International Symposium on New Approaches in American Trypanosomiasis Research, Belo Horizonte, Brazil (18-21 March 1975) PR PG: Government of Brazil; Wellcome Trust; Medtronic Inc., USA—To review current knowledge of Chagas' disease and consider areas of research likely to lead rapidly to further understanding of the disease and improved control methods. There were 75 participants and invited guests from 9 countries. Six half-day sessions were held on (i) the vector; (ii) the parasite and the host's response; (iii) diagnostic and clinical aspects, with emphasis on regional differences; (iv) chemotherapy, insecticides and other approaches to treatment and control; (v) aspects of the epidemiology of the disease; and (vi) planning of future research.

The proceedings of the Symposium will be issued as a PAHO Scientific Publication.

SME 001 Smallpox eradication, interzone (1951–) R (US Public Health Service Center for Disease Control)—To assist countries with their immunization activities and with the development of surveillance systems and maintenance programmes.

MBD 001 Tuberculosis control, interzone (1957–) R PH—To assist countries in the planning, conduct and evaluation of tuberculosis control programmes, operational research, and training of personnel in control methods and techniques.

MBD 004 Courses in tuberculosis epidemiology and control (1969-75) R—Six 12-week courses were organized in Caracas, in cooperation with the Ministry of Health of Venezuela, to train tuberculosis officers in modern methods of planning, programming and evaluating tuberculosis control measures within the framework of the general health services and to acquaint them with recent knowledge in epidemiology. The courses were attended by a total of 125 physicians. Provided—34 fellowships for 79 physicians from 17 Latin American countries, the services of lecturers (including WHO staff members), and a grant for the expenses of the courses.

MBD 005 Courses in tuberculosis bacteriology (1969-75) R—Nine 2-month courses were organized in Caracas, in cooperation with the Ministry of Health of Venezuela, to train senior laboratory personnel in tuberculosis bacteriology methods and techniques, and in planning, programming and evaluating bacteriological case-finding work within the framework of an integrated control programme. The courses were attended by a total of 124 bacteriologists. Provided—101 fellowships, the services of lecturers (including WHO staff members), and a grant for the expenses of the courses.

MBD 006 Leprosy control, interzone (1958–77) PR PH (American Leprosy Missions, Inc.)—To assist countries in developing leprosy control programmes, integrating them into the general health services, and training personnel.

MBD 008 Courses in histopathology of leprosy (1971–) R—To provide pathologists with training in the histopathological diagnosis of leprosy, to enable them to assist with the diagnosis of leprosy and to train other pathologists in this work.

MBD 009 Training and research in leprosy and related diseases (1973–) R—To plan and develop a regional centre, in Caracas, for training and research in leprosy and related diseases, beginning with pilot field studies, to be extended to other countries of the Region.

MBD 013 (formerly MBD 002) Tuberculosis control, Zone III (1963–) PR; MBD 014 (formerly MBD 003) Zone IV (1962–) R—To assist the countries of the zones in formulating, conducting and evaluating tuberculosis control programmes, in integrating them into the general health services, and in training personnel in control methods and techniques.

MBD 015 Study Group on BCG Vaccination Programmes, Mexico City (14-17 Sept. 1975) R—A group of 20 directors and supervisors of tuberculosis control programmes and chiefs of BCG laboratories from 13 countries was convened to examine the present position regarding BCG vaccination in Latin America. Subjects discussed included the immunogenic capacity of various BCG strains and the use made in the Region of recent advances in that area, minimum effective dose, vaccine production and quality control, and coverage of immunization of children. Observers from the International Union against Tuberculosis and the Latin American Union of Societies of Phthisiology attended the meeting. Provided—the cost of attendance of the participants and the services of staff members.

VDT 001 Venerereal disease and treponematoses control, interzone (1950–) PR—To assist governments with the organization and administration of venerereal disease and treponematoses control programmes.

VDT 002 Venerereal disease seminars (1974–) R—To hold zone-wide seminars in order to create a greater awareness of the venerereal disease problem and develop more uniformity in control programmes.
Intercountry Programmes (continued)

VPH 001 Pan American Zoonoses Centre, Argentina (1956– ) R UNDP PR PG: Government of Argentina—To advise countries of the Region on the establishment and improvement of veterinary public health services and zoonoses control programmes; to carry out research on the most prevalent zoonoses; and to train technical personnel for zoonoses control work.

VPH 006 Rabies control (1975– ) PR: To provide advisory services and vaccines and other supplies to national and municipal rabies control programmes in countries of the Americas.

VPH 008 Census of primates (1972–78) PG: National Academy of Sciences, USA—To determine, in Colombia and Peru (Equinostos), the areas where trapping and transport of primates takes place; to obtain information on the movement of the primate population and on reproduction, mortality and related biological factors; and to formulate recommendations for the management and conservation of primates in both countries.

VPH 009 Pan American Foot-and-Mouth Disease Centre, Rio de Janeiro (1951– ) PR PG: Inter-American Development Bank—To assist countries of the Americas in the control and prevention of foot-and-mouth disease and other vesicular diseases, the conduct of research related to the preparation and testing of vaccines, and the training of personnel.

VPH 011 Veterinary medical education, interzone (1966– ) R—To strengthen the teaching of veterinary medicine, particularly as regards the preventive medicine and public health aspects.

VPH 012 Seminars on veterinary medical education (1973; 1975– ) R—To establish a consortium of education specialists, animal health officials and veterinary public health authorities to assist in developing a scheme for preparing more and better trained veterinarians and animal health assistants.

VPH 013 Programme for training animal health and veterinary public health assistants (1974– ) UNDP—To establish a centre for the training of animal health assistants in the Caribbean community.


VPH 021 Conference on the use of South American primates for biomedical research, Lima (2-4 June 1975) PG: National Institutes of Health, USA; Merck, Sharp & Dohme—To foster the conservation of the native species of non-human primates in South America and their use as animal models for the understanding of several diseases that are a threat to human health. Provided—conference costs.

VPH 022 Conservation of nonhuman primates (1975– ) PG: National Institutes of Health, USA—To assist countries in carrying out a survey to determine the availability of nonhuman primates for biomedical research and in establishing conservation and breeding centres.

VBC 001 Plague control, interzone (1966– ) PR—To assist governments in implementing and improving their plague surveillance and control programmes and in studying plague epidemiology, with particular emphasis on the ecology of the reservoirs and vectors.

VBC 005 Typhus and other rickettsial diseases (1975– ) R—To assist governments in strengthening the surveillance of typhus and other rickettsial diseases and in improving the laboratory facilities for their diagnosis.

VBC 006 Aedes aegypti eradication, interzone (1954– ) R PR—To assist with A. aegypti eradication campaigns and with the organization of vigilance services.

VBC 013 Surveillance for insecticide-resistant lice (1975– ) R—To study the problem of insecticide-resistant lice by means of systematic collection and testing of lice from areas where louse-borne diseases are endemic, and to maintain a programme of surveillance of louse-borne diseases.

VBC 015 Performance evaluation of arbovirus serologic diagnosis (1975– ) R—To strengthen the network of arbovirus diagnostic laboratories by a system of proficiency testing.

VBC 017 (formerly VBC 007) Dengue surveillance, Caribbean area (1950– ) PR—To assist with A. aegypti eradication campaigns and with the organization of vigilance services.

VBC 018 (formerly VBC 011) Dengue surveillance, Caribbean area (1972– ) PR—To establish an international system for surveillance of dengue in the Caribbean and adjacent areas.

CAN 002 Cancer control (1973– ) PR—To support activities for improving the planning and operation of cancer registries, programmes for the detection and treatment of early cancer, specialized treatment centres, epidemiological studies, and training of personnel.

CAN 003 Latin American cancer research information project (1975– ) PG: National Institutes of Health, USA—To update a directory of centres and institutes carrying out research on cancer, which will be used to provide computerized information on published findings available or research in progress and also to identify new areas for future investigation.

CAN 006 Chronic diseases, interzone (1967– ) PR—To assist the countries of the Region in organizing and operating programmes for primary prevention of chronic diseases and for the care of patients suffering from such conditions, through planning for the comprehensive utilization of the present and foreseen human and material resources.

OCD 002 Epidemiology of chronic diseases (1975– ) R PG: Latin American Congress on Cancerology—To collaborate with governments in developing simplified pragmatic systems of epidemiological practice in the control of chronic diseases; to promote and support ad hoc training programmes and activities; to foster the teaching of the epidemiological aspects of chronic diseases in schools of health sciences; to collaborate in the formulation and execution of related epidemiological research; and to encourage and support the organization of chronic diseases epidemiology units in the health agencies of countries where chronic diseases are a priority problem.

OCD 004 Control of cardiovascular diseases (1975– ) PG: Merck, Sharp & Dohme—To collaborate in programmes for the control of cardiovascular diseases.

OCD 005 (formerly NUT 008) Iodine determination in endemic goitre (1973– ) R—To review the public health and administrative problems associated with the implementation of salt iodization programmes and assist the countries concerned in finding practical solutions.

DNH 001 Dental health, interzone (1954– ) PR—To promote the development of dental health, and particularly of dental...
public health, in the countries of the Region, and assist in training various types of dental personnel.

**DNH 002 Dental epidemiology, interzone (1964--)** PR PG: International Sugar Research Foundation—To train teaching staff and investigators in the field of dental epidemiology and carry out studies on the prevalence of dental disease in Latin America.

**DNH 003 Fluoridation, interzone (1967-79)** PR PH (US Public Health Service) (Precision Control Products)—To assist interested governments in introducing or extending fluoridation, especially of water supplies in cities with more than 50,000 inhabitants, in conducting projects to reduce excessive fluoride levels in water supplies, and in training engineers and other personnel needed for the design and operation of fluoridation systems and installations.

**DNH 004 Laboratories for the control of dental products (1968--)** PR—To assist in establishing regional laboratories or centres to cooperate with countries in improving the quality of materials used in dental treatment, controlling the quality of dental products, providing training for teachers and research workers in dental materials, and conducting applied research on dental materials.

**DNH 005 Human and material resources in dentistry, interzone (1967- )** PR PH (University of Zulia, Venezuela) (Cayetano Heredia University, Peru)—To study the current position as regards human and material resources in dentistry available in Latin America; and to assist in formulating and implementing plans for the development of dental resources.

**DNH 006 Seminars on implementation of dental health programmes (1973--)** PR—To hold a series of meetings of dental experts and directors of dental projects for the purpose of planning and developing dental programmes in Latin America.

**DNH 007 (formerly HMD 031) Communications and information in dental science (1973--)** PR—To provide governments, teaching institutions and professional dental staff in Member countries with ready access to information on modern concepts and techniques in dentistry.

**MNH 001 Mental health, interzone (1965-)** PR—To assist countries in strengthening their mental health programmes, including provision of services, training and research.

**MNH 002 Courses in community psychiatry (1971-)** PR—To assist several countries of the Region in training general practitioners in basic psychiatry, emergency care, follow-up of discharged cases, and case-finding.

**MNH 004 Epidemiological study on epilepsy (1972--)** R—To determine the prevalence and distribution of epilepsy in selected countries and assess the need for services.

**MNH 005 Epidemiology of suicides (1973--)** R—To determine the major factors leading to suicide and attempted suicide in various Latin American countries, and to verify prevalence rates.

**MNH 006 Study Group on Teaching Mental Health in Schools of Public Health, Caracas (23-27 June 1975)** R—The Study Group, composed of representatives from 10 countries, discussed the incorporation of mental health activities into public health curricula and the use of public health workers as mental health agents. Provided—the cost of attendance of participants and supporting services.

**MNH 009 Epidemiology of alcoholism (1972--)** PG: Department of Health, Education and Welfare, and National Institutes of Health, USA—To determine the prevalence and distribution of alcoholism in urban and rural areas of Latin America, study alcohol consumption patterns and public attitudes towards dependence on alcohol, and establish centres for research on alcoholism and the training of personnel.

**RAD 001 Health aspects of radiation, interzone (1958--)** R—To assist governments in developing or improving programmes concerned with the health aspects of radiation, including the use of radiation for diagnosis, therapy and research, and with the protection of radiation workers and the public.

**RAD 002 Radiation protection (1964--)** PR—To assist in the development of radiation protection programmes.

**RAD 005 Meeting on Planning of Small Radiological Facilities, Washington, DC (17-21 March 1975)** R—The Meeting, which had 26 participants, determined the basic requirements (premises and equipment) for a primary care radiology system.

A pilot study of the use of the system, which is hardwearing, cheap, easy to operate and can function under adverse conditions (unstable power supply, hot and humid climate, etc.) was carried out in cooperation with the Government of El Salvador. Manuals on the planning of small radiological facilities, radiographic techniques, and maintenance of X-ray equipment, are being prepared. Provided—a consultant and contractual services.

**SOP 001 Drug control (1959--)** PR—To provide technical advice to the national services responsible for the health aspects of the production and control of drugs and biologicals, both locally manufactured and imported, and to assist countries in improving national control services.

**ISB 001 Production and quality control of biologicals (1972--)** R—To help countries of the Region to increase and diversify the production of biologicals in existing laboratories, and to improve their quality and distribution.

**LAB 001 Laboratory services, interzone (1955--)** R—To assist governments in improving the organization and administration of their health laboratory systems, in training the necessary staff, and in the production of vaccines for human and veterinary use.

**LAB 002 Training of laboratory personnel (1968--)** PR—To improve the training of laboratory personnel by providing short intensive courses on specific subjects.

**LAB 003 Inter-American programme of research and technical training for the control of mycotic diseases (1972--)** PG: US Army Medical Research and Development Command—To set up regional diagnostic and treatment centres and train personnel for dealing with mycotic problems in the Americas; and to establish programmes, including vaccine studies, for the prevention of mycotic diseases.

**LAB 005 Enterovirus collaborative testing programme (1974--)** R—To strengthen the network of enterovirus diagnostic laboratories in the Americas.

**LAB 006 (formerly AMRO 3303) Laboratory services, Zone III (1965--)** PR—To assist the Governments of the Zone in expanding and improving their health laboratories as regards production, diagnosis and research.

**LAB 007 (formerly AMRO 3304) Laboratory services, Zone IV (1972--)** PR—To assist the governments of the Zone in adjusting their national laboratory services to the targets of the Ten-year Health Plan for the Americas and to available resources, and to expand their services for diagnosis, environmental control, and production and control of biologicals.
Intercountry Programmes (continued)

BSM 001 Engineering and environmental sciences, interzone (1958–) PR — To assist countries with various engineering and environmental sanitation activities, including collection and disposal of solid wastes, food sanitation, school sanitation, sanitation of public establishments and transport, vector and rodent control, and training of auxiliary personnel.

BSM 010 Promotion of sanitary engineering (1974–) R — To collaborate with the Inter-American Association of Sanitary Engineering regarding the establishment of national environmental sanitation plans designed to meet the goals set by the Ministers of Health of the Americas.

BSM 011 Water supply and sewerage, interzone (1959–) R PR — To advise countries on the planning, financing and execution of water supply programmes and on the organization and administration of central and local water supply and sewerage authorities.

BSM 017 Centre for human ecology and health (1974–) R UNEP PR — To establish a centre for human ecology and health sciences with the functions of (i) assisting Member countries to develop biomedical and epidemiological methods for identifying, defining and monitoring health problems of environmental origin; (ii) advising governments on programmes to minimize the adverse effects of the environment on health; and (iii) providing information for global assessment of health problems of environmental origin.

BSM 020 Sanitary engineering planning in the Andean region, Zone IV (1974–) PR — To assist the countries of the Zone in developing national environmental sanitation plans, identifying the economic resources required to achieve national self-sufficiency or meet certain needs, and improving the use of existing installed capacity, especially in relation to water supply, sewerage and solid waste disposal services.

BSM 021 Water quality and water supply systems (1975–) R — To promote and develop national plans for water quality control through the organization of 3 regional conferences—for South America, for the Caribbean area, and for Mexico and Central America.

BSM 022 Rural water supply and sanitation (1974–) PR — To assist countries in expanding the coverage of their rural water supply and sanitation programmes in the shortest time and at the lowest cost possible, and in improving the quality of service, in order to achieve the goals set in the Ten-year Health Plan for the Americas.

BSM 023 (formerly BSM 003) Engineering and environmental sciences, Zone II (1960–) R; BSM 024 (formerly BSM 002) Zone I (1960–) PR; BSM 025 (formerly BSM 004) Zone III (1960–) PR; BSM 027 (formerly BSM 006) Zone VI (1960–) PR — To assist with various engineering and environmental sanitation activities, including collection and disposal of solid wastes, food sanitation, school sanitation, sanitation of public establishments and transport, vector and rodent control, and training of auxiliary personnel.

BSM 033 Caribbean area water management programme (1975–79) PG: Canadian International Development Agency — To plan and develop a programme for training professional and auxiliary personnel of the water and sewerage agencies of the countries and areas of the Caribbean in the management and technical aspects of water supplies.

CEP 001 Programme on traffic accidents (1972–) PR PG: Department of Health, Education and Welfare and National Institutes of Health, USA — To establish a clearing-house for information on traffic accidents; to advise countries on accident prevention; to convene international seminars that will discuss problems of common interest, outline policies and propose programmes; and to promote field research.

CEP 002 (formerly RAD 003) Radiation surveillance (1963–) PR — To assist governments in the operation of environmental surveillance programmes for determining the kinds and amounts of radionuclid pollutants present and assessing the possible health hazards to the population.

CEP 003 Management of pesticides (1974–) R — To advise governments on the regulation and control of the use and handling of insecticides in Latin America.

HWP 002 Seminar on Needs and Conditions of the Working Woman in Latin America, La Paz (17-19 Sept. 1975) PG: UNICEF — To identify the main factors affecting the participation of women in the development process in Latin America and make recommendations for improving the status of women in the Region. Provided—technical and financial support to the Seminar.

The Seminar, which was organized by the Inter-American Commission of Women in cooperation with UNICEF and the Organization, was attended by 16 representatives from 8 countries (each country sending 2 representatives—one from the labour and the other from the health field).

SES 001 Pan American Centre for Sanitary Engineering and Environmental Sciences, Lima (1968–) R PR PG: Government of Peru; University of Oklahoma, USA — To develop the Centre, which provides countries of the Region with specialized technical and scientific assistance in sanitary engineering and environmental sciences, collects and disseminates information on new developments and methods, and carries out training and research work.

SES 002 Institutional development of environmental services (1970–) R PR PW — To assist the institutions in Latin America concerned with water supply and sewerage services, and with such activities as solid waste disposal and atmospheric pollution control, in improving their operation and administration, and in training personnel for that purpose.

FSP 002 Food hygiene training centre (1971–77) R — To assist the centre for training in food hygiene that has been set up in the School of Public Health, Caracas, in cooperation with the Government of Venezuela, to provide advanced instruction in the basic principles of food technology for professionals, and basic courses in food hygiene, inspection, and control techniques for inspectors.

FSP 005 Training in food analysis (1972–73; 1975–) R — To assist governments in the training of food analysts.

PPH 001 Health statistics, interzone (1960–) PR — To develop a regional programme for improving basic statistical data for use in health programmes, to extend training in this field and to develop statistical research.

PPH 002 (formerly DHS 002) Health statistics, Zone II (1958–) R; PPH 003 (formerly DHS 003) Zone III (1955–) R PR; PPH 004 (formerly DHS 001) Zone I (1964–) PR; PPH 005 (formerly DHS 004) Zone IV (1956–) R; PPH 006 (formerly DHS 005) Zone VI (1959–) PR — To assist countries in improving their vital and health statistics systems and advise them on the use of statistical data in national health planning and on the statistical aspects of projects.
HSM 001  Inter-American investigation of mortality in childhood (1966– ) PR—To study child mortality in selected urban and rural areas of Latin America and of the United States of America, in order to obtain accurate and comparable data on death rates in relation to nutritional, sociological, and environmental factors which may be responsible for excessive mortality.

DSI 001 (formerly SHS 057)  Development of national information systems (1974– ) PR—To assist countries in establishing or strengthening health information systems in conjunction with strengthening their planning process.

DHS 006  Training in the use of computers in health statistics (1972– )—To prepare guidelines for the installation and use of electronic equipment in the health services and for the training of personnel for operation of the equipment.

DHS 007  Regional Advisory Committee on Computers in Health (1970– ) R—To hold biennial meetings of the Advisory Committee in order to develop a regional programme on the use of computers in the health field.

DHS 008  Biostatistical education, interzone (1952– ) UNDP—To improve vital and health statistics in the countries of the Region by training technical and professional personnel in specialized centres.

DHS 009  Training programme in health care records and statistics, interzone (1961– ) R PR PH—To promote the development of courses in health care records and statistics.

DHS 010  Continuing education for statisticians of national health services (1975– ) PR—To promote a programme of continuing education for statisticians of national health services.

ICD 001  Latin American Centre for Classification of Diseases (1955– ) R—To study problems of medical certification of causes of death; to give training on classification of causes of death in accordance with the International Classification of Diseases; and to assist in revising the Classification.

ICD 002  Operations research in medical records (1975– ) R—To conduct operational research on specific medical topics in order to meet the requirements of changing patterns of health care organization.
SOUTH-EAST ASIA REGION

Bangladesh

SHS 001 Organization of health services, planning and hospital administration (1972–) R —To set up an organization for health planning in the Ministry of Health, train personnel in health planning and develop a health information system; to plan integral rural health services including a referral system; and to plan health and manpower studies with the aim of improving the delivery of medical care, especially in rural areas.

SHS 002 Strengthening of rural health services (1972–) R —To establish and strengthen health programmes for rural areas, including programmes for training professional and auxiliary health workers.

SHS 005 Development of public health laboratories and vaccine production (1975–) R —To develop the Institute of Public Health as a central laboratory and extend its resources for the establishment of district laboratories; to improve vaccine production and produce new vaccines, with adequate quality control.

MCH 001 Family health (1973–) R UNFPA —To develop family health services as part of the general health services and to strengthen the programme for family health clinics, with emphasis on family planning.

MCH 002 Training of health personnel in family planning (1975–78) UNFPA —To develop and implement a training programme for a new category of multipurpose health worker, tentatively called the family welfare visitor, to work in rural areas.

MCH 003 Strengthening of the family planning clinical programme with special emphasis on maternal and child health-based family planning (1974–77) UNFPA —To develop a phased clinical programme in family planning based on maternal and child health services.

HRP 001 Teaching of human reproduction, population dynamics, demography and family planning, including that based on maternal and child health services, in medical colleges, and establishment of field practice areas (Jan.–April 1975) UNFPA —A consultant assisted in the development of a revised curriculum for medical education stressing these subjects, gave lectures demonstrating new methods of integrated teaching, and in some colleges clinical demonstration of teaching and learning exercises. Guidelines were prepared for a two-week exercise for undergraduate medical students in rural field practice areas.

HMD 001 Nursing advisory services and training (1972–) R —To develop the nursing component of the health services and nursing and midwifery training programmes.

ESD 001 Strengthening of epidemiological services (1972–) R —To implement measures for the epidemiological surveillance and control of infectious diseases of public health importance.

MPD 001 Malaria eradication (1972–) R

SME 001 Smallpox eradication (1972–77) R VS —To confirm total eradication of smallpox from Bangladesh by 1977.

MBD 001 Tuberculosis control (1972–74) R —To undertake tuberculosis control measures, including BCG vaccination, case-finding and treatment, and train personnel. In addition to the fellowships awarded under this project, a number of courses and seminars were held, culminating in a seminar organized jointly with the International Union against Tuberculosis (28 Oct.-1 Nov. 1974) to review the national tuberculosis programme and stressing the mass approach to control through the general health services. The results of the seminar were evaluated and the curricula for the training of medical and auxiliary staff in tuberculosis control were finalized by a consultant provided under project Bangladesh MBD 003, with which this project was merged in 1975.

MBD 002 Leprosy control (1973–74) R —To formulate and implement a national leprosy control programme as an integral part of the general health services. Provided—a consultant (April 1973-Feb. 1974), who was appointed leprologist for the project (July-Dec. 1974), and fellowships.

The consultant reviewed data from the Nilphamari pilot project, collected information on leprosy cases and their distribution, organized training for district officers and staff engaged in leprosy control, drew up a curriculum for the intensive training of thana health staff, prepared a manual on case-finding and management in an integrated leprosy control programme, and formulated a plan for control work. After his appointment as leprologist he assisted in the organization and conduct of courses and the preparation of the draft plan of operation for integrated surveillance of communicable diseases and helped to prepare the national seminar on tuberculosis control (see project MBD 001 above). He also advised on leprosy case-finding and contact-tracing.

In 1975, this project was merged with project Bangladesh MBD 001 above to form project MBD 003.

MBD 003 Mycobacterial disease control (Feb.–March 1975) R —A consultant assisted in the organization of tuberculosis control, in revising the curricula for the training of staff of the general health services for such specialized control work, and in establishing methodology for constant monitoring and periodic assessment.

SOP 001 Pharmaceutical and biological quality control (1975–82) R —To strengthen central and zonal drug quality control laboratories and train technical staff.

Following the consultant visits in 1972–74, further assistance is being provided by a consultant (March 1975-Feb. 1976) with the setting up of pharmaceutical production units, in making control more effective, and in training analysts and inspectors.

ISB 001 Production of rehydration fluid (1972–75) R —To develop the resources for the production of intravenous electrolyte solutions at the Institute of Public Health, Dacca.

BSM 001 Community water supply and sanitation (1972–80) R —To plan and organize a national environmental health programme and expand existing environmental health measures, particularly those for community water supply.
BSM 002 Garbage disposal study (March-May 1975) UNDP—
A consultant studied the existing systems for solid wastes disposal in Dacca and recommended other measures, including mechanical disposal, to supplement and improve them.

BSM 003 Sanitary latrine feasibility study (Feb.-April 1975)
UNDP—A consultant assessed the feasibility of a programme to install sanitary latrines in the old city of Dacca, in particular converting dry privies into water closets as part of an appropriate sewerage system.

HWP 001 Occupational health (1975– ) R—To control health hazards in industry.

0200 Fellowships R

Bhutan

SHS 001 Development of health services (1975–76) UNICEF (World Food Programme)—To establish basic health units, provide integrated curative and preventive health services with special emphasis on maternal and child health and the control of tuberculosis, train health manpower for the basic health units, ensure quality control of drinking water, and improve the nutritional status of the population.

Burma

SHS 001 Rehabilitation of the handicapped (1969–82) R—To expand medical rehabilitation services at the central and peripheral levels and to improve workshop facilities for the manufacture of orthopaedic and prosthetic appliances.

SHS 002 Planning and strengthening of health services (1969– ) R UNICEF—To strengthen the health services, placing emphasis on development of comprehensive services for health care, to implement a national health plan, and to train health personnel, especially auxiliaries, for basic health services.

SHS 003 Maintenance and repair workshops for health equipment (1971–77) R UNICEF—To establish workshops and train staff in the maintenance and repair of equipment used in health institutions.

SHS 004 Hospital services management (Feb.-May 1975) R—
Two consultants were provided (Feb.-April; Feb.-May). The first, an orthopaedic surgeon, advised on the planning and development of a central orthopaedic hospital in Rangoon and conducted courses on managerial skills for the total care of the disabled for teams from divisional and township hospitals. The second, a pathologist, advised on the establishment of a laboratory for diagnostic services in skeletal pathology and on specific problems concerned with the premises, lay-out, staffing, function, and scope of activities of the Orthopaedic Pathology Laboratory, Rangoon.

MCH 001 Maternal and child health (1969–74) R UNICEF—
This project, together with the school health services project Burma MCH 002, was merged with project Burma MCH 003, Development of family and child health, from January 1975.

MCH 003 Development of family and child health (1975– ) R—To develop family and child health, including school health services, as part of the general health services.

NUT 001 Nutrition services (1972–80) R—To strengthen the nutrition activities of the health services by organizing inservice orientation courses for medical staff and developing statistical models as part of the work of the nutrition unit in the Directorate of Health Services.

HED 001 Health education (1966; 1968; 1971– ) R—To develop health education services and materials and to give training in health education to teachers and to those holding key posts in the school organization and in the general health services.

HMD 001 Nursing advisory services (1959–66; 1969– ) R—To develop nursing and midwifery education and services.

HMD 003 Institute of Medicine I and School of Preventive and Tropical Medicine, Rangoon (Feb.-June 1975) UNDP—Following completion of the main activities under this project in 1973 and the award of a 12-month fellowship in 1974, a professor of human genetics was assigned as a consultant; his teaching and advisory services were also extended to the Institute of Medicine II, Rangoon, the School of Child Health and the Institute of Medicine, Mandalay.

HMD 035 Education and training of health manpower (1972–77) UNDP—To strengthen undergraduate and postgraduate education in the 3 medical institutes, as well as the training of nurses, midwives and health visitors and of various categories of auxiliary health personnel; and to expand and strengthen the rural health demonstration area, Hlegu, which will be used for the training of all members of the health team.

ESD 001 Strengthening of health services (epidemiology) (1968– ) UNDP—To establish epidemiological units in all the administrative divisions of Burma; to organize epidemiological surveillance of diseases of public health importance and those subject to the International Health Regulations (1969); and to start a national immunization programme to vaccinate children against smallpox, tuberculosis, diphtheria, tetanus and pertussis, and poliomyelitis through the basic health services.

ESD 002 Prevention, control and surveillance of communicable diseases (Feb.-April 1975) R—A consultant assisted in field investigations of plague in endemic foci and in strengthening the surveillance units.

MPD 001 Malaria eradication (1957–66; 1968– ) R—To undertake antimalaria operations throughout the country in progressive stages, with the ultimate goal of eradicating the disease.

MPD 002 Filariasis control (1969–74) R—An epidemiologist, 4 consultant visits, fellowships, and supplies and equipment were provided.

The project was implemented following the work of the WHO-assisted Filariasis Research Unit (project Interregional 0271), which completed its programme in 1969, leading to a substantial reduction (98.5%) of the density of vector populations (Culex pipiens fatigans) using fenthion as a larvicide. The project started in Rangoon, extending gradually to other parts of Burma from 1970. The first consultant (Dec. 1969-Jan. 1970) reviewed data on filariasis in Rangoon City and elsewhere for a plan of action. In July 1970 an epidemiologist was assigned. By 1971 the entire urban area of Rangoon had been covered, with considerable consequent reductions in density of the vector, and in transmission of filariasis and microfilaria rates among the human population.

A second consultant, on his first visit (April-May 1972), reviewed the entomological situation, recommended certain sanitary measures to eliminate foci of mosquito breeding, and advised on a carefully planned expansion of control. After the
Burma (continued)

departure of the WHO epidemiologist in December 1972 with the achievement of effective control in all areas of Rangoon which had been covered by the larviciding, this type of operation was extended apace with measures to improve environmental sanitation. The consultant, on his second visit (Oct.-Nov. 1973), assessed the programme and recommended its continuation with increased supervision of mosquito control operations and establishment of a vector control unit in the competent service. On his third and last visit, and after a further review, preparations were made for intensification of control with a view to eliminating C. fatigans and controlling Aedes aegypti in Rangoon, and for consolidation of urban mosquito control and extension of the operations in other areas of the country.

While some research has been carried out to develop more effective methods of control, field investigations have confirmed that results are good, and progress has been made in studies of the biology and habits of A. aegypti. The need for greater coordination for the wider purposes of the urban mosquito control programme has been recognized.

In January 1975 the activities of this project were merged with those of project Burma ESD 002, Prevention, control and surveillance of communicable diseases.

**BAC 001 Plague control** (1966; 1970-75) R—To identify the factors responsible for the persistence of foci of plague and to train personnel in the epidemiological investigation and control of the disease. Provided—4 consultants, fellowships, and supplies and equipment.

The first consultant (Dec. 1966) studied the endemic focus of plague along the Irrawaddy River between Magwe and Myingyan, and assisted in training of staff, in epidemiological investigations, and in surveys of plague in man and rodents, and of vectors. His observations indicated that plague was more likely to come to Rangoon from the upstream endemic focus than from abroad, and emphasized the importance of early signs in the rat population and suspected human cases of plague. Surveillance was consequently strengthened.

Another consultant (Sept. 1970) initiated improvements in international quarantine and port health measures, and 2 members of an interregional plague surveillance team (Nov. 1970) reviewed control arrangements and assisted in the development of a plan for the special plague unit in Myingyan.

A third consultant (Dec. 1971-Feb. 1972) assisted in field studies in which Yersinia pestis were found in field rodents from various parts of the country, indicating a very wide distribution of plague bacilli. He also assisted in a course in plague epidemiology in Mandalay (15-25 Feb. 1972).

The consultant assigned under project Burma ESD 002 for prevention, control and surveillance of communicable diseases (see above) assisted in field studies of plague epidemiology in the endemic foci and in the work of the plague surveillance units in Rangoon and Mandalay.

In spite of difficulties in recruiting consultants, the factors responsible for the persistence of plague were identified and staff were trained to carry out surveillance effectively. The resulting prompt, accurate reporting has helped to accelerate control of the disease.

**MBD 001 Leprosy control** (1960- ) R UNICEF VL—To intensify the leprosy control programme, extend it to cover all endemic areas, and train personnel for the purpose.

**MBD 002 Tuberculosis control** (1964-77) UNDP—To intensify the community-oriented tuberculosis control services in all parts of the country.

**VIR 002 Virus diseases** (1972-75) R—To make epidemiological studies of virus diseases, carry out control measures, and train staff. Provided—a consultant (Dec. 1974-March 1975), fellowships, and supplies and equipment.

The project has been successful, activities developing according to WHO's recommendations, and a system of continuous evaluation, with periodic surveys of 1/6 of the population of each rural township, has been instituted; considerable progress has been made in integration of trachoma control in the general health services; and comparative trials of drugs were well conducted. In January 1975 the activities of this project were merged with those of project Burma ESD 002, Prevention, control and surveillance of communicable diseases.

**DNH 001 Dental health services** (1971-72; 1974-80) R—To expand facilities for the training of auxiliary dental personnel, to plan the extension of services, and to ensure gradual implementation of preventive and curative programmes.

**MNH 001 Mental health training and services** (1973-80) R—To train psychiatrists and health workers in mental health subjects including prevention and control of drug abuse, to undertake epidemiological investigations of drug dependence, and to strengthen facilities for psychiatric services, including rehabilitation.

**RAD 001 Radiation health** (1970- ) R—To strengthen the radiation protection services in Rangoon and Mandalay, to establish training facilities and strengthen services in diagnostic radiology, radiotherapy and nuclear medicine.
In Gujarat, where assistance covered 2 large teaching hospitals — the Civil Hospital, Ahmedabad and the General Hospital, Baroda — activities were aimed at strengthening the offices of matron, developing sound nursing administration and education, implementing inservice training programmes for all levels of nursing personnel, and conducting studies for the improvement of the services for the care of patients. Communication between the hospitals was increased in nursing and other divisions, the development of nursing administration reduced absenteeism, and there was an increase in staff at all levels; staff evaluation procedures were introduced; and proper storage and labelling of drugs was ensured.

In the Nehru Hospital in Chandigarh the activities were mainly of an advisory nature or educational, with emphasis on closer coordination between nursing service and nursing education. Forms for the assessment of staff and student activities were revised, job descriptions were realigned and a realistic staffing pattern was established; an inservice training department was set up; and the central sterile supply organization and services were expanded and improved.

In both Gujarat and Chandigarh counterparts to WHO staff were trained and trainees were awarded fellowships for study tours.


SHS 007 Development of community health nursing services (1975-77) R — To strengthen public health nursing services and develop patterns of community service for nurses in selected states.

MCH 001 Strengthening of departments of paediatrics, obstetrics and preventive and social medicine in Indian medical colleges (1958-77) R UNICEF — To expand and improve undergraduate and postgraduate teaching of paediatrics in certain medical colleges and develop integrated maternal and child health courses for various categories of personnel in paediatric departments.

HRP 001 Strengthening of teaching of human reproduction, family planning and population dynamics in medical colleges (1971; 1973-79) UNFPA — To strengthen teaching and research in the relevant departments of medical colleges.

NUT 001 Applied nutrition programme (1964-75) R UNICEF (FAO) — To improve the health component of the applied nutrition programme assisted by FAO and UNICEF and to train health personnel for the programme.

NUT 002 Training of dietitians (1974-77) R — To train hospital dietitians.

NUT 003 Nutrition training (1970-71; 1973-75) R — To support nutrition courses and train teaching staff at the National Institute of Nutrition, Hyderabad, and other institutions.

NUT 004 National goitre control programme (1975-77) R — To plan and implement a national goitre control programme.
India (continued)

HED 001 Training in health education (1968–77) R—To establish and develop 3 postgraduate health education training centres with rural and urban field practice areas.


In 1969 two consultants assisted in a conference on behavioural sciences held at the Bureau and a further consultant in 1971 advised on the design of a programme of studies. Fellowships were awarded in 1970 and subsequent years for training in health education, and the fourth consultant assisted in designing and implementing a study in 1975 on the use of health education specialists trained at the All-India Institute of Hygiene and Public Health, Calcutta, the Institute of Rural Health and Family Planning, Gandhinagar, and at the Bureau itself. He also reviewed the Bureau’s research activities in behavioural sciences, following which a one-month workshop was held in New Delhi for 16 health education specialists and other health professionals from the central and state bureaus in order to develop behavioural research skills.

HED 003 Health education: assistance to states (1971–73) UNDP—To set up and develop state health education bureaux, and to coordinate the health education activities of the general health services with those of the family planning programme or integrate them into the programme.

HED 004 Health education in schools, including family life education (1971–74) UNFPA UNICEF—To integrate family life education in school, college and teacher-training curricula, establish and develop a health education programme in the educational system, prepare teachers in health education, and develop teaching aids required for primary, secondary, collegiate and teacher-training institutions. Provided—a health education specialist (Nov. 1972–July 1974) and a consultant (July–Aug. 1971).

Workshops on health education in family planning were held in 10 states with the assistance of the consultant and the health education specialist. The latter was assigned to Maharashtra after October 1972 to assist in integrating family life education in the curricula of schools and in teacher training; in establishing a health education programme; in preparing teachers and developing teaching aids for schools and teacher-training colleges. Integration of family life education was successfully accomplished.

The same health education specialist, assigned since the termination of the project to the Central Health Education Bureau, New Delhi, has, under project India HED 003 (Health education: assistance to states) been following up the activities initiated.

HMD 001 Medical education (1958–61; 1965–77) R—To develop the curriculum of medical colleges in accordance with defined objectives, to improve student evaluation, and develop research methodology and staff training.

HMD 002 Postbasic nursing education (002.1) Uttar Pradesh (1962; 1972–77) R; (002.7) New Delhi (1967–77) R—To expand postbasic nursing education, with initial emphasis on postbasic degree programmes offering professional specialization in teaching, administration, public health or one of the clinical specialties.

HMD 005 Physical therapy school, Baroda (1968–76) R—To train physical therapists to degree standard at the school in the S.S.G. Hospital, Baroda.

HMD 006 Training programme for medical officers and trainers of basic health workers (1974–77) R—To strengthen the rural health services by training doctors and trainers of basic health workers in order to convert single-purpose into multipurpose workers.

HMD 007 Research in nursing (1975–77) R—To design and conduct studies in nursing education and practice, including community health nursing, and to conduct workshops and seminars on nursing methodology.

HMD 010 Strengthening of the teaching of human reproduction, family planning and population dynamics in nursing and midwifery education (1972–74) UNFPA—To improve the maternal and child health and family planning components of the training of auxiliary nurse/midwives; to strengthen the domiciliary midwifery and public health nursing experience of nursing students in hospital schools of nursing; and to improve the teaching of human reproduction, family planning and population dynamics in teaching institutions for nursing personnel.

ESD 001 National Institute of Communicable Diseases, Delhi (1967–77) R—To strengthen the faculty of the National Institute of Communicable Diseases in order to improve the field training of epidemiologists.

ESD 002 Strengthening of health services (epidemiology) (1963–76) UNDP—To establish or improve health intelligence units in state health directorates; to train staff in epidemiology, health statistics, microbiology and communicable disease control; and to develop the National Institute of Communicable Diseases, Delhi.

MPD 001 Malaria control (1958–77) R—To intensify malaria control in order to contain the spread of the disease and with the ultimate objective of eradication.

SME 001 Smallpox eradication (1967–77) R VS—To confirm total eradication of smallpox from India by 1977.

MBD 001 Leprosy control (1967–77) R UNICEF—To develop a leprosy control programme and train the necessary staff.

MBD 002 Tuberculosis Chemotherapy Centre, Madras (1955–76) R UNDP—To undertake controlled clinical trials to find simple, effective and inexpensive methods of tuberculosis control through domiciliary chemotherapy of ambulant patients, and to carry out related research.

MBD 003 National tuberculosis programme (1956–76) UNDP UNICEF—To develop a national tuberculosis programme through implementing control programmes in each district in accordance with the results obtained in model control programmes and on the basis of epidemiological findings and operational research; train health workers for the district tuberculosis programmes; and develop methods and procedures for assessment of the programme.

MBD 004 Tuberculosis Research Centre, Madras (9–28 Jan. 1975) R—A consultant advised on the design of a study on short-term chemotherapy and on a trial on treatment of orthopaedic tuberculosis; he also assisted in reviewing the progress of other studies at the Centre. He made a follow-up visit as a temporary adviser from 23 to 27 March 1975.

VIR 001 Virological techniques (1968–69; 1971–77) R—To develop laboratory capacity for the diagnosis and surveillance of virus diseases and establish competence in the production and testing of live poliomyelitis vaccine at the National Institute of Communicable Diseases, Delhi.
VIR 002 Blindness prevention and rehabilitation (April-May 1975) R—A consultant assessed the facilities for training, services and research in ophthalmic centres in different states, and made recommendations on their integrated development within the existing public health services. Cataract was identified as a priority for treatment.

VPH 001 Training in veterinary public health (1969— ) R—To develop a postgraduate (Master’s degree) course in veterinary public health at the All-India Institute of Hygiene and Public Health, Calcutta, and the Indian Veterinary Research Institute, Izatnagar.

CAN 001 Cancer control pilot project, Tamil Nadu (1968–78) R VG—To develop a pilot project for the early diagnosis and control of oropharyngeal and cervical cancer and set up a training centre at Kancheepuram.

DNH 001 Improvement of dental education (1966— ) UNDP

MNH 002 Mental health (1975–85) R—To organize training programmes at the All-India Institute of Mental Health, Bangalore, for psychiatric personnel, and to develop pilot/demonstration field units for mental health care and epidemiological studies of mental illness.

RAD 001 Training of radiographers (1967— ) R—To establish a degree-level training programme for radiographers at the Postgraduate Institute of Medical Education and Research, Chandigarh.

RAD 002 Radiation Medicine Centre, Bombay (1963; 1967–80) R—To organize the training of specialists in nuclear medicine and to strengthen research and services at the Centre.

SOP 001 Drug laboratory techniques and biological standardization (1967–77) R—To develop the services for the quality control of pharmaceutical and biological preparations and train staff.

LAB 001 Strengthening of laboratory services (1965— ) R—To strengthen health laboratory services and improve the training of laboratory technicians.


Two consultants (Feb.-May 1970) assisted in a hydrogeological study, in the planning and organization of a drilling programme and the operation and maintenance of drilling rigs and other equipment, and in the preparation of a training programme for engineers and technicians for the village water supply programme. The third consultant (Nov. 1974–Feb. 1975) gave guidance on drilling techniques in soft rock at a training school in Jodhpur and on the establishment of a school in Hyderabad for training in hard-rock drilling. He also assisted in the evaluation of the hard-rock drilling programme under the fourth five-year plan (1969–1974).

In 1975 the activities of this project were merged with those of project India BSM 002, Village water supply.

BSM 002 Village water supply (1971–80) R UNICEF—To plan and coordinate the development of community water supplies in rural areas, including the well-drilling programme in areas where hard rocks present special problems and in those where water is scarce; and to train professional and drilling staff.

BSM 003 Solid wastes disposal (1973–76) R—To study the problem of solid wastes in urban communities and plan solid wastes management.

BSM 004 Rural water supply (Aug.-Oct. 1975) UNDP—A consultant assisted in the preparation of the project proposal to UNDP.

CEP 001 Prevention and control of water pollution (1969; 1971–76) R—To provide technical advice on organizational and other matters related to the abatement and control of water pollution.

CEP 002 Control of air pollution (1971–76) R—To study the air pollution problems connected with industrial development and promote a control programme.

CEP 003 Medical toxicology unit (1972–78) R—To study the effect of air pollutants and organochlorine pesticides in man.

HWP 001 Occupational health (1964; 1970— ) R—To conduct courses in occupational health and to initiate research projects in specific industries.

SES 001 National Environmental Engineering Research Institute, Nagpur (1961–80) R—To develop the Institute as a major research and training centre for environmental sanitation and to coordinate research programmes.

SES 003 Public health engineering education (1967–70; 1972— ) UNDP—To train sanitary engineers and develop advanced courses in the design of community water supply programmes.

DHS 001 Indian Council of Medical Research (statistics) (1962— ) R—To improve statistical procedures for the planning, conduct and evaluation of research in medicine and public health.

DHS 002 Strengthening of health statistical services (1970; 1972— ) R—To develop a health statistics system; to review and improve hospital statistics and medical records; to plan curricula for the training of medical records personnel; and to organize and conduct training programmes for statistical staff.

0200 Fellowships R

Indonesia

SHS 001 Strengthening of national health services (1969–79) R UNICEF—To plan, coordinate and integrate health services and programmes, standardize and intensify the training programmes for health personnel, and promote studies of public health practice intended to lead to the optimum delivery of health care.

SHS 006 Strengthening of health services, Irian Jaya (1974— ) UNDP—To strengthen health services in the Province.


NUT 003 Nutrition training (1975–80) R—To strengthen the nutrition components of health services and train staff.

HED 003 Development of health education in family health (1971; 1973— ) UNFPA—To develop health education in the context of the family, including school health and family life education, by the promotion of training, studies, and the use of different methods and media.

HMD 001 Medical education (1964–77) R—To develop the teaching programmes of the medical faculties in keeping with national needs and the progress of medical science.
Indonesia (continued)

HMD 002 Nursing and midwifery education (1967; 1969-80) R—To strengthen and develop nursing and midwifery education.

HMD 003 Postgraduate education in public health (1972– ) R—To develop the teaching programme of the School of Public Health, University of Indonesia.


The WHO statistician assisted in the organization and development of statistical facilities for epidemiology, including supplies and equipment. Assistance was also given with a national seminar on epidemiology and communicable disease control (Oct.-Nov. 1969) for responsible provincial medical officers. The WHO epidemiologist conducted a comprehensive study of the work of nurses and midwives, with a survey of the type and amount of work of other auxiliary medical personnel.

In 1970 an epidemiology unit was established in the Directorate General of Communicable Disease Control. In March of that year a national seminar on epidemiological surveillance was held in Jakarta for medical officers responsible for communicable disease surveillance in hospitals and laboratories, and made recommendations for a serological survey for Jakarta. A survey of childhood diseases was carried out in Cilandak. Further seminars on surveillance were held (Oct. 1970; Jan.-Feb. 1971) with the assistance of a consultant, who also assessed the results of earlier training in various areas having surveillance services. A second consultant (April-May 1972) contributed to the improvement of clinical aspects of and the role of hospitals in dengue haemorrhagic fever surveillance, and paid a follow-up visit in April-May 1973. A third (Sept.-Nov. 1972) reviewed data on filariasis and drew up proposals for a control programme within the general health services. Two more, a scientist and an engineer (Sept. 1973), assisted in studying schistosomiasis in the areas undergoing agricultural development in Central Sulawesi.

In 1974 three consultants were assigned. The first (June-July), on her third visit to the country, assisted in the clinical management, diagnosis and treatment of dengue haemorrhagic fever and evaluation of related data used in the surveillance programme. The second (June-July), reviewed the results of the intensified BCG vaccination programme, proposed measures to extend its coverage, assessed tuberculosis case-finding and treatment methods, and advised on the inclusion of tuberculosis control in the health service programme. The third (July-Aug.), visited health centres to assess methods of communicable disease reporting in regencies and provinces, and assisted in a seminar (Aug. 1974).

In addition to establishing a reliable surveillance service with prompt and efficient reporting of communicable diseases, and assistance with epidemiological assessment for schistosomiasis, filariasis, dengue haemorrhagic fever and tuberculosis, the project has trained national staff at all levels through seminars and fellowships.

In January 1975 the activities of this project were merged with those of project Indonesia ESD 003, Strengthening of epidemiological surveillance.

ESD 002 National Institute of Medical Research (1972– ) R—To design, organize and analyse biomedical studies, including those on parasitic diseases.

ESD 003 Strengthening of epidemiological surveillance (1975– ) R—To strengthen epidemiological surveillance at central and intermediate levels, and to train staff.

A consultant was provided (Sept.-Oct. 1975) to review the venereal disease control programme and to assess the activities for the eradication of yaws foci under the maintenance phase of the yaws control programme.

ESD 004 Immunization services (including smallpox) (May-July 1975) R—A consultant assisted in preparations for the expansion of the programme of immunization against smallpox, tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis and measles, and a medical officer from WHO headquarters discussed strategies for the programme with the Director and staff of the Directorate of Epidemiology and Quarantine in the Directorate General of Communicable Disease Control.

MPD 001 Malaria control (1955– ) R—To control and ultimately to eradicate malaria through measures integrated with other health service activities, with special attention to Java and Bali and to the areas of other islands that need to be given priority for socioeconomic reasons.

MPD 002 Malaria control, Irian Jaya (1970– ) UNDP WI

SME 001 Smallpox eradication (1967–74) R—To eradicate smallpox. Provided—a medical officer (1969), an administrative officer (1970–74), consultants, fellowships, supplies and equipment, and local costs. UNICEF also gave regular assistance through project Indonesia 0083 (now LAB 002), Vaccine and sera production.

Following the visit of a member of the intercountry smallpox eradication and epidemiological advisory team (project SEARO SME 001 in December 1967, and a national seminar in Tjiloto (Feb. 1968), a consultant (July 1968) assisted in the preparation of a programme for Bali and Java. With the appointment of the long-term staff and the completion of a joint Government/WHO assessment of the programme (June 1969), eradication measures based on surveillance and containment of detected outbreaks were started, and gradually extended to the rest of Indonesia. National courses and seminars were held regularly from 1969 until 1974.

Consultant visits also continued from 1969 to 1974 to carry out epidemiological assessment and review vaccine production procedures at the "Bio Farma" Institute, Bandung. A consultant also visited the smallpox diagnostic laboratories in 1970 and assisted with a national course for the laboratory diagnosis of smallpox.

Numbers of reported cases of smallpox fell dramatically from over one third of the world total in 1970 until the last cases in the country were recorded in Tanggerang subdistrict, West Java, in January 1972. Following an active nation-wide search, with visits to all previously infected villages, spot checks, and other measures, Indonesia was declared free of smallpox by an international commission of experienced epidemiologists in April 1974.

A simultaneous BCG/smallpox vaccination pilot study, using smallpox vaccinators, started in 1972, was extended in the later phases of the project.


Following an outbreak of human plague in the Boyolali focus in Central Java in 1968, for which emergency supplies and equipment were provided, a consultant (Nov. 1969-Feb. 1970) started epidemiological investigations of rodents and fleas in the regency in order to improve surveillance and forecasting of epidemics. After a further small epidemic near the studied focus,
the protocol for a full ecological investigation was drafted and the scientist was recruited to organize and implement it. A medical officer from headquarters (Feb. 1972) discussed the selection of the study area and finalized the protocol, and following detailed reconnaissance of the plague zone and preliminary field and laboratory training of project staff, research started in April 1972. It concentrated on environmental changes, other periodic changes in the elements of the transmission cycle in small mammals and fleas and human behavioural patterns that might cause accidental entry into the infectious cycle. Studies of the prevalence of infection in fleas and their mammalian hosts in an inter-epidemic period were supported by bacteriological and serological studies in the laboratory.

A scientist from headquarters (late 1972) assisted in the preparation for computer processing of data collected as part of the project activities. A consultant (March-April 1973) assessed the preliminary results of the study and gave guidance on taxonomic identification of host species. Further assistance was given with analysis of data (Aug.-Sept. 1974). A further consultant (Nov.-Dec. 1974) reviewed the conditions for plague susceptibility testing of rodents in Boyolali, but after the start of trials the risks were seen to be excessive and work was stopped and hazardous material destroyed on his recommendation. The study showed that the plague bacillus continued to circulate in rodents and fleas in the Boyolali focus in the inter-epidemic period, threatening human health and welfare in the area. The pathogen was isolated from 2 flea species (Xenopsylla cheopis and Stivalinos cognatus) infesting 3 rodent species (Rattus rattus, R. exulans and R. tiomanicus) and from the organs of the first two rat species. It was isolated in each year and from all major host habitats in the area, suggesting more widespread infection than had been indicated by simple rates of isolation.

**MBD 001 Tuberculosis control (1961-1974)** R UNICEF—To integrate BCG vaccination without prior tuberculin testing into the work of the maternal and child health clinics and regency polyclinics; to train staff in case-finding by direct sputum smear examination and in meeting the requirements of ambulatory treatment.

**MBD 002 Leprosy control (1955-1974)** VL—To organize a demonstration and training area for leprosy control.

**OCD 001 Establishment of cytology services and training (1970-1973)** UNFPA—To establish laboratory services for cytology as part of the national family planning programme.

**DNH 001 Dental health (1968-1977)** UNDP—To plan dental health activities and strengthen dental services within the general health services, and to promote research in dental health.

**RAD 002 Training of X-ray and electromedical technicians (1966-1974)** R UNDP—To train medical radiological and engineering technicians in the use, maintenance and repair of electromedical equipment.

**SOP 001 Quality control of food and drugs (March-May 1975)** R—Following the consultant visit in 1974, a further consultant evaluated legislation and regulations for food control, its organization and operation.

**LAB 001 Laboratory services (1966-1977)** R UNICEF—To strengthen health laboratory services.

**LAB 002 Vaccine and sera production (1968-1976)** UNDP UNICEF—To improve methods of producing bacterial and viral vaccines, antisera and toxoids, and to develop facilities for the quality control of vaccines and sera.

**BSM 001 National community water supply and sanitation (1969-1980)** R—To plan community water supply, sewage and stormwater drainage systems, water pollution control and general sanitation work; and to train staff.

**PIP 002 Jakarta sewerage and sanitation project (1974-1978)** UNDP—To prepare a plan for the development of sewerage and sanitation in Jakarta.

**PIP 003 Rural water supply project, East Java Province (1975-1979)** UNDP—Under preparatory assistance, a rural water supply project for East Java Province is being prepared.

**CEP 001 Hazards to man from pesticides (1969-1979)** R—To formulate legislation against hazards to man from pesticides used in agriculture, and to train laboratory workers to determine cholinesterase levels.


**SES 001 Training in sanitary engineering (1968-1977)** R—To train sanitary engineers at the Institute of Technology, Bandung.

**Mongolia**

**SHS 001 Public health administration (1969-1977)** R—To develop comprehensive health services, promote manpower development, and strengthen medical care services, with particular emphasis on the control of endemic diseases of social and economic importance.

**HMD 001 Training of auxiliary health personnel (1971-1978)** R UNDP—To establish a school for the training of auxiliary health personnel.

**MDP 001 Malaria control (1972-1975)** R—To control malaria throughout the islands with the aim of eventual eradication.

**MBD 001 Leprosy and tuberculosis control (Oct. 1975)** R VL—A consultant conducted a leprosy case-finding survey, prepared a control programme, and assisted in organizing treatment of cases, surveillance of contacts, regular examination of schoolchildren, collection of information, reporting and analysis of data.

**BSM 001 Water supply and sanitation (1971-1980)** R—To develop water supply and sewage disposal systems for Male, and an environmental sanitation programme; and to train staff.

**PIP 001 Water supply and sewerage, Male (1974-1978)** UNDP VC—To develop a water supply and sewerage system for Male.

**0201 Fellowships UNDP**
Mongolia (continued)

health planning and management of health services and to
drawing up proposals for the development of a computer-based
health information system. A second consultant (Feb.-March)
examined the possibilities for automatic processing of health
data, drafted a test programme for the computerization of
hospital discharge statistics and made recommendations for other
uses, and assisted with the training of staff.

MCH 001 Maternal and child health services (1965–74) R
UNDP UNICEF—To develop the maternal and child health
services and establish referral services. Provided—a medical
officer, and fellowships.

Following a study of urban and rural services for maternal
and child health, a medical officer was assigned for the duration
of the project to assist in their development. An advisory group
on obstetrics and gynaecology was established in the department
of maternal and child health of the Ministry of Health, and in
1967 paediatric services were developed to cover broadly the
towns and aimaks. An assessment of ambulatory services,
rehydration centres, immunization services and in-service training
in maternal and child health was made in 1969, and assistance
was given with measures to strengthen these priority areas. In
particular, in-service training in paediatrics and obstetrics was
organized for various categories of health personnel in Ulan
Bator and in the aimaks, and improvements were made in the
curricula of training institutions for these subjects. Fellowships
were used to train administrative and service staff in various
specialties for maternal and child health care.

The progress made in maternity services is reflected in a
substantial increase in the percentage of institutional deliveries.

From January 1975 the activities of this project were merged with
those of project Mongolia MCH 002, Maternal and child health.

MCH 002 Maternal and child health (1975– ) R UNICEF—
To improve maternal and child care, including nutrition, with
emphasis on the development of specialized services.

HED 001 Health education (1970– ) R UNICEF—To develop
and implement a health education programme.

HMD 001 Nursing services and education (1966; 1968–75) R—
To develop schools of nursing, strengthen the training programmes for nursing personnel, and improve nursing services.

HMD 003 State Medical Institute, Ulan Bator (1970–79) R
UNDP—To develop the medical education system by improving admission procedures, revising curricula and practices in teaching and evaluation, and training a corps of teachers in different branches of medicine who will use modern educational techniques.

ESD 001 Epidemiological services and surveillance (1972–75)
R—Following the consultant visits in 1973 and 1974, two more consultants were appointed, the first (July–Sept. 1975) to assess the prevalence of serotypes of Neisseria meningitidis and their drug resistance patterns in the aimaks, the other (July–Aug. 1975) to assess bacterial air pollution, particularly in areas with a prevalence of serogroup B N. meningitidis where vaccines could not be used, in order to plan air hygiene measures. A medical officer from WHO headquarters then assessed the reactions and immune response to the new combined A and C type vaccine in small groups of young adults in Ulan Bator.

VPH 001 Brucella vaccine production (1970; 1972–77) UNDP—
To produce freeze-dried Brucella vaccine and establish laboratory facilities for its testing.

CVD 001 Cardiovascular diseases (1967– ) R—To study the
epidemiology of cardiovascular diseases and to improve measures for their prevention and treatment, with particular emphasis on rheumatic, hypertensive and ischaemic heart disease.

OCD 001 Control of noncommunicable diseases (Feb.–March
1975) R—A consultant provided assistance with the training of
physicians in the early detection of lung cancer and in radiodiagnostic and therapeutic techniques, and the organization of bronchoscopic examination in various centres.

DNH 001 Dental health services (1970; 1972–75) R—To
strengthen dental health services, particularly the paediatric stomatology services, train dental health personnel, and study the feasibility of a fluoridation programme.

RAD 001 Strengthening of radiological services and maintenance
of electromedical equipment (1968–69; 1971–80) R—To train
engineering technicians to undertake the repair and maintenance of electromedical equipment; and to promote radiation protection practices in health institutions.

SQP 001 Quality control of drugs (1971; 1973– ) R—To
develop pharmaceutical production and improve the services
associated in quality control; and to train staff.

LAB 001 Public health laboratory services (1964–75) UNDP
UNICEF—To develop the health laboratory services and train
personnel in health laboratory work.

LAB 002 Rehydration therapy (production of rehydration fluid)
(1973–77) R—To produce rehydration fluid and train paediatricians in the practice of oral and parenteral rehydration therapy.

SES 001 Strengthening of sanitary services (public health inspection) (1974–78) R—To evaluate and develop the sanitary control services; to improve training of personnel for the state sanitary inspection services; and to strengthen the public health chemical laboratories.

0200 Fellowships R

Nepal

SHS 001 Development of health services (1968; 1970– ) R
UNDP VC—To strengthen the development of the basic health services in conformity with the Government's development plans; to conduct health surveys, health manpower surveys and relevant studies; and to coordinate associated projects operating in the country.

SHS 002 Medical stores management (1972–77) R UNDP—To
develop medical stores and supply services.

SHS 004 Nursing education and services (1954–74) UNDP
UNICEF—To coordinate nursing activities; set up a basic nursing school; organize courses for assistant nurse/midwives; upgrade nursing services in Bir Hospital; improve clinical facilities, and develop public health nursing services that will provide teaching practice for nursing and assistant nurse/midwife students. Provided—3 nurse educators, a nurse administrator, a nursing adviser, a public health nurse, 3 consultants, 80 fellowships, and supplies and equipment including vehicles, hospital and laboratory equipment, and medical literature.

The main aim of establishing a basic nursing school was achieved with the setting up of the first such school in Nepal in June 1956, and WHO assistance with the running of the school was continuous, both in teaching and in management; thereafter assistance was also given to 4 schools for assistant
nurse/midwives, increasing the size and the range of professional competence of their faculties, and a nursing unit was established in the Department of Health. WHO nurses contributed to the training of national staff; a number of training and refresher courses were organized. The importance of the education activities can be judged from the number of fellowships awarded. The achievements of the project are considerable. However, the schools will require more national nurse tutors and greater material support for further development.

**HED 001 Health education (1967-77) R UNICEF**—To introduce health education in the basic health services and specialized projects, and to strengthen health education in schools and teacher-training institutions.

**MPD 001 Malaria eradication (1954- ) R**

**SME 001 Smallpox eradication (1962-63; 1966-77) R UNDP**—To achieve total eradication of smallpox by 1977.

**MBD 001 Leprosy control (1967- ) R UNDP**—To develop the leprosy control programme and train the necessary personnel.

**MBD 002 Tuberculosis control (1965- ) R UNDP**—To develop a tuberculosis control programme within the basic health services and train personnel in control methods and techniques.

**VPH 001 Prevention of rabies (1975) R**—Following the consultant visits in 1972-73 and a fellowship for virological studies in 1974, a further fellowship was awarded in 1975.

**LAB 001 Health laboratory services (1967-79) R**—To develop health laboratory services in order to improve diagnostic services and provide support for an epidemiological unit; and to train personnel.

**BSM 001 Community water supply and sanitation (1971-80) R**—To plan, organize and implement a long-term comprehensive national programme of community water supply and waste disposal.

**PIP 002 Master plan for the conservation of cultural heritage in Kathmandu Valley (May-June 1975) UNDP/UNESCO**—A consultant in public health and sanitation was assigned to assist in the preparation of water supply, sewerage and sanitation programme proposals as part of this plan.

**SHS 001 Medical rehabilitation (1968-70; 1972-77) R**—To improve the rehabilitation services and train the necessary staff.

**SHS 002 Port health services (1969-70; 1972- ) R**—To strengthen port health services.

**SHS 003 National health planning (1970- ) R**—To establish and strengthen a national health planning unit in the Ministry of Health and train health personnel in health planning.

**SHS 004 Strengthening of electromedical division (1972-78) R**—To train technicians for the repair of electromedical equipment and improve workshops undertaking the maintenance and repair of X-ray and other electrical and electronic equipment used in health institutions.

**MCH 001 Family health (1971-76) UNFPA/UNICEF**—To promote family health, in particular maternal and child health and family planning, as an integral part of the general health services.

**HED 001 Development of health education (1966-67; 1969-77) R**—To strengthen health education services, including health education in schools, and evaluate activities; and to strengthen health education teaching in medical colleges, teacher-training institutions and other training centres.

**HED 002 Health education in family health (1971-77) UNFPA (UNESCO)**—To promote family health through health education.

**HMD 001 Medical education (1959; 1963-77) R**—To develop undergraduate and postgraduate teaching programmes and provide training for teachers at the 2 faculties of medicine.

**HMD 002 Nursing advisory services (1960-67; 1969-77) R**—To develop nursing and midwifery education and services.

**HMD 006 Strengthening of nursing and midwifery education (1972-76) UNFPA**—To strengthen the nursing and midwifery education provided in the 8 basic schools of nursing, the Mul-leriyawali affiliation school, and the postbasic school of nursing in Colombo, with emphasis on public health and midwifery and using reference material in the local languages.

**HMD 007 Teaching of human reproduction, family planning and population dynamics in medical schools (1974-77) UNFPA**—To strengthen the teaching of human reproduction, family planning and population dynamics in medical schools.

**ESD 001 Strengthening of epidemiological services (1967; 1970-74) R**—To strengthen the epidemiological services and train personnel. Provided—3 consultants, and supplies and equipment.

Some years after the establishment under various earlier projects of an Epidemiology Unit in the Public Health Division of the Directorate of Health, and with the changing pattern of infectious diseases, as plague, cholera and smallpox gave way to intestinal and respiratory infections, diphtheria, tetanus, poliomyelitis, viral hepatitis, rabies and a large group of febrile diseases, WHO's assistance was requested further to strengthen the epidemiological services. A consultant (July-Oct. 1967) reviewed their organization and helped to plan their development within the general health service framework, with particular attention to the improvement of surveillance and research and related laboratory procedures. Improvements in hospital management with respect to communicable diseases and the use of laboratory diagnostic services were initiated to provide the epidemiological services and health authorities with more reliable data on the incidence and prevalence of diseases. A surveillance and monitoring system for haemorrhagic fever was set up in the Epidemiology Unit with the collaboration of the Medical Research Institute, Colombo, and hospital authorities.

A WHO virologist visited the project (Sept.-Oct. 1971) to assist in a review of data on leptospirosis, and a consultant (Sept. 1972) studied the incidence of Japanese encephalitis (said to be 10% among hospitalized cases of viral encephalitis in the country), assisted in initiating an investigation into the persistence of this infection and suggested steps to clarify its etiology.

Another consultant (May-July 1974) assisted the Infectious Diseases Hospital, Angoda, in the improvement of diagnostic...
Sri Lanka (continued)

procedures and in the better utilization of microbiological laboratories in relation to infectious diseases. Similar services were rendered in other infectious disease hospitals.

Training of staff for infectious disease services was an integral part of the assistance provided for this project.

ESD 002  Strengthening of surveillance and control of communicable diseases (1975-80) R

MPD 001  Malaria control (1969-72) R —To intensify operations for the control of malaria with the ultimate aim of malaria eradication.


A 2-year pilot project assisted by UNICEF and WHO for the development of a community-oriented tuberculosis control programme in the North-West Province provided the experience necessary for the implementation of this control programme as an integrated activity of the general health services. A consultant (April-May 1966) assisted with the design and planning of case-finding and treatment operations, with emphasis on reporting and recording, while a second consultant, a nurse (March-May 1966), assisted with the integration of a countrywide BCG programme for the vaccination of susceptible groups among the population. Later a third consultant, a laboratory technician (Aug.-Sept. 1967) provided training for and motivation of staff of health services in case-finding from sputum samples.

With the help of the medical officer assigned to the project in 1968 a long-term national programme was developed, and 2 more consultants (a medical officer and a statistician) assisted in a survey in the North-West Province to assess the effectiveness of case-finding based on symptoms suggestive of pulmonary tuberculosis among general outpatients attending rural health services.

Following an epidemiological survey by the regional tuberculosis training and evaluation team in 1970-1971, showing that tuberculosis was less serious a problem than in certain other countries, a consultant (early 1971) reviewed control activities in the light of results obtained in rural areas; he discussed with the national staff revised policies for case-finding, treatment and prevention. A further consultant, a statistician (Sept. 1971-Feb. 1972) assisted in the analysis of the survey results in urban and rural areas, advised on epidemiological and operational aspects of revised programme priorities. Supplies and equipment, and fellowships for the training of staff, continued to be provided until the end of 1974.

VBC 001  Vector control (1972-74) UNDP —To control insect vectors of communicable diseases of public health importance.

DNH 001  Dental health (1970-72) R —To develop training programmes for dental health personnel and expand dental health services as part of the general health services.

MNH 001  Mental health (1955-56; 1960-61; 1963; 1966-67; 1969-80) R —To train various categories of health personnel in psychiatry; to develop community-oriented mental health care services within the existing system for public health care delivery; to introduce new approaches in mental health care; and to undertake epidemiological investigations of mental illness.

RAD 001  Radiation health (1966; 1969-80) R —To strengthen radiation protection services and train staff.

SQP 001  Quality control of biological and pharmaceutical products (1966-67; 1971-77) R —To strengthen the quality control of pharmaceutical and biological preparations and to train staff.

LAB 001  Strengthening of laboratory services (1966-77) R —To develop specialized diagnostic and reference services in support of communicable disease prevention and control, and to train staff.

LAB 002  Production of improved vaccines (1969-70; 1974-75) R UNICEF —A consultant (Dec. 1974-Feb. 1975) reviewed a list of supplies and equipment to be procured by UNICEF and assisted in establishing a freeze-dried seed lot for smallpox vaccine and potency testing of rabies vaccine.

BSM 001  Community water supply and sanitation (1963-75) R —To develop programmes of water supply, sewage disposal, stormwater drainage and general sanitation, and to train personnel.

HWP 001  Occupational health and industrial hygiene (1968-70; 1972-75) R —To control health hazards in industry.

FSP 001  Food hygiene (1974-75) R —To establish a national food control administration and train staff.

0200  Fellowships R

Thailand

SHS 001  Medical rehabilitation (1968-72) R —To develop rehabilitation services in certain hospitals in the provinces and in Bangkok and to train the necessary staff.

SHS 002  Health planning and administration (1970-72) R -To strengthen and improve national health planning and health administration, with primary emphasis on the phased integration of disease control and special health programmes, eventually leading to the development of a comprehensive health care service.

MCH 001  Bangkok municipality family planning field worker project (1973-75) UNFPA UNICEF —To strengthen and expand family planning services, using field workers, as an integral part of general maternal and child health services; to increase motivation for small family size; and to train the necessary personnel.

MCH 002  Accelerated development of maternal and child health and family planning services (1973-75) UNFPA —To strengthen maternal and child health and family planning services, to improve family health as a whole, and to demonstrate the feasibility of delivering family planning services effectively.

HRP 001  Expanded sterilization project (1973-75) UNFPA —To strengthen maternal and child health and family planning services by provision of adequate services to meet the demand for voluntary sterilization.

NUT 001  National Institute of Food and Nutrition, Bangkok (1973-75) R UNDP —To improve medical training and research at the Institute, to identify health priorities in nutritional matters, and to develop remedial measures against malnutrition and undernutrition, through the general health services.

HED 001  Development of health education (June-July 1975) R —A consultant reviewed health education services and assisted in the formulation of a health education project in support of the health services. This completes activities which started with the assignment of a consultant (Dec. 1966) who reviewed training in health education methods, and continued in 1969, 1971 and subsequent years with the award of a number of fellowships.
HMD 001 Faculty of Tropical Medicine, Mahidol University, Bangkok (May 1975) R—One of the fellowships awarded in 1974, following the assistance to this project between 1959 and 1973, was extended.

HMD 002 Nursing education and services (1968-75) R—To study nursing needs and resources, strengthen nursing services and education, develop university-level courses for nurses and organize and conduct studies related to nursing services and education.

HMD 003 Faculty of Public Health, Mahidol University, Bangkok (1968-78) R—To develop the teaching programmes of the Faculty of Public Health, Mahidol University, Bangkok.

HMD 004 Medical education and training (1971- ) R—To develop the teaching and training programmes of the medical faculties at Chiangmai, Chulalongkorn and Mahidol Universities and the Faculty of Postgraduate Studies at Mahidol University, and to plan the medical faculty for the Prince of Songkhla University.

HMD 005 National Institute of Dermatology, Bangkok (1972-75) R—To develop the Institute in order to provide facilities for diagnosis, treatment, research and training.

HMD 008 Teaching of human reproduction, family planning and population dynamics in medical schools (1970- ) UNFPA—To strengthen teaching and research in the medical school departments involved in the teaching of human reproduction.

ESD 001 (formerly 0059) Epidemiology (1966-74) R UNDP—To organize and strengthen a national epidemiological service, undertake studies of specific health problems, and train personnel. Provided—8 consultants, and fellowships.

In 1963 an epidemiological unit had been established in the Division of Communicable Disease Control of the Department of Health to concentrate on the major public health problem that communicable diseases constituted in the country. From 1967 consultants were assigned to assist in finding solutions to specific disease problems or to strengthen the unit. The first (1967) studied poliomyelitis epidemiology and confirmed the abundant prevalence of enteroviruses in Bangkok. An immunization programme was started, but owing to inadequate production of vaccines it benefited only a small proportion of infants. A feasibility study on poliomyelitis immunization was subsequently conducted in Bangkok. A second consultant (1967) reviewed the system for the notification, recording and reporting of communicable diseases and drew up proposals for an improved system. He also trained a team, an epidemiologist, microbiologists, a clinician and 4 technicians, in epidemiological investigation and control of epidemics. Studies on cholera carriers, initiated at this time, were continued by the national health authorities until a consultant (May-June 1972) provided further assistance and collaborated in surveys of diarrhoeal diseases.

In 1970 two consultants assisted in drawing up plans for the development of epidemiological services and in preparing a course for staff of regional services. Further assistance with the development of services and training was given by 2 more consultants (June 1971; April-July 1972), the latter also advising on an assessment of the leprosy control services as a basis for their integration into the general health services. In October 1972 the epidemiology unit officially became the Division of Epidemiology in the Office of the Under-Secretary for Public Health, with its own budget and staff. A consultant (June-July 1973) reviewed progress and made recommendations for strengthening the Division. A last consultant (July-Aug. 1973) assisted with the filariasis control scheme and with guidelines for investigations on filariasis by the Faculty of Tropical Medicine, Mahidol University, Bangkok.

ESD 002 Strengthening of epidemiological surveillance (1975- ) R—To develop the control of communicable diseases and improve surveillance services, starting at the periphery.

MPD 001 Malaria eradication (1962- ) R

VDT 001 Venereal disease control (1967-74) R—To control venereal diseases and train staff in clinical and laboratory procedures. Provided—8 consultant visits, and fellowships.

The consultants assigned to this project for the dates indicated gave the following assistance: assessment of the extent of the venereal disease problem, development of control methodology and training of staff in active case-finding, particularly in contact-tracing (Feb.-Aug. 1967); strengthening of venereal disease laboratory services (Oct.-Nov. 1967); review of tests for syphilis carried out in the Central Venereal Disease Laboratory (same consultant, May 1969); review of the control programme and proposal of improvements to curb the spread of venereal diseases (Nov. 1971-Jan. 1972); development of clinical services for bacteriology and serology (same consultant, Jan. 1973); improvement of laboratory techniques (Nov. 1972-April 1973); and finally, study of the epidemiology, clinical pathology, bacteriology and serology of venereal diseases in Thailand (May-July 1974). This consultant recommended establishment of demonstration units in medical colleges, collection of more detailed statistics, improvement of clinical standards and strengthening of laboratory services for venereal diseases.

A number of national staff received fellowships for training in venereal disease control methods.

VPH 001 Faculty of Veterinary Sciences, Chulalongkorn University (Nov.-Dec. 1974) R—Following the consultant visit in 1972-73, a further consultant assisted in the development of a training programme in veterinary medicine at the Faculty and in the preparation of a long-term programme of tropical veterinary medicine and veterinary public health services. Advice was also given under this project on the development of the farm animal clinic at Nakorn Pathom and the establishment of a diagnostic laboratory. Fellowships, supplies and equipment were provided.

DNH 001 Dental health (1967-77) R—To improve the education of professional and auxiliary dental staff, and to strengthen dental services.

MNH 001 Mental health (1974-75) R—Following the assistance provided under this project between 1963 and 1970, a consultant (Nov.-Dec. 1974) assisted in the organization of undergraduate training programmes and the establishment of community-oriented mental health services. A further consultant (Dec. 1974-Feb. 1975) studied ways of providing psychiatric services to the community and training professional mental health workers for integrated services, and reviewed facilities in mental health institutions for the management of services for the patient and of referral systems and records.

RAD 003 School for Medical Physicists, Bangkok (Dec. 1974-March 1975) UNDP—Following the assistance provided to this project between 1971 and 1974, a consultant assessed the training programme for medical physicists, reviewed the radiology protection services, evaluated the standard of calibration of diagnostic and therapeutic equipment, and assisted in measures to improve services and training.

SQP 001 Quality control of pharmaceutical preparations (1970-75) R VD—To strengthen legislation and laboratory competence in the quality control of pharmaceutical preparations and train drug analysts and drug inspectors.
Thailand (continued)

LAB 001 Strengthening of laboratory services (1968-77) R—To organize national health laboratory services and strengthen the teaching of laboratory sciences and training in medical laboratory technology.

BSM 001 Community water supply and sanitation (1969-75) UNDP UNICEF—To plan, organize and administer a national environmental health programme, including the extension of community water supplies, and to train personnel.

SES 001 Department of Sanitary Engineering, Chulalongkorn University, Bangkok (1973-77) R UNDP—To strengthen the Department.

FSP 001 Food and drug control administration (1964; 1971-72; 1974- ) R—To establish a food and drug control administration in the Department of Medical Sciences, Ministry of Public Health, and to train staff.

DHS 001 Vital and health statistics (1957-60; 1968-69; 1970-75) R—To develop a coordinated health statistical system and train staff for this purpose, and for the strengthening of medical records offices. Provided—2 statisticians (1957-59; 1972-75), 2 consultants, supplies and equipment, and 8 fellowships.

The first phase of this project (Thailand 37)1 was followed, after the departure of the first statistician, by various measures, under other country and intercountry projects, for the development of hospital statistics and recording and reporting from rural health institutions. In the second phase, with a revised plan of operation emphasizing communicable disease statistics and notification of communicable diseases, a consultant (1969) reviewed the organization of statistics in the Ministry of Public Health and prepared a 3-year timetable for the implementation of improved systems. Another consultant (1971) reviewed the health statistical services and assisted in measures to improve and amplify statistics for health planning.

The second statistician (1972-75) assisted in the development of a coordinated health statistical system for the planning and evaluation of public health programmes. In this later phase, the project was closely linked with project Thailand SHS 002, Health planning and administration, with which its activities were merged from early 1975.

0128 Training and increased mobility for health personnel in the national family planning project (1973-75) UNFPA UNICEF—To strengthen maternal and child health and family planning services by training staff and increasing their mobility, particularly in rural areas.

Intercountry Programmes

SHS 001 Asian Institute for Economic Development and Planning (1964- ) R (ESCAP)—To assist the faculty of the Institute in training and research related to the health component in socio-economic development.

SHS 002 Organization and administration of hospital and medical care services (1968- ) R—To assist in the development of regional health services; in the organization of medical care, including hospital administration; in the development of uniform medical records systems for hospitals and health centres; and in training staff.

An intercountry Seminar on Peripheral Medical Care Services was held in Bangkok and Chiangmai, Thailand (1-10 September 1975) to identify problems and develop guidelines for the delivery of primary medical care in rural areas. There were 21 participants from 7 countries of the Region. Provided—a consultant and the services of regional office staff.

SHS 004 Training courses in the management of infectious-disease hospitals (1967-74) R—To assist in improving infectious-disease hospitals so that they provide adequate facilities for diagnosis and treatment, and for training. Provided—consultants and temporary advisers for organization and follow-up of courses.

The first course was held in Bombay, India in 1967 for 20 participants from 3 countries in the Region, with the assistance of 2 consultants—an epidemiologist and a nurse. The second was held in Bangkok in 1968 for 31 participants with the assistance of 2 consultants—an epidemiologist/clinician and a nurse. A third consultant, a bacteriologist, elaborated a proposed plan of action for control of hospital infection in the general teaching hospitals. Further follow-up of the two courses was provided by 2 consultants—an infectious disease specialist and a nurse—who visited hospitals in Burma, India, Sri Lanka and Thailand in 1970.

An intercountry workshop on the same subject was held in Hyderabad, India (Nov. 1972) for 20 participants from countries of the Region.

The remaining activities of this project were described in the Annual Report for 1974.1

SHS 006 Health research and development (1970- ) R—To provide support and coordination in health research and development, and particularly in country health programming, project formulation and management, programme budgeting and evaluation and information systems development.

SHS 009 Public health advisory services (1973; 1975) R—To provide support to activities currently financed under interregional projects and suitable for implementation in the South-East Asia Region.

During the period under review a consultant visited 6 countries to assess the results of the courses held at the London School of Hygiene and Tropical Medicine among students from the Region, judging from their current activities. Another consultant assisted in a programme of blindness control in Burma and discussed details of a sample blindness survey, collection of statistical information on eye conditions and the preparation of an inventory of facilities for education and training.

SHS 011 Medical rehabilitation (1974- ) R—To study the problems of rehabilitating the physically handicapped, and the facilities available, and to advise on the integration of various components of rehabilitation services into a unified programme.

SHS 012 Strengthening health services administration through training in planning (first phase 1969-75; second phase 1975- ) R UNDP—To strengthen health planning as a part of health service administration; to provide training in health planning methods and health systems management; and to develop national self-sufficiency in services and training. Provided—20 consultants and a number of temporary advisers.

The first regional course in national health planning (3 Nov. 1969-30 Jan. 1970) was held at the Asian Institute for Economic Development and Planning, Bangkok and was followed by field training (31 Jan.-12 Feb. 1970) in Rohtak District, India. A meeting (Aug. 1970) was held to evaluate the course and prepare another, and, following a further meeting (Oct. 1970) in Bangkok of senior ministerial officials from countries of the Region to review the development of planning, the second regional course (4 Jan.-2 April 1971) was held in New Delhi and Bangkok for


18 participants from countries of the Region, with emphasis on the interaction of health and development. Again after a review meeting (July 1971), a third course was held at the Asian Institute, Bangkok (17 Jan.-7 April 1972) for 17 participants, to impart the theory and practical aspects of socioeconomic development and health planning, and particularly to teach new approaches.

A seminar on the development of national health planning was again held at the Asian Institute, Bangkok (Dec. 1974) to assess the results of the 3 training courses, the experience gained by participants and the benefits to their countries, with a view to the organization of further courses.

The second phase of the project started in June 1975 with the assignment of a regional health planning advisory team.

**MCH 010 Education and studies in child health (1974-75) R**

Following the course in neonatology held in Chiangmai, Thailand, in 1974, a consultant (Dec. 1974-March 1975) studied the importance of low birth-weight in perinatal morbidity and mortality and assisted in preparations for a full study of the problem.

A Conference on Paediatric Education was held in Bangkok for 20 participants from 6 countries of the Region (10-15 March 1975), to review current postgraduate paediatric education and training programmes and recommend measures further to develop such programmes. Provided—2 consultants, a temporary adviser, and the services of a regional office staff member.

**MCH 011 Regional team in family health (1970-75) UNFPA—** To support national and international activities concerned with family health services and with training, evaluation and research in the subject.

**MCH 013 Development of maternity-centred aspects of family health services (Dec. 1974) UNFPA—** A 2-year fellowship was awarded following the assistance provided under this project between 1972 and 1974.1

**HRP 001 Group education in service, teaching and research aspects of human reproduction, family health and population dynamics (1971-76) UNFPA—** To assist in the development of education and studies in human reproduction, family health and population dynamics.

A Seminar on the Maternity-centred Approach to Family Planning was held in Hyderabad, India (9-13 Dec. 1974), with 16 participants from 5 countries of the Region, to identify the elements and mode of delivery of integrated services for maternal and child care and family planning for rural areas. Provided—3 consultants and the cost of attendance of participants.

**HED 003 Health education materials and media with particular reference to family planning (1974-76) UNFPA—** To assist in developing and implementing the health education component of a family health programme, and in assessing its effectiveness; to improve the educational materials; and to provide training in family health education to staff of the competent institutions and to key health personnel.

Following the activities under this project in 1971-74, 2 an intercountry workshop on mass communications media in family health education was held in New Delhi (22-31 Oct. 1975), with participants from 6 countries in the Region. Provided—a health education specialist.

**HMD 001 Continuing education for nurses (1967-73) R UNICEF—** To assist in conducting short courses for nurses in order to acquaint them with new concepts and skills, particularly as regards patient care and family health, and in preparing reference and teaching materials; and to assist countries in areas of nursing services and education that require study.

**HMD 002 Education and training of environmental health personnel (1970-73; 1975- R)**

**HMD 003 Community health aspects of medical education (9-14 Dec. 1974) R—** To assist medical schools in developing interdepartmental teaching and training programmes in community health care.

Following the activities under this project in 1970, 1972 and 1973, a further workshop on community aspects of medical education was held in Peradeniya, Sri Lanka, to define the requirements for a community-oriented physician and elaborate a programme for medical schools to develop that approach among medical students.

**HMD 004 WHO-sponsored training centre for nurses, Wellington, New Zealand (1970-77) R—** To provide a training programme for nurses from the Region who cannot obtain admission to regular postbasic courses because of lack of secondary education and/or the language skills required.

**HMD 005 Participation in meetings (1973-75) R—** To provide for participation from the South-East Asia Region in group educational activities outside the Region in various disciplines, and to support activities currently assisted under interregional projects and that are suitable for implementation in the Region.

**HMD 007 Medical teachers' training and continuing education (1969-76) UNDP—** To build up regional capacity to train teachers of health professionals in medical pedagogy, and to introduce continuing education.

Two short refresher courses on care of the mentally ill in the community were held in Rangoon and Mandalay, Burma, in March 1975 for 142 doctors, nurses and social workers. Provided—4 consultants and the services of the project coordinator.

Two other short refresher courses on care of children with chronic respiratory infections were held in Ulan Bator and Darhan, Mongolia in June 1975 for some 75 paediatricians, surgeons, X-ray specialists, pathologists and ear, nose and throat specialists. Provided—4 consultants and the services of the project coordinator.

An intercountry course in educational science for teachers of health professionals was held in Colombo (15-27 Sept. 1975) for 24 senior medical teachers, administrators and senior nursing personnel from 7 countries of the Region. Provided—2 consultants, 2 temporary advisers and the services of project staff.

**HMD 008 Medical education in human reproduction, family planning and population dynamics (1972-76) UNFPA—** To assist in planning, conducting and evaluating short courses for senior medical teachers in order to improve the teaching of human reproduction, family planning and population dynamics in medical schools of the Region.

A fourth course on the teaching of human reproduction, family planning and population dynamics was held at the Faculty of Medicine, Chulalongkorn University, Bangkok (6-17 Oct. 1975) with 30 participants from 5 countries of the Region. Provided—2 consultants, 2 temporary advisers, the cost of attendance of participants and the services of a regional office staff member.

**ESD 002 Epidemiological surveillance and training (1966-75) R—** To assist in strengthening epidemiological surveillance programmes covering the most important communicable diseases, in introducing epidemiological surveillance work into the normal functions of local health services, and in training staff.
Intercountry Programmes (continued)

**MPD 001** Assessment team on malaria eradication (1959–61; 1963– ) R—To make an independent assessment of malaria control and eradication programmes in countries of the Region.

**MPD 002** External cross-checking of blood films (1968–77) R—To develop and strengthen facilities in the countries of the Region for independent cross-checking of blood films from malaria eradication and control programmes.

**SME 001** Smallpox eradication and epidemiological advisory team (1962–77) R VS—To assist in achieving total eradication of smallpox by 1977.

**MBD 001** Tuberculosis training and evaluation team (1967–74) R—To provide training in the operations and techniques of national tuberculosis control; assist in programme-oriented research and in the evaluation of integrated national tuberculosis control programmes in the Region; and provide practical assistance to national tuberculosis programmes as required. Provided—a medical officer, a statistician, a nurse and a technical officer for laboratory work, and 3 consultants (various assignments).

Following the appointment of its members starting in December 1967, the team evaluated tuberculosis control programmes in Burma, India, the Maldives, Mongolia, Sri Lanka and later Bangladesh, discussed its findings with the responsible authorities, assisting in measures to strengthen the programmes, and organized regional activities for training of staff. In 1970, it cooperated in the activities of the National Tuberculosis Institute, Bangalore, India; assisted in the design of a survey in Sri Lanka and the development of the recently established National Tuberculosis Institute, Colombo, where, in 1971, it helped to organize a central laboratory and to train staff for an extended control programme for the country. A manual of laboratory methods was prepared. The team took part in preparations for a national seminar on tuberculosis control and in other training activities in Burma in 1971 and in Ulan Bator, Mongolia in 1972. Maldives received assistance in 1972 with an assessment of control work and in training of staff of the Chest Clinic in Male in laboratory procedures and case-finding.

In 1973 the team formulated revised assessment methods and assisted Sri Lanka with preparations for its part in the WHO-sponsored international training course in the epidemiology and control of tuberculosis—the twelfth in a series—and with the organization of an integrated control programme and the introduction of refresher training for student technicians at the central laboratory, Colombo. Further assistance to Sri Lanka included preparations for the thirteenth international course, work on the report on a study of drug resistance connected with pulmonary tuberculosis, revision of the manual of laboratory methods and of the work procedures for case-finding.

In Bangladesh in 1974 the team assisted the tuberculosis laboratory in Dacca, and helped to organize a national course for technicians in tuberculosis and a seminar conducted jointly by the Government, the International Union against Tuberculosis, and WHO.

A consultant (July–Sept. 1974) assisted Mongolia in the establishment of bronchoscopic services in hospitals in the aimaks and in Ulan Bator and in training physicians and surgeons in bronchoscopic techniques. He also demonstrated radiological diagnostic and surgical operative techniques to medical personnel.

**VPH 001** Training in veterinary public health and promotion of veterinary public health services (1968–70; 1972– ) R—To assist in training public health veterinarians.

**MNH 001** Mental health (1970; 1972–80) R—To assess mental health problems and the status of psychiatric services, training and research; and to assist in organizing group activities for the promotion of community-oriented services, in coordinating regional epidemiological investigations of mental illness, and in studying the socioeconomic aspects of mental health.

A regional workshop held in Bangkok (28 Nov.–4 Dec. 1974) for 28 participants from 6 countries of the Region reviewed psychiatric education in medical schools and prepared guidelines for mental health workers. Provided—4 consultants and the cost of attendance of participants.

An intercountry seminar on the epidemiology of mental diseases (24 Feb.–1 March 1975) was held at the Regional Office for 17 participants from 7 countries to promote the application of epidemiological concepts and the identification of high-risk groups for psychiatric services. The participants also discussed the use, adapted to conditions in different countries of the Region, of a glossary of mental disorders and a guide to their classification.

A consultant (Dec. 1974-Jan. 1975) visited the psychiatric departments of institutions in Madras and Bangalore, India, to evaluate training and services, and assisted in improving mental health activities.

**RAD 001** Radiation protection (1968–77) R—To develop radiation protection services, to assist with legislation against health hazards from ionizing radiation, to promote radiological sciences as applied to human health, and to train personnel for radiation monitoring and surveillance.

**IMM 001** Training in immunology (1969–70; 1972– ) R—To review progress in immunology, particularly in relation to communicable diseases, and to strengthen training in the specialty.


**LAB 001** Health laboratory services (1970–75) R—To review the progress achieved in the reorganization of national health laboratory services and their administrative and technical operations and management; to determine ways of standardizing methods, equipment, teaching, recording and reporting in order to formulate guidelines for coordination with recipient services such as epidemiological and health services; and to assist in the training of laboratory personnel.

**LAB 002** Courses on health laboratory techniques (1969– ) R—To assist with courses on health laboratory techniques.

An intercountry seminar/workshop on small laboratory animals was held in Bombay, India (3–14 Feb. 1975) with 16 participants from 6 countries of the Region, who drew up minimum requirements and guidelines for laboratory animal facilities used in diagnostic research and in assay of biologicals. Provided—3 consultants, the cost of attendance of participants, and the services of regional office staff.

**BSM 001** Community water supply and sanitation (1965–80) R VW—To assist countries of the Region in developing urban and rural community water supply and sanitation programmes.

**PIP 001** Public health advisory services, Mekong Committee (1968–79) UNDP/UN—To provide technical advice to the Committee for the Coordination of Investigations of the Lower Mekong Basin, including advice on environmental conditions
and problems directly or closely related to the many water resources development projects.

**CEP 002 Environmental pollution control (1973-80) R—To assist in the control and abatement of environmental pollution.**

**SES 002 Planning of environmental health services (Sept.-Dec. 1974) R—To plan and develop national environmental health programmes as part of national health plans.**

A regional Seminar on Planning Environmental Health Services was held at the Regional Office (5-13 Dec. 1974) with 15 participants from 7 countries of the Region, observers from UNDP, UNESCO, IBRD and a representative of the Asian Institute for Economic Development and Planning. Provided—2 consultants and the services of staff from WHO headquarters and from the field.

The consultants also studied environmental health services in Bangladesh, India, Indonesia, Sri Lanka and Thailand, and collected data for a regional review.

**HSM 001 Health statistics methodology (1972–) R—To develop the skills and techniques necessary for the application of statistical methods to health problems in the Region.**

**HLT 003 Regional centre for documentation on human reproduction, family planning and population dynamics (1971–) UNFPA—To set up a regional centre, in the Regional Office, to produce reports and other documentation on aspects of human reproduction, family planning and population dynamics for wider distribution, particularly to schools for professional and auxiliary health workers, to the health services, to the main health institutions in the Region, and to international centres for such documentation.**

A regional Seminar on Documentation in the field of Human Reproduction, Family Planning and Population Dynamics was held at the Regional Office (28 April-2 May 1975), with 22 participants from 6 countries of the Region, which resulted in recommendations for the further strengthening of activities of the Regional Documentation Centre and for the development of national centres. Provided—a consultant, a temporary adviser and the services of regional office staff.

Four further consultants provided during the period under review prepared bibliographies and reviews on family planning programmes, male reproductive function and fertility control, intrauterine contraceptives, and female reproductive biology. Work also started on a bibliography on sterilization, male and female.
Albania

SHS 001 Emergency hospital (1972–) UNDP—To establish emergency medical care services for the whole country, in particular an emergency hospital in Tirana, to train personnel, and to select appropriate equipment.

SHS 002 Rehabilitation of the physically handicapped (1973–76) UNDP—To establish a centre for the physically handicapped, dealing with social, medical, educational and professional aspects of all types of handicap in all age groups of the population.

During the period under review a staff member assisted (25 Feb.-1 March 1975) in amending the work plan contained in the project document.

HMD 099 Lecturers and fellowships (1974–) R

CAN 001 Cancer control (1962–75) UNDP—To develop a specialized cancer programme by building up a central institute with up-to-date equipment, and by training physicians, physicists and engineers for the medical and technical aspects of the programme.

LAB 001 Central Institute of Epidemiology, Microbiology and Immunology, Tirana (1975) UNDP—A fellowship in vaccine production was awarded under this project, for which consultant services, fellowships and supplies and equipment were provided between 1965 and 1973.

Algeria

SHS 002 (formerly SHS 001) Development of public health services (1963–) R UNICEF—To plan and organize public health services, with emphasis on extending and improving the basic health services, on training public health personnel at the National Institute of Health and the schools for health personnel, and on some specialized activities such as nursing education and mental health services.

HRP 001 Maternity-centred family planning (1972–) UNFPA UNICEF—To strengthen and develop integrated maternal and child health/family planning activities and various aspects of family protection, including maternal health, prenatal, postnatal and child care, spacing of childbirths and medical and social family care.

HMD 001 Institute of Health Technology, Constantine (1970–76) R UNDP—To establish an institute for the training of medical assistants and public health midwives to meet the country’s urgent requirements.

HMD 002 Medical education (1971–) R—To develop new teaching methods in medical faculties and train teachers and technicians.

HMD 099 Lecturers and fellowships (1974–) R

ESD 001 Surveillance and control of communicable diseases (1971–) R—To identify and define high- and low-risk groups with regard to communicable diseases that constitute major public health problems, as a first step towards instituting control measures.

MPD 001 Malaria eradication programme (1968–) R—Programme following the pre-eradication programme started in 1964.

LAB 001 Vaccine production (1974–) R—To expand and modernize the production of various vaccines and other biological products needed for immunization programmes. The project is complementary to that for the surveillance and control of communicable diseases (Algeria ESD 001).

BSM 001 Environmental sanitation (1963–) R UNICEF—To develop and strengthen environmental sanitation services, promote environmental sanitation work and train sanitation personnel.

PIP 001 National water authority (1963–76) UNDP—To set up a national water authority responsible for planning and implementing a water development investment programme, carry out pre-investment studies and train personnel.

HWP 001 Occupational health services (1974–75) R (ILO)—To develop occupational health and safety services and establish education and training programmes for different levels of personnel.

SES 001 Training of sanitary engineers (1971–75) R—To train sanitary engineers at undergraduate and postgraduate levels at the sanitary engineering centre, Rabat.

Austria

SHS 001 Institute of Public Health (1973–75) R—To establish a public health institute, starting with an environmental pollution control department.

HMD 001 Nursing education and administration (1968; 1970–75) R—To prepare nurses for administrative and teaching posts.

HMD 099 Lecturers and fellowships (1974–) R

Belgium

HMD 001 Training programme for nursing leaders, University of Louvain (1975–78) VD—To set up master’s degree courses to train nurses in administration, teaching and specialized work and prepare them for research.

During the period under review a consultant (Sept.-Dec. 1975) taught at the first course on social sciences in nursing and the development of theories in nursing.

HMD 099 Lecturers and fellowships (1974–) R

Bulgaria

HMD 003 Training of medical teachers (1972–75) R—To provide additional training in the educational sciences to teachers in medical teaching institutions.

HMD 098 Lecturers and fellowships (1974–) UNDP

HMD 099 Lecturers and fellowships (1974–) R
PROJECT LIST: EUROPEAN REGION

ESD 001  Computer applications in communicable disease control (1974-75) R—A consultant and the regional health officer for health information visited Bulgaria from 6 to 15 May 1974 to study the computer applications in communicable disease control and the possibilities of adapting them to other countries, and to discuss with national authorities the arrangements for a national symposium on information systems for infectious disease control. For the symposium, which was held at Gabrovo from 23 to 26 September 1975, WHO provided the assistance of a lecturer and 2 staff members.

Czechoslovakia

HMD 098  Lecturers and fellowships (1974- ) UNDP
HMD 099  Lecturers and fellowships (1974- ) R

CEP 001  Czechoslovak research and development centre for environmental pollution control (1969- ) UNDP—To establish in Bratislava a federal research and development centre for environmental pollution control, with subcentres in Prague and Bratislava.

A seminar on animal wastes was held in Bratislava from 28 September to 5 October 1975. There were 181 participants, including representatives of ECE, FAO, the Commission of the European Communities and the Council for Mutual Economic Assistance. Provided—a consultant, 10 temporary advisers, the cost of attendance of 5 participants from 2 countries of the Region with similar projects, and the services of 4 staff members.

Denmark

HMD 099  Lecturers and fellowships (1974- ) R

Finland

HMD 001  Medical education (1973; 1975) R—To support innovations in medical education at the national level.

From 23 to 31 May 1973 a staff member visited Finland to attend a national seminar on evaluation techniques, study the educational problems of and improvements introduced at the new medical school at the University of Kuopio, and discuss the long-term plans of the Regional Office in education and training with clinicians and the National Board of Health. In June 1975 a temporary adviser lectured at the University and assisted in the preparation of a course in health administration.

HMD 099  Lecturers and fellowships (1974- ) R

France

HMD 099  Lecturers and fellowships (1974- ) R

German Democratic Republic

HMD 099  Lecturers and fellowships (1973- ) R

Federal Republic of Germany

HMD 099  Lecturers and fellowships (1974- ) R

Greece

HMD 002  Higher technical education centre (KATE) (1973-76) UNDP/UNESCO—To develop the health services component of the project. WHO is providing assistance in teacher training and in the production of teaching and reference materials.

HMD 099  Lecturers and fellowships (1974- ) R

BSM 001  Environmental sanitation (1967-75) UNDP—To assess solid waste disposal problems in urban areas through a general review, followed by a specific study of one or two cities where the situation is more acute.

CEP 001  Environmental pollution control, metropolitan area of Athens (1971-76) UNDP—To develop a comprehensive environmental pollution control programme for the Athens metropolitan area.

Hungary

HMD 099  Lecturers and fellowships (1974- ) R

LAB 001  Public health laboratories (1971-74) R—To improve health laboratory facilities by introducing or extending the application of new diagnostic procedures and investigating the possibility of producing new biological substances. Provided—a consultant for 2 weeks in May 1972 to assist with the introduction of immunofluorescent techniques in bacteriological diagnostic work; 6 fellowships for study of recent diagnostic laboratory techniques; and supplies and equipment for the implementation of these techniques.

PIP 001  Pilot zones for water quality management (1969- ) UNDP—To establish pilot zones for water quality management, with a view to collecting data and developing a national basis for investment in water quality improvement.

A seminar on systems analysis in water quality management was held in Budapest from 2 to 7 February 1975. There were 67 participants, including representatives of ECE, UNEP, WMO, the Danube Commission, the International Institute of Applied Systems Analysis, and the Societas Internationalis Limnologiae. Provided—a consultant, 7 temporary advisers, the cost of 7 participants from 4 countries of the Region with similar projects, and the services of 3 staff members.

Iceland

HMD 001  Nursing education (1974- ) R—To develop an experimental university programme in basic nursing, and to plan patient studies with a view to a more rational utilization of nursing resources, especially in hospitals.

Following the visit in 1974 (Aug.-Oct.) of a consultant who helped draft course outlines for an undergraduate programme at the University of Iceland, a further consultant (Aug.-Sept. 1975) assisted with the further development of the B.Sc. nursing programme at the University, and organized a teaching programme for senior hospital nursing staff.

HMD 099  Lecturers and fellowships (1974- ) R

DHS 001  Establishment of health data bank (1974-76) UNDP—To establish a plan and overall policy on the use of computers in the health services; to develop supporting hospital information systems; and to carry out a feasibility study on the incorporation of the health information collected on individuals in a health data bank.

Ireland

HMD 099  Lecturers and fellowships (1974- ) R

Italy

HMD 001  Nursing education and administration (1960-65; 1967-1969- ) R—To prepare nurses for teaching and administrative posts and develop basic and postbasic nursing education programmes.
Italy (continued)

HMD 002 Postbasic and continuing education for nurses, Lombardy region (1974-78) FT—To develop a postbasic school of nursing sciences at the Institute of Hygiene, University of Milan; to organize a centre of continuing education for the supplementary training of nursing personnel to enable them to carry out new functions; and to develop public health practice areas for students of both institutions.

HMD 003 Education and training for nursing and related health personnel, Tuscany region (1975- )—To develop a programme of continuing education for health personnel of all levels and sectors, directed towards better utilization of the personnel of the region's health services system; and to prepare for one or more experimental basic schools and/or courses for the training of multipurpose workers for the health services.

In May 1975 assistance was provided for a course on humanities in health services for a multidisciplinary group of health workers, and in September for the further development of the programme.

HMD 099 Lecturers and fellowships (1974- ) R

Luxembourg

HMD 099 Lecturers and fellowships (1975- ) R

Malta

SHS 002 Training of orthopaedic surgeons (1973-76) UNDP—To improve the standards of orthopaedic surgery and care, with the ultimate aim of ensuring that all forms of orthopaedic surgery can be provided locally.

HMD 001 Training in physiotherapy (1974- ) UNDP—To ensure an efficient physiotherapy service and provide training in physiotherapy.

HMD 098 Fellowships (1974- ) UNDP

BSM 001 Construction and design engineers for sewage collection and disposal (1975- ) UNDP—To improve sanitary conditions and ensure that pollution of the sea is avoided by the construction of properly designed sea outfalls.

Morocco

SHS 001 Development of public health services and training of personnel (1971- ) R UNICEF—To plan and organize public health services and especially to extend and improve the basic health services within the framework of the economic and social development plan. The work includes the establishment of a network of hospital and preventive services, the education and training of staff, and the reinforcement of essential allied activities such as nursing, nursing education and mental health services. The project is being implemented in association with the malaria project Morocco MDP 001.

MCH 001 Maternal and child health services (1972- ) R VG—To carry out studies and operational research on different aspects of maternal and child health, with special attention to the role of health services in rural areas. Related aspects of medical education and training, and general environmental aspects, will be included in the studies.

HRP 001 Family health and family planning (1974- ) UNFPA UNICEF (UNESCO)—To promote a policy of spacing of child-births aiming at reducing mortality and morbidity in children, and improving the health of mothers, the quality of family life and the children's cultural and educational opportunities. The approach will be through improved training in mothercraft, homecraft, home economics and health education, and through information of the public.

HMD 001 Medical education (1960-64; 1966- ) R—To strengthen teaching and research in preventive and social medicine and in the basic medical sciences at the Faculty of Medicine, Rabat, and to train national staff.

HMD 099 Lecturers and fellowships (1974- ) R

ESD 001 Surveillance and control of communicable diseases (1970- ) R—To assess the extent of the communicable diseases that are major public health problems in the country, especially salmonellosis, venereal diseases, cerebrospinal meningitis and leprosy, with a view to implementing effective and economical control measures.

MPD 001 Malaria pre-eradication programme (1962- ) R—To prepare for a malaria eradication programme by the organization of technical, administrative and operational services; and to train medical and allied personnel of public health services (especially rural health services) in malaria eradication concepts and techniques.

The last WHO staff left the project in 1975; future assistance will be provided exclusively for training purposes.

MBD 001 Tuberculosis control (1971- ) R—To develop a national tuberculosis control programme integrated into the general health services.

PIP 002 Water supply and related studies, phase III (1973- ) UNDP—To complete the technical studies begun under project PIP 001 for 7 priority cities and the preparation of tender documents, aiming at ensuring a sufficient supply of drinking-water for the next decades.

SES 001 Training of sanitary engineers (1968- ) R—To train sanitary engineering teaching personnel and specialists at university level.

SES 002 Development of environmental health services (1974- ) UNDP—To set up a technical and administrative structure at provincial level, employing sanitary engineers and sanitarians trained under 2 preceding UNDP-assisted projects; to train further sanitarians for this purpose and prepare a guide to help them in their practical work; to improve environmental hygiene conditions in pilot demonstration areas; and to provide technical support to the central service for environmental sanitation in the Ministry of Public Health.

Netherlands

HMD 099 Lecturers and fellowships (1974- ) R

Norway

HMD 099 Lecturers and fellowships (1974- ) R

Poland

HMD 098 Fellowships (1974- ) UNDP

HMD 099 Lecturers and fellowships (1974- ) R

MBD 001 Tuberculosis control (1960-75) UNDP UNICEF—To carry out tuberculosis control work, to follow up the results of the studies carried out since 1964 on the detection and treatment of new cases in pilot tuberculosis control areas, and to carry out studies on the epidemiology of tuberculosis in Poland and tests on the immunogenic potency of BCG vaccine.

MNH 001 Mental health (1967- ) UNDP—To provide training in child mental health and the rehabilitation of psychiatric patients in order to strengthen the mental health services.
LAB 002 Automation of biochemistry analyses in medical laboratories (1975-76) UNDP (UNIDO)—To resolve the problems connected with complex automation of medical analytical laboratories, construction and production of ion-selective electrodes, and construction and production of interference filters; and to provide training for laboratory staff.

CEP 001 Environmental pollution abatement centre, Katowice (1971-75) UNDP—To promote the control of air and water pollution, liquid and solid wastes treatment and disposal, and water and air quality management.

A seminar on environmental pollution control in the context of regional planning was held in Katowice from 13 to 17 October 1975. There were 86 participants, including representatives of the Commission of the European Communities and the Council for Mutual Economic Assistance. Provided—a consultant, a technical coordinator, 8 temporary advisers, the cost of attendance of 3 participants from 3 countries of the Region with similar projects, and the services of 6 staff members.

HWP 001 Industrial toxicology (1973-76) UNDP—To consolidate and develop the work of the Institute of Occupational Health at Lodz by expanding its facilities for the monitoring and study of the adverse effects of exposure to noxious substances in industry; by building it up to act as a national centre for research, development, training and services in health surveillance of workers exposed to industrial toxic chemicals; and by establishing a comprehensive toxicology information system.

Romania

SHS 002 Emergency assistance (1975) R—Medical supplies were provided for the victims of the floods that occurred in the country in 1975.

HMD 003 Training of health personnel (1970-75) R—To develop postbasic teaching institutions and prepare teachers of various groups of health personnel.

HMD 004 Medical education (1974-) R—To develop teacher training programmes and introduce new methods in medical education.

HMD 099 Lecturers and fellowships (1974-) R

CEP 002 Water and air pollution control, phase II (1971-75) UNDP—To establish a programme for air and water pollution control, carry out studies on various aspects of pollution, methods of treatment and control, and train personnel. Provided—a project manager (1971-75), 68 consultants, 83 fellowships, and supplies and equipment.

Field operations under phase II were terminated in July 1975, by which time advice had been provided in 25 problem areas. The main results of the project are as follows:

Liquid wastes treatment. An adapted activated sludge process has been developed, together with a method of safe disposal of the resultant sludge. Physicochemical processes for 8 specific industrial liquid wastes have been worked out, and a start has been made on ways of treating effluents from large pig-farms.

Surface water quality management. The use of automatic monitors has been experimented with. Self-purification and eutrophication processes have been tested and mathematical models have been developed for self-purification, for thermal pollution, and for the evaluation of damage, with a view to the optimization of water quality management in a given river basin.

Air pollution control. Improvements have been made in the evaluation of health effects, chemical analysis, dispersion studies and general monitoring. Preliminary work has been carried out for the abatement of air pollution from the main industrial sources and air pollution has been effectively abated in 2 pilot areas.

By the time the project ended the Romanian Institute for Studies, Research and Design for Water Management was well equipped and capable of acting as the central point for future work in this field.

Spain

HMD 001 Training of health personnel (1971-74) R—To prepare teachers and develop teaching institutions for various categories of health workers, particularly sanitarians and laboratory technicians. Provided—the cost of 3 short visits to 2 countries of the Region to study educational programmes (1971-72) and 7 fellowships in epidemiology and bacteriology.

HMD 002 Nursing education and nursing service administration (1957; 1960-64; 1971-75) R—To develop and strengthen postbasic and basic nursing education programmes by preparing nurses for administrative and teaching posts in basic and postbasic schools of nursing and in nursing services.

HMD 003 Medical education (1971-75) R—To improve medical education by developing curricula and methods of teaching and evaluation, with emphasis on new faculties, carrying out relevant studies, and providing training facilities abroad for the study of medical education.

During the period under review, a consultant (June 1975) advised on methods of rehabilitation of leprosy patients.

HMD 099 Lecturers and fellowships (1974-) R

VIR 001 Epidemiological studies of virus diseases of public health importance (1959; 1964-74) UNDP—To study methods for the prevention and control of enteric, respiratory and other virus diseases of public health importance and to provide training facilities. Provided—consultant services (13 visits totalling 8½ months), 23 fellowships and supplies and equipment.

Activities under the project began with studies concentrated on the laboratory diagnosis of poliomyelitis, performed by a small group of virologists working at the virology laboratory of the National School of Public Health. By the time it finished, extensive activities were being carried out at the National Centre for Virology and Ecology applied to Health, Majadahonda (Madrid), which has been specially designed and equipped for the purpose. The emphasis in activities has shifted from the clinical towards the public health aspects of virology, immunology and microbiology, including epidemiological surveys of virus infections and the production and evaluation of vaccines.

During the course of the project WHO consultants provided advice in the following fields: methods of diagnostic virology (Oct.-Nov. and Dec. 1959); production of smallpox vaccine (May 1964); preparation of plans for study of respiratory virus infections among preschool children (Nov. 1964); poliomyelitis viruses (June 1965); production of freeze-dried smallpox vaccine (Dec. 1967); diagnosis of influenza by immunofluorescence techniques (Dec. 1968); basic virology (Sept. 1970); diagnostic virology (April-May 1971); immunological aspects of diagnosis and separation of macromolecules, especially serum proteins (May 1971); laboratory investigations of residues of pesticides and heavy metals (Jan. 1973); laboratory techniques for the control of immunoglobulins (May-June 1973); and differentiation of herpes simplex virus types 1 and 2 (June-July 1973). In addition, there were regular visits by WHO staff, one of them (July-Aug. 1971) in connexion with the cholera outbreak in that year.

MNH 001 Mental health services (March-April 1975) UNDP—A consultant assisted with a course on early stimulation of mentally retarded children.
Spain (continued)

CEP 003 Air pollution control in urban industrialized areas (1972-76) UNDP—To lower the concentration of atmospheric pollutants in the Bilbao region (Nervión River valley) by reducing the emission from industrial sources, with the ultimate aim of achieving a national approach to the control of air pollution in industrial areas throughout the country.

CEP 004 Control of pollution in rivers and coastal waters (1972-76) UNDP—To establish criteria for the standard of hygiene in rivers and coastal waters for the use of sanitary engineers in Guipúzcoa Province, with the ultimate aim of achieving a national approach to the control of river and coastal water pollution by land sources.

Sweden

HMD 099 Lecturers and fellowships (1974– ) R

Switzerland

HMD 099 Lecturers and fellowships (1974– ) R

Turkey

SHS 002 (formerly SHS 001) Development of public health services and training of personnel (1964– ) R UNICEF—To strengthen national health services at the central, regional and peripheral levels.

HRP 001 Development of integrated family planning services (March-April 1975)—Following up previous assistance, a WHO staff member advised on the education and training of rural midwives.

HMD 003 Training in preventive and social medicine (1969–75) UNDP—To develop undergraduate and postgraduate medical education. The project included continuation of assistance to the School of Public Health, Ankara, and assistance, chiefly in preventive and social medicine, to new medical schools.

Three lecturers assisted with the second national course in human genetics held at the Hacettepe Medical Faculty, Ankara, from 19 November to 10 December 1969. Two temporary advisers and a staff member from the Regional Office helped with a seminar on the teaching of community medicine in undergraduate curricula, held at Bursa from 5 to 7 December 1970 and attended by 22 medical teachers from 6 medical faculties. A temporary adviser lectured at a UNICEF course held in Ankara from 11 to 17 July 1971. Turkish participation in the Conference on Medical Education (Teheran, 12-18 Dec. 1970) and the Workshop on the Teaching of Social and Preventive Medicine (Edinburgh, Sept. 1972) was secured under this project. Fourteen fellowships were awarded.

In June 1971 a WHO staff member advised on the reorganization of the School of Public Health, Ankara, and, in May 1972 and February 1974, helped in the preparation of a request for UNDP aid to a more extensive project on health manpower development. In August and September 1974 a consultant assisted in drawing up the project document and, in May 1975, a consultant was assigned for 8 months, under the preparatory phase of the project, which is scheduled to become fully operational in 1976.

HMD 098 Fellowships (1974– ) UNDP

HMD 099 Lecturers and fellowships (1974– ) R

ESD 001 Surveillance and control of communicable diseases (1973–75) R—To assess the extent of the communicable diseases presenting serious public health problems and plan control measures.

MPD 001 Malaria eradication programme (1957– ) R—To carry out combined attack and surveillance operations in the eastern part of the country, and intensified surveillance and vigilance operations in areas in the consolidation phase of the programme.

VIR 001 Trachoma control and prevention of visual impairment (1975) R—To promote eye health and prevent blindness and loss of vision due to communicable and noncommunicable special attention being paid to the long-term planning and the evaluation of services and to training of personnel.

MNH 001 Training for mentally retarded children (Sept.–Oct. 1975) UNDP—A consultant assisted the Government in the reorganization of services for the mentally retarded.

BSM 001 Environmental sanitation (1964– ) R—To develop the environmental sanitation services and train sanitation personnel.

CEP 001 Protection of the environment against pollution in Ankara (1973–75) UNDP—To develop a comprehensive plan for environmental pollution control and to facilitate the incorporation of environmental considerations in the planning of industrial development and urbanization.

CEP 002 Pollution by pesticides (April 1975) UNDP—A consultant advised on the organization and methods of work of the pesticide laboratory of the National Public Health Institute.

SES 002 Promotion of training and programmes in sanitary engineering, Istanbul Technical University (1970–74) UNDP—To train environmental health personnel at professional and sub-professional levels at the Istanbul Technical University and to promote specific environmental health programmes in various government agencies. Provided—a sanitary engineer (June 1971-Jan. 1973), fellowships, and laboratory equipment.

The sanitary engineer took part in training and helped to develop programmes in sanitary engineering at the University, where the subject can be introduced into the final two years of the 5-year civil engineering course. His work included advice to the university administration and faculty on curricula changes, related laboratory design, and equipment procurement. He prepared written lectures, subsequently translated into Turkish and reproduced, on such topics as sanitary bacteriology, environmental health engineering, and solid refuse collection and disposal. He also counselled postgraduate students and supervised some who had selected thesis work and research in sanitary engineering, and arranged for field work (e.g., the design of a water treatment plant for Adapazari) in order to provide practical experience to supplement classroom presentations.

The main difficulty encountered was that of language, since few of the students and only half of the faculty members were able to communicate in a foreign language and oral lectures by the WHO sanitary engineer had to be given through an interpreter.

An expanded programme of sanitary and environmental engineering (Turkey SES 005) is replacing this project as well as project Turkey SES 003.

SES 003 Development of training and research facilities in sanitary engineering, Middle East Technical University, Ankara (1973–76) UNDP—To meet the increasing needs for professional engineers, specialized in sanitary or environmental engineering, who will assist the Government in planning and implementing programmes in environmental sanitation and water supply through public and private undertakings.
The project is a continuation and extension of project Turkey SES 001. Its activities, together with those of project Turkey SES 002, will be continued and expanded under a comprehensive UNDP-assisted programme (Turkey SES 005).

SESH 005 Promotion of training, research and programmes in environmental engineering and sciences at the Middle East Technical University, Ankara, and the Istanbul Technical University (1975– ) UNDP—To improve the training and research facilities of the 2 Universities and introduce new programmes in relation to current manpower needs.

Union of Soviet Socialist Republics

HMD 099 Lecturers and fellowships (1974– ) R

United Kingdom of Great Britain and Northern Ireland

HMD 099 Lecturers and fellowships (1974– ) R

Yugoslavia

SHS 001 Public health administration (1956–66; 1969–74) UNDP—Seventeen fellowships, totalling 34 months, were awarded for studies in various fields of public health, and some laboratory equipment was provided to the Maternal and Child Health Institute, Skopje, Macedonia.

SHS 003 Public health ophthalmology (1975– )—To organize pilot schemes for early case-finding and treatment of opthalmic conditions in infants and children; organize mass case-finding of potentially blinding conditions in adults; and to organize preventive measures and accident prevention programmes to improve the existing system of specialized health services.

During the period under review a WHO staff member advised on the possibilities for future national activities aimed at the prevention of blindness.

MCH 002 Integrated services for mothers and children (June 1975) UNICEF—A consultant advised on the further development of services for mothers and children in the Kosovo region.

HMD 098 Fellowships (1975– ) UNDP

HMD 099 Lecturers and fellowships (1974– ) R

PIP 001 Community water supply, waste disposal and pollution control, Kosovo (1967–76) UNDP—To develop a programme for water pollution control, community water supply and wastes disposal in Kosovo Province.

Intercountry Programmes

SHS 004 Working Group on the Role of Nursing in Primary Care, Reykjavik (14–18 July 1975) R—To review trends and developments in the use of nursing personnel for primary health care and consider methods for preparing such personnel for this work and for evaluating the nursing input into primary health care services as a whole. The discussions of the Working Group were coordinated with those of the Working Group to define Parameters of Efficiency in Primary Care (intercountry project SHS 039), held concurrently in Reykjavik. Provided—the cost of attendance of 11 participants (temporary advisers) from 8 countries of the Region, and the services of a staff member.

SHS 006 Epidemiological studies (1966– ) R—To arrange and coordinate intercountry studies on the natural history and etiology of selected pathological conditions of public health importance in Europe. The selection of subjects will be determined by needs in the various fields of work of the Regional Office, particularly in those in which there are long-term programmes.

A Working Group on the Role of Geographical Factors in the Planning of Health Programmes, with 5 participants, met in Heidelberg from 22 to 25 April 1975. Provided—the cost of attendance of 4 participants (temporary advisers), and the services of 2 staff members.

SHS 007 Training in epidemiology and health statistics (1973– ) R—To provide lecturers and fellowships for the annual courses on epidemiology and health statistics that have been given since 1963 in English and French and since 1965 in Russian.

The French-language course on methods of health statistics and epidemiology was given in Brussels from 1 February to 31 May 1975. Provided—2 fellowships under this project and 3 from other funds. The trainees participated in a 2-week seminar arranged by IARC, which paid the expenses for 3 of them, while WHO paid for the 2 others.

The Russian-language course was held in Bratislava from 4 September to 12 December 1975. Provided—lecturers (a temporary adviser and 6 staff members), and 7 fellowships under this project and 2 from other funds. One trainee attended at the expense of his Government.

The English-language course on vital and health statistics was held in London from 29 September to 19 December 1975. Provided—a fellowship under this project and 8 from other funds, and the services of a temporary adviser and a WHO staff member as lecturers.

SHS 008 Advanced training in health management services, including health planning, evaluation and operational research (1975– ) R—To follow up the 5 previous courses (1969–73) given in English, French and Russian, but with the main emphasis on training teachers in national health planning and evaluation.

Two courses were given in 1975—one (in English) in Moscow (18 Feb–11 March) and Helsinki (12–14 March) and the other (in French) in Bucharest (1–26 Sept.). Provided—for the first course, 9 fellowships to trainees from 7 countries of the Region; for the second course, 10 fellowships to trainees from 7 countries of the Region.

SHS 010 Studies on health planning in European countries with different systems of health care (1973– ) R—To prepare studies on health economics, national economic development, health planning and public health administration at national level, following the recommendations of the 1972 Working Group on Planning in National Development and the European Conference on National Health Planning held in 1974. The studies will be combined with other studies with a view to working out a multidisciplinary approach to future development in this field and special attention will be given to collecting, analysing and disseminating information on health manpower in the areas of the studies.

SHS 013 Study on the relationship between health service requirements and available resources (1975) R—To explore the situation, examine the possibility of establishing indices for use in comparing alternative methods of allocating resources, and prepare for a proposed working group on the role of central health authorities in regional health planning.

SHS 016 Working Group on Screening Activities in the European Region, Luxembourg (5–8 Aug. 1975) R—To review the present position with regard to health examinations and medical screening.

1 See WHO Official Records, No. 221, 1975, p. 258.
Intercountry Programmes (continued)
in the Region, with special reference to the work of large-scale
cultural public health laboratories; to define the objectives of screening
programmes; and to establish criteria for evaluating the use of
automation and computers in screening programmes. Provided
—the cost of attendance of the 15 participants (temporary
advisers) from 14 countries of the Region, and the services of
3 staff members.

SHS 020 Studies on hospital and other aspects of community
care (1974– ) R—To investigate the following aspects of
community health care: its effectiveness in reducing general
morbidity; the relationship between hospital, psychiatric, reha-
bilitative, long-term and other forms of community care and
the methods used to ensure communication and coordination
between them; types of hospital, their size and the area they
serve; the introduction of automated procedures; the community
care of special groups of patients; and the personnel concerned
in urban and rural areas.

SHS 023 Road accident prevention (1974-75) R—To study
problems in road accident prevention, as requested by Member
States, and to cooperate with other agencies concerned where
joint action is required.

Under this programme WHO representation in the following
meetings was arranged: the Workshop on Alcohol and Driving,
organized by the International Drivers Behavioural Research
Association in Paris from 22 to 24 May 1974; and the Fifth
International Symposium on Road Safety Education, organized
by the European Confederation of Driving Schools and Motor
Car Assistance Agencies in Turin (Italy) from 5 to 7 November
1974. In addition, the Organization collaborated with the
International Institute for Applied Systems Analysis in a study
carried out in Vienna in January 1975.

SHS 024 Study on different aspects of public health ophthal-
omology (1974–75) R—To provide technical guidance on com-
prehensive planning in ophthalmology, assess requirements for
developing specialized ophthalmological services and integrating
them into national public health services, and provide back-
ground material for intercountry meetings in this field.

SHS 025 Studies on aspects of European systems for delivery of,
and education for, nursing, midwifery and medicosocial work
(1974– ) R—To study selected areas of nursing, midwifery
and medicosocial work, identifying problems requiring study in
collaboration with countries and paying particular attention to
nursing, midwifery and medicosocial work subsystems for the
derivery of services and education of personnel and to applica-
tion of the findings to the improvement of services.

SHS 027 Use of operational research in European health services
(1974) R—To explore the development of operational research
methods and their application in various sectors of health ser-
vice in Europe. A meeting was held at the Regional Office
from 29 to 31 October 1974 in preparation for the 1975 Working
Group on the Use of Operational Research in European Health
Services (intercountry project SHS 028). Provided—the cost of
attendance of the 4 participants (temporary advisers) and the
services of 2 staff members.

SHS 028 Working Group on the Use of Operational Research
in European Health Services, Sofia (7-11 July 1975) R—To review
and analyse methods of operational research, their application
and their results, with a view to providing guidance for the
further development of operational research in the health field
at the national and international levels. Provided—a consultant,
the cost of attendance of the 12 participants (temporary advisers)
from 11 countries of the Region, 2 additional temporary advisers,
and the services of 4 staff members.

SHS 030 Study on various aspects of medical computing (1974–75)
R—A consultant collected information on computerized
hospital discharge summary projects. An analysis of the informa-
tion will be published. In addition, a staff member visited Poland
and the USSR to study medical computing in these countries.

SHS 032 Regional health information services (1974– ) R—To
sponsor and coordinate studies on health information systems,
and to develop and operate the collection, processing, storage,
retrieval and analysis of the information required by the Regional
Office on health and related subjects.

SHS 039 Working Group to define Parameters of Efficiency in
Primary Care, Reykjavik (14-18 July 1975) R—To define para-
eters that can be converted into quantitative indices for measur-
ing the efficiency of primary care. The Working Group was
held concurrently with the Working Group on the Role of
Nursing in Primary Health Care (intercountry project SHS 004).
Provided—the cost of attendance of the 6 participants (temporary
advisers) who were health administrators who had been active
in applying research methods, an additional temporary adviser
and the services of 2 staff members.

SHS 041 Conference on the Epidemiology of Road Accidents,
Vienna (4-7 Nov. 1975) VG—To review the development of
accident information systems and their results, identify gaps and
discuss how they can be filled; to review the epidemiological
work completed on the various types of road traffic accidents and
injuries, the identification of risk groups and their connexion
with factors such as behaviour patterns and vehicle design, and
consider the epidemiological methods presently in use and those
required; to outline methods of quantification of data and to
consider problems of their analysis and interpretation. There
were 30 participants from 20 countries of the Region, repre-
sentatives of ECE, the Commission of the European Communi-
ties and the International Association for Accident and Traffic
Medicine, and 3 observers. Provided—a consultant, 5 temporary
advisers, the cost of attendance of 19 participants and the
services of 7 staff members.

SHS 055 Programme supporting services (strengthening of health
services) (1974– ) R—To meet requests from countries for
advice on subjects for which no regional officer is available,
and for organizing national activities to follow up intercountry
projects sponsored by the Regional Office; to continue assistance
to seminars and conferences conducted by the United Nations
and other organizations whose work is of special interest to the
Office; and to prepare and print reports on conferences, seminars
and other meetings held by the Regional Office.

SHS 058 Programming and management of health services
(1975– ) R—To brief regional and national staff in the syste-
matic approach to the programming and management of health
services developed by the headquarters project analysis team
and to promote its application to different health service pro-
blems in the countries of the Region.

A briefing seminar was held in Copenhagen from 14 to 17
October 1975, with 13 participants from 6 countries of the Region.
Provided—the cost of attendance of 2 participants
(temporary advisers), and the services of 7 staff members.

MCH 001 Collaboration with international institutions concerned
with family health (1965– ) R UNICEF—To continue collabora-
tion with the International Children's Centre (ICC) and other
international organizations to enable staff of family health
services to attend courses and meetings organized by these
institutions, and to arrange for studies, surveys and bibliogra-
phical services in this field to be undertaken on a contractual
basis.
During the period under review a temporary adviser participated in the international ICC seminar on the growth and development of the child during puberty (Paris, 9-11 Dec. 1974).

In addition fellowships to trainees from countries of the Region were awarded for attendance at the following courses and seminars:

- **ICC course on social obstetrics** (Paris, 17 Feb.-16 March 1975) —2 fellowships. (Five trainees from other WHO regions also attended.)
- **ICC regional seminar on the needs of the child between 0 and 6 years of age** (Tunis, 15-24 July 1975)—1 fellowship. (UNICEF awarded fellowships to 4 trainees from another country of the Region.)

**MCH 003** Study on the present situation in school health statistics (1974-75) R—Two consultants collected information from 8 countries of the Region on systems suitable for continuous registration of data from well-baby clinics and from preschool and school health examinations. Their draft report was presented to the Working Group on Problems of Children of School Age I (5-9 years), held in Copenhagen from 24 to 28 November 1975.

**MCH 004** Working Group on Problems of Children of School Age I (5-9 years), Copenhagen (24-28 Nov. 1975) R—To study the problems of children aged 5-9 years and advise on adequate medical care in the light of the findings of the Working Group on the Evaluation of Maternal and Child Health Services in Certain Countries of the Region, held in 1973; and to study problems related to psychosocial factors and family structures, education in accident prevention (especially road safety), and early signs of social maladjustment. There were 13 participants (temporary advisers) from 12 countries of the Region. Provided—the cost of their attendance and the services of 7 staff members.

**HRP 002** Training in family health and family planning (1972- ) UNFPA—To provide fellowships for training doctors and nurses in family health and family planning, including demographic studies.

A lecturer (staff member) and fellowships to 20 trainees from 6 countries of the Region were provided for a course (in French) in family health and family planning held in Paris from 22 May to 22 June 1975. (Five further fellowships to trainees from 1 country of the Region and 2 from the Eastern Mediterranean Region were provided from other funds.)

A consultant and a staff member visited Algeria in August 1975 to assist in planning for the 1976 course, part of which is scheduled to be held in that country.

**HRP 003** Family health and family planning (1972- ) UNFPA—To provide specialized technical advice and training for family health and family planning activities, and carry out studies, as an integral part of UNDP country programmes; and to provide guidance for intercountry activities concerned with training, research and services for modern health care delivery (especially basic health services).

**NUT 002** Study on nutritional problems in Europe (1974-75) R—To review the current situation in nutrition, including education and research, in the countries of the Region; and to link the regional nutrition programme with other ongoing activities and maintain liaison with the international agencies concerned, such as FAO, UNICEF, WFP, the Protein Advisory Group of the United Nations System, and the International Union of Nutritional Sciences, which will be invited to participate.

**HED 001** National courses, conferences and seminars in health education for senior health personnel (1968-75) R—To assist national courses, conferences and seminars for physicians and leading health personnel responsible for promoting health education and to facilitate the attendance of similar staff from neighbouring countries by the award of fellowships.

**HMD 001** Programme supporting services (health manpower development) (1974- ) R—To meet requests from countries for advice on subjects for which no regional officer is available and for organizing national activities to follow up intercountry projects sponsored by the Regional Office; to continue assistance to seminars and conferences conducted by the United Nations and other organizations whose work is of special interest to the Office; and to prepare and print reports of conferences, seminars and other meetings held by the Regional Office.

**HMD 002** Exchange of information on placement, supervision and follow-up of WHO fellows (1968- ) R—To invite national fellowships officers to become acquainted with the procedures followed in the Regional Office for the implementation of the fellowships programme, and to organize meetings with WHO officials for discussion of matters of common interest.

**HMD 003** Education and training for the health professions (1961- ) R—To provide assistance for undergraduate and postgraduate education and, particularly, for teacher training; and to facilitate the exchange of experience and information on various aspects of education for the health professions.

**HMD 008** Working Group on the Relevance of Educational Planning to Health Problems, Kuopio, Finland (2-5 June 1975) R—To define the nature and scope of educational planning in relation to health service needs and problems; to indicate the interests and responsibilities of health administrations and educational systems in the educational planning process; and to make suggestions on the functions and form of organization of an educational planning service, particularly at the national governmental level. There were 9 participants (temporary advisers) from 8 countries of the Region, and the meeting was attended by a representative of UNESCO and 4 observers. Provided—the cost of attendance of the participants, 2 additional temporary advisers, and the services of 2 staff members.

**HMD 009** Course on teaching methods for nurse educators, Lublin, Poland (6 Jan.-8 Feb. 1975) R—To provide intensive training for European nurse educators in the latest advances in nursing education, particularly as regards the learning process, teaching methods, and the evaluation of student performance. Provided—a lecturer and fellowships for 12 nurse educators from 5 countries of the Region.

**HMD 011** Schools of postbasic, graduate and advanced nursing, midwifery and medicosocial work (1975- ) R—To develop, in collaboration with countries, selected centres for the education of teachers, administrators, and clinical and public health specialists in nursing, midwifery and medicosocial work, as well as supplementary, in-service and continuing education programmes. The project will continue the work of the intercountry project HMD 010 (Training and preparation of educators in nursing, midwifery and medicosocial work) and assistance to the international schools of nursing in Lyons (France), Edinburgh (Scotland), and Lublin (Poland) (previously given under projects EURO 0772, EURO 0773 and intercountry project HMD 016).
Intercountry Programmes (continued)

During the period under review a WHO temporary adviser took part in a meeting of the permanent commission of the School in Lyons, and a consultant (15 Nov.-15 Dec.) assisted the school in carrying out an evaluation of its educational programme.

HMD 016 International school of advanced nursing, midwifery and medicosocial work, Lublin, Poland (1969-74) R—To give assistance to advanced nursing education in Russian so as to prepare nurses for leading posts in specialized branches of nursing, for nursing education and administration, and for research; and, in cooperation with the other 2 international schools in the Region (the École internationale d’Enseignement infirmier supérieur, Lyons, France, and the school at the University of Edinburgh, Scotland) to further the establishment of courses for nurse teachers or administrators that would serve not only the needs of the country and Region but also those of students from other parts of the world. Provided—4 consultants for a total of some 6 weeks, 8 lecturers (one week each), technical advice by regional office staff, and 12 fellowships.

The nursing school established at the Department of Nursing, Academy of Medicine, Lublin, which provides tuition in Russian, opened in 1969 as a national school offering registered nurses a 3-year postgraduate diploma course. By 1973 the course had been extended to 4 years and led to a master’s degree. The first degrees were conferred in June 1973.

The first WHO-sponsored international course at the Lublin school was held from 6 January to 8 February 1975 (see intercountry project HMD 009).

The future role of the 3 schools, as regards “international” nursing and collaboration with the Regional Office, should be to serve as “centres of excellence” where planned ongoing programmes of continuing education would be established and to which individuals or groups could be sent for short periods to study the development of nursing education in an academic setting. Close contact will be maintained with these centres, particularly through intercountry project HMD 011, which provides for assistance to schools of postbasic, graduate and advanced nursing, midwifery and medicosocial work.

HMD 018 Postgraduate training for the health professions (1965-75) R—To assist in organizing and improving postgraduate training for the health professions.

HMD 019 Course for public health administrators (in Russian), Moscow (15 Oct. 1975-15 July 1976) R—To assist in training public health administrators in a one-year postgraduate course. Provided—fellowships for 2 trainees from 2 countries of the Region. (Two trainees are participating at their governments’ expense and 7 from the South-East Asia Region are also attending.)

As part of the project, assistance will be provided to the fourth scientific meeting of participants in the courses which were held annually between 1962 and 1967 and again as from 1972.

HMD 020 Working Group on Specific Problems of Schools of Public Health, Brussels (8-11 Sept. 1975) R—To review the role and functions of schools of public health and their relationship with health administrations; and to consider how public health education systems can best meet the manpower needs of health administrations, and the experience of various schools and health administrations in organizing new kinds of training programmes and in applying new educational concepts and methods. There were 7 participants (temporary advisers) from 7 countries of the Region. Provided—the cost of attendance of the participants, an additional temporary adviser, and the services of 4 staff members.

HMD 034 Steering Committee on Nursing/Midwifery (1974– ) VD—To advise on, assist, evaluate and coordinate the development of the regional medium-term programme in nursing/midwifery, focusing on 4 priority areas: the nursing process; the organization and management of nursing services; resource planning; and education.

The Steering Committee was set up following the decision of the planning meeting held in Kiel in October 1974.

At its first meeting, held on 22 and 23 September 1975 in Brussels, it advised on the sequential planning of the programme, one of the main objectives of which is to assist Member States in strengthening their capacity for planning and management of the nursing/midwifery component of health services, including health institutions, and in defining their own nursing subsystems within the total health manpower system. Provided—the cost of attendance of the 7 Committee members (temporary advisers) from 7 countries of the Region, an additional temporary adviser, and the services of 3 staff members.


The project is a continuation of the interregional project HMD 005 (1969-1974).

PPC 001 Programme supporting services (communicable disease prevention and control) (1974– ) R—To meet requests from countries for advice on subjects for which no regional officer is available and for organizing national activities to follow up intercountry projects sponsored by the Regional Office; to continue assistance to seminars and conferences conducted by the United Nations and other organizations whose work is of special interest to the Office; and to prepare and print reports on conferences, seminars and other meetings held by the Regional Office.

ESD 001 Development of national programmes for the surveillance of communicable diseases (1970– ) R—To assist countries in initiating or developing national programmes for the surveillance of communicable diseases of public health importance, and to stimulate, assist and coordinate intercountry cooperation and exchange of information in this field.

ESD 003 Economic aspects of communicable diseases (1975–76) R—To collect and analyse information on the extent of communicable diseases of public health importance, on their cost to the economy, and on their prevention.

A meeting to plan the implementation of the programme, attended by 4 temporary advisers and 7 staff members, was held in Copenhagen from 12 to 14 March 1975; it recommended that a feasibility study be undertaken by selected institutes in the Region, and that the results be communicated to Member States and analysed at an intercountry meeting in 1976.

ESD 004 Consultation on Cholera Control in Countries of the Mediterranean Basin, Madrid (18-29 Feb. 1975) R—The Consultation, which was convened at the request of the Government of Spain, considered the experience gained as a result of the cholera epidemics that had occurred since the Conference on Cholera Control in Europe, held in Copenhagen in December 1971. The discussions covered the epidemiological, clinical and laboratory aspects of cholera, and problems connected with legislation, trade, population movement and environmental sanitation. There were 15 participants (senior public health administrators, physicians specialized in the control of communicable diseases, sanitary engineers, and heads of laboratories) from 7 countries including one in the Eastern Mediterranean Region, and 3 observers. Provided—the services of 6 staff members.
MPD 001 Malaria eradication evaluation and epidemiological assessment (1962–) R—To assist malaria epidemiological assessment; to coordinate studies and activities relating to the importation of malaria (including the delimitation of receptive and vulnerable areas) and to the epidemiological, parasitological and clinical aspects of imported malaria; and to disseminate relevant information to the countries concerned.

MPD 003 Entomological services to countries of the Region (1973–) R—To continue the entomological assistance provided since 1965 to North African and other countries of the Region in connexion with the eradication of malaria and arthropod-borne diseases in general.

During the period under review a consultant (April 1975) advised the Government of Malta on the possibilities for fly control.

MBD 002 Working Group on Tuberculosis Control among Migrant Workers, Berne (22-24 April 1975) R—To follow up previous work on the health aspects of labour migration and the prevention of the intercountry spread of communicable diseases by a review of the problems posed by tuberculosis in migrant workers. Aspects discussed included the epidemiological importance of the disease, related social and economic factors, and the adequacy and effectiveness of control measures. There were 165 participants (temporary advisers) from 14 countries of the Region (both countries of origin of migrant workers and host countries), and representatives of ILO, the International Children’s Centre, the Intergovernmental Committee for European Migration, and the International Union against Tuberculosis. Provided—the cost of attendance of the participants, 4 additional temporary advisers, and the services of 4 staff members.

VIR 001 Working Group on Viral Hepatitis, Bucharest (25-29 Aug. 1975) R—To review the epidemiology and control of viral hepatitis in the light of the knowledge gained in recent years following the discovery of the Australia antigen, and to propose preventive action suitable for the countries of the Region. There were 9 participants (temporary advisers) from 9 countries of the Region and a representative of the International Association of Microbiological Societies. Provided—the cost of attendance of the participants, 3 additional temporary advisers, and the services of 2 staff members.

VIR 002 Trachoma control and prevention of loss of vision (1958–75) UNDP—To provide specialized technical advice on the further development of communicable eye disease control projects in several countries of the Region, and to study the need for general sight-saving programmes in these and other countries.

PPN 001 Programme supporting services (noncommunicable disease prevention and control) (1974–) R—To meet requests from countries for advice on subjects for which no regional officer is available and for organizing national activities to follow up intercountry programmes sponsored by the Regional Office; to continue assistance to seminars and conferences conducted by the United Nations and other organizations whose work is of special interest to the Office; and to prepare and print reports on conferences, seminars and other meetings held by the Regional Office.

CVD 001 Establishment of ischaemic heart disease registers (1968–75) R—To prepare a simplified registration system for the notification and continued surveillance of ischaemic heart disease in the population of a selected area, with a view to procuring accurate and comparable data on different aspects of the disease and on medical care of patients.

Following an ad hoc meeting of the editorial committee held in Copenhagen on 7 and 8 November 1974 to discuss the finalization of the monograph on ischaemic heart disease registers, an expert on loan from the Regional Office for Africa worked on the monograph for 2 months from 6 January and one week in April 1975.

CVD 002 Studies on the prevention of ischaemic heart disease (1968–) R—To promote and coordinate single- and/or multifactor trials in connexion with the prevention of ischaemic heart disease; to stimulate activities designed to correct individual risk factors and promote health and healthy living; and to study, especially in ischaemic heart disease register areas, problems relating to the prevention of recurrences in patients who have survived myocardial infarction.

An ad hoc meeting of the WHO collaborative trial in multifactorial prevention of cardiovascular disease was held in London from 24 to 26 February 1975. Provided—5 temporary advisers from 4 countries of the Region and the services of a staff member. Four observers from 2 countries also attended the meeting.

CVD 003 Study on the evaluation of coronary care (1968–) R—To promote the effective and economical development of coronary care on a community basis through special studies, meetings, the establishment of reference units, the publication of guides, and the exchange of information and personnel.

Two temporary advisers attended a meeting of investigators of the European coronary surgery study in Zurich on 30 June and 1 July 1975.

A temporary adviser visited centres cooperating in a study on prodromal symptoms in sudden death and myocardial infarction.

CVD 004 Training in coronary care (1968–) R—To provide for the individual training of doctors and nursing personnel who will teach intensive coronary care and its organization in national courses.

CVD 005 Study of the effects of rehabilitation and secondary prevention in patients with cardiovascular diseases (1968–) R—To carry out coordinated studies on the effects of rehabilitation in patients with cardiovascular diseases, its possible influence in preventing later incapacity, and factors that may result in a relapse or affect length of life.

A Working Group on the Effects of Rehabilitation and Secondary Prevention in Patients with Myocardial Infarction was held in Opatija, Yugoslavia, from 10 to 13 September 1975. Provided—17 temporary advisers from 15 countries of the Region (one of whom also represented the International Association for Rehabilitation of the Disabled), and the services of 3 staff members.

Also during the period under review, a temporary adviser visited some of the centres cooperating in the study to review the methodology and facilitate standardization and comparison of results sent to the European Lipid Standardization Laboratory in Prague.

CVD 007 Training in the rehabilitation of patients with cardiovascular diseases (1968–) R—To arrange for the training of doctors, nurses and technical personnel, so as to promote a multidisciplinary approach in this field.

CVD 008 Health education of the public in cardiovascular diseases (1968–) R—To study ways of improving the effectiveness and assessing the results of health education in cardiovascular diseases.

Three temporary advisers from 3 countries of the Region participated from 19 to 21 February 1975 in a meeting of the Kaunas-Rotterdam intervention study (interregional project...
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SHS 024, arranged by WHO headquarters and held in Moscow. Also, a temporary adviser visited Finland for 2 weeks in August 1975 to assist in the further development of the programme for the control of cardiovascular diseases in North Karelia.

CVD 009 Evaluation of progress in the regional cardiovascular diseases programme (1971- ) R—To collect information and evaluate progress on the various projects of the programme, and to suggest changes where necessary. Systems of data collection and retrieval in community cardiovascular disease control programmes will be studied in close collaboration with national coordinating units.

The steering committee on the long-term programme met in Copenhagen from 10 to 13 February 1975. Provided—the cost of attendance of the 7 participants (temporary advisers) from 7 countries of the Region, and the services of 4 staff members. As the result of a resolution of the Regional Committee for Europe, calling for periodic evaluation of the programmes of the Regional Office, a consultative group, including 5 representatives to the Regional Committee, met in Copenhagen from 21 to 23 April 1975 to evaluate the long-term cardiovascular diseases programme. The group agreed that it should be continued and laid down guidelines for its future development. Provided—5 temporary advisers from 5 countries of the Region and the services of 5 staff members.

CVD 010 Study on cerebrovascular disease (1971- ) R—To develop methods to enable public health authorities to assess the extent of the cerebrovascular disease problem in the community and provide reliable data for planning services for its control.

During the period under review two joint meetings of headquarters and the Regional Office took place in Geneva—a meeting of investigators on the community control of stroke (20-22 Nov. 1975) and a meeting of investigators on the community control of hypertension (24-26 Nov. 1975).

CVD 012 Organization of congenital heart disease services (1974- ) R—To establish the technical means and practical organization needed for the early detection of congenital heart disease, on the basis of the conclusions of a working group (project EURO 8213) held in 1971; to determine the staffing, budgetary and hospital-bed requirements; and to assess the degree of priority to be given to this work in relation to work on other handicaps and chronic diseases within the framework of health services.

CVD 015 Study on community control of moderate and severe hypertension (1975- ) R—To develop a model community programme for the control of moderate and severe hypertension associated with coronary and cerebrovascular diseases. The programme will be devised in the light of recent trials that have shown that control is feasible and will be designed for application in areas where cardiovascular disease control programmes are to be introduced.

During the period under review a temporary adviser attended a meeting in Geneva organized jointly by WHO headquarters and the International Society of Cardiology.

CVD 016 Training in the organization of cardiovascular disease control programmes (1973- ) R—To provide facilities for training administrative, medical and other health personnel in the methods and techniques essential for establishing and running cardiovascular disease control programmes on a community basis.

CVD 017 Control of rheumatic fever and rheumatic heart disease (1974- ) R—To provide advisory services for countries where rheumatic fever is still a problem and rheumatic heart disease still occurs.

A meeting of rheumatology experts was held in Copenhagen on 27 August 1975 to make proposals for collaboration between WHO and the European League against Rheumatism. Provided—the cost of attendance of the 8 participants (temporary advisers) from 8 countries of the Region, and the services of 2 staff members.

CVD 018 Establishment of programmes for the community control of cardiovascular diseases (1975- ) R—To develop, and test in pilot areas, methods by which public health authorities can introduce community cardiovascular disease control programmes. The project will be carried out in conjunction with the intercountry project for the establishment of ischaemic heart disease registers (CVD 001). A meeting of investigators on comprehensive cardiovascular community control programmes, organized jointly by WHO headquarters and the Regional Office, was held in Geneva from 27 to 29 November 1975.

OCD 002 Working Group on Management of Respiratory Diseases in Children, Rotterdam, Netherlands (3-7 March 1975) R—To review the methods and techniques used in the diagnosis, treatment and follow-up of respiratory diseases in children; to make recommendations on action to limit the severity of such diseases; to evaluate the influence of environmental factors such as air pollution, and personal habits such as smoking, on the occurrence and natural history of respiratory diseases; and to review the organization of health services for respiratory diseases in children. There were 13 participants (temporary advisers) from 12 countries of the Region; 4 observers and a representative of the European Society for Clinical Respiratory Physiology also attended. Provided—the cost of attendance of the participants and the services of 2 staff members.

DNH 003 Advisory services in dental health (1974- ) R—To guide dental health activities, carry out studies with a view to supplementing the available information on various aspects of dental health systems in the Region, and prepare a monograph on European dental health services.

In September 1975 a consultant assisted the Academy for Public Health, Düsseldorf (Federal Republic of Germany) in the development of a special curriculum for students in dental public health. He subsequently spent 6 weeks at the Regional Office, assisting with present and projected programmes in dental health, including a study of patterns of organization of dental health services in Europe.

MNH 007 Working Group on Mental Health Services in Pilot Study Areas, Trieste, Italy (23-26 Sept. 1975) R FT—To discuss the continuation of the work undertaken in the context of the pilot study areas established in selected countries around mental health services, and in particular the implementation of the programme designed to improve data collection systems and to test and analyse methodologies for planning, monitoring and evaluating services. There were 27 participants (directors of pilot study areas) from 12 countries of the Region. Provided—14 temporary advisers and the services of 2 staff members.

MNH 011 Training course in mental health epidemiology and statistics, Nottingham, England (7-18 April 1975) R—To bring together psychiatrists and statisticians to discuss problems with a view to developing a better understanding of how they can work together on the planning and organization of national mental health services. The course was held at the Department of Psychiatry of the University of Nottingham. Provided—a temporary adviser, fellowships to 10 trainees from 8 countries of the Region, and the services of a staff member.
MNH 012 Study on updating and examination of national data on mental health services (1974- ) R—To follow up the study on classification and evaluation of mental health service activities (EURO 5402) by updating existing data, examining trends, and assessing progress in the development of national mental health services.

MNH 016 Working Group on Youth Advisory Services, Lübeck, Federal Republic of Germany (12-16 May 1975) VD—To discuss the function, organization, operation and staffing of youth advisory services in the light of the experience gained in countries where they have been established. A study of the subject was undertaken in 1974 to prepare for the meeting. There were 9 participants (temporary advisers) from 9 countries of the Region, and representatives of the United Nations Division of Social Affairs and the World Psychiatric Association attended. Provided—a consultant, the cost of attendance of the participants, and the services of 2 staff members.

MNH 024 Symposium on the Planning and Organization of Services for Alcoholism and Drug Dependence, Albi, France (30 June-4 July 1975) R—To consider, in the light of current knowledge and experience, the nature and extent of the information required for planning and organizing a range of services for drug dependent persons. Background for the Symposium provided by previous activities undertaken by the Regional Office, including those concerned with health education, epidemiology, treatment, and patterns of existing services. There were 36 participants (psychiatrists, psychologists, sociologists, social workers and public health administrators), 4 observers, and representatives of the United Nations Division of Social Affairs and the World Psychiatric Association. Provided—a consultant, 6 temporary advisers, the cost of attendance of 20 participants from 20 countries of the Region, and the services of 3 staff members.

MNH 027 Control of alcohol consumption (1974-75) R—To study, in collaboration with the Finnish Foundation for Alcohol Studies, national policies for control of alcohol consumption. A report on the first phase of the study was distributed. A working group, organized jointly by the Finnish Foundation and the Toronto Addiction Research Foundation met in Toronto from 13 to 21 August 1975 to discuss alcohol control policies and review the information collected by a questionnaire sent by the Finnish Foundation to 180 countries. A final report on the study will be issued.

MNH 028 Working Group on Forensic Psychiatry, Siena, Italy (13-17 Oct. 1975) R—To consider the present status of forensic psychiatry under different control and treatment systems, and to discuss the various attitudes towards forensic psychiatry and its future role in the prevention of crime and the control and treatment of offenders. The findings of the Group will serve as a background for future activities in this field. There were 18 participants and representatives of the International Society of Criminology and the World Psychiatric Association. Provided—a consultant, the cost of attendance of 14 participants (temporary advisers) from 11 countries of the Region, and the services of a staff member.

MNH 039 Working Group on the Role of Nursing in Mental Health and Psychiatric Care, Saarbrücken, Federal Republic of Germany (10-13 March 1975) VD—To discuss modern concepts and practices in the organization, utilization and education of nursing personnel in health services, particularly for mental health and psychiatric care; to consider the functions of the nursing team, and especially the role of the qualified nurse; and to discuss relationships between nursing personnel and other members of the therapeutic team, and the patient and his family.

There were 13 participants (temporary advisers). Provided—a consultant, the cost of attendance of 9 participants from 8 countries of the Region, and the services of 2 staff members.

SQP 002 Course on the quality control of drugs, Stockholm (7-24 April 1975) R—To provide training in the general principles of quality control of pharmaceutical preparations. The course covered the legislative basis for the inspection of pharmaceutical manufacturing firms, methods of sampling, systems of numbering batches, storage techniques, and the principles of basic training for pharmaceutical analysts. Provided—fellowships to 6 trainees from 6 countries of the Region, and (from other funds) to 11 trainees from countries of the Eastern Mediterranean Region.

SQP 004 Fourth European Symposium on Clinical Pharmacological Evaluation in Drug Control, Deldesheim, Federal Republic of Germany (11-14 Nov. 1975) VD—To discuss problems in operating drug regulatory agencies and possible solutions to them, the responsibilities of health authorities for dissemination of information on drugs, and a practical approach to the activities of a centre for clinical pharmacology. There were 52 participants from 26 countries of the Region and 5 representatives from the Council of Europe, the International Federation of Pharmaceutical Manufacturers Associations and the International Union of Pharmacology. In addition to its contribution to the Special Account for Miscellaneous Designated Contributions, the Government of the Federal Republic of Germany paid the cost of attendance of 37 participants and of 2 staff members.

LAB 001 Public health laboratory services (1973-75) R—To assist in developing public health laboratory services and in organizing the training of laboratory staff; and to bring up to date the Directory of Public Health Laboratories in Europe and supplement it with information on training facilities in various laboratories in the Region. The following activities were carried out:

In 1973 and 1974 collaborative research on the vibrio group was coordinated in 3 laboratories in the Region. A cost/benefit study of the effect of automation in clinical chemistry and haematology was carried out in 3 countries and provided preliminary data that will be supplemented by data from other countries.

In June 1974 the regional health officer attached to the project visited Portugal to investigate the cholera epidemic and in September of the same year, at the request of the Regional Office for the Eastern Mediterranean, went to Cyprus to advise on the diagnosis of communicable diseases and to study the possibility of UNICEF assistance for strengthening of laboratory services. In September 1975 he again visited Portugal to examine priorities in basic sanitation programmes and explore possibilities of formulating a comprehensive programme with international assistance; he also advised on public health problems of Portuguese citizens returning from overseas and on the recent cholera outbreak.

In 1973 lecturers were provided for the food hygiene course at Zeist, Netherlands, and in 1974 and 1975 for the Nordic School of Hygiene, Göteborg, Sweden. Three temporary advisers lectured at a course held at the Pasteur Institute, Algiers, from 3 March to 4 July 1975.

The Directory of Public Health Laboratories in Europe was brought up to date on the basis of information obtained from 22 countries of the Region. Information from the remaining countries is needed before publication.

LAB 002 Studies on problems related to health laboratories (1975) R—To study problems connected with the development of health laboratory services, particularly the planning and organization of health laboratory evaluation procedures, the
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evaluation of modern methods of sterilization, bacterial typing techniques, immunoassays, antibiotic sensitization tests, and cancer cytology.
A review meeting on the application of laboratory methods to hospital infections, held in Copenhagen from 15 to 17 April, was attended by 5 temporary advisers from 5 countries of the Region and 2 staff members.

PPE 001 Programme supporting services (promotion of environmental health) (1974– ) R—To meet requests from countries for advice on subjects for which no national officer is available and for organizing national activities to follow up intercountry projects sponsored by the Regional Office; to continue assistance to seminars and conferences conducted by the United Nations and other organizations whose work is of special interest to the Office; and to prepare and print reports on conferences, seminars and other meetings held by the Regional Office.

PPE 002 Planning and evaluation of the long-term programme in environmental pollution control (1970–71; 1973– ) R VD—To plan, coordinate and evaluate the programme.

PPE 003 Environmental pollution information systems (1972–75) R—To obtain information on administration of and existing rules for pollution control and on control projects in the Region, and to design regional information systems.
On the basis of information collected, including that obtained during visits to WHO headquarters, ECE and UNEP, a consultant prepared a proposal for the organization of an environmental information system on water pollution control.

CEP 101 Health hazards and ecological effects of persistent substances in the environment (1971– ) VD—To study the route by which persistent substances discharged into the environment can find their way back to man and investigate and evaluate their ecological effects and the health hazard they represent; to recommend guidelines for the establishment of acceptable concentrations of various persistent substances in the ecosystem; and to study the use of experimental ecosystems and mathematical models in predicting the behaviour of persistent substances in different ecosystems.

CEP 102 Protection of man and ecosystems from adverse effects of pollutants (1973– ) VD—To study the systems of analysing and the methods of controlling residues of persistent pesticides in food products; and to promote and participate in the establishment of a global early warning system for detecting ecological changes before they irreversibly affect any ecosystem of major importance.

CEP 103 Ecological aspects of water pollution in specific geographical areas: (1) Rhine and North Sea; (2) Danube, Black Sea and Mediterranean (1972– ) R—To review present and planned programmes relating to the control of water pollution in different parts of the Region.
A working group, attended by 16 temporary advisers from 5 countries of the Region and a staff member, met in Wageningen, Netherlands, to discuss the pollution of the Wadden Sea.
Ecological aspects of water pollution in the Rhine, the Danube and the Mediterranean are now dealt with under intercountry project CEP 207 and interregional projects CEP 035 and 038.

CEP 205 Recreational water quality (1971–75) VD—To compile available knowledge on water quality requirements for bathing beaches, undertake further studies with a view to preparing manuals and codes of good practice for bathing water and beach sanitation, establish collaborative programmes on sampling and analysis of beach pollution, and promote epidemiological studies on the role of polluted beaches and water used for recreation in causing infection among tourists.

CEP 206 Analytical methods in water pollution control (1971– ) VD—To review present and planned programmes relating to the control of water pollution in different parts of the Region.
During the period under review, 3 working groups were organized to consider working documents on the examination of water, drafted for the Manual on Analysis for Water Pollution Control.
The first, on radiological examination of water, was held in Vienna from 24 to 26 March 1975. There were 14 participants (temporary advisers) from 7 countries of the Region, and the meeting was attended also by representatives of FAO, IAEA, and several intergovernmental and nongovernmental organizations.
The second, on bacteriological and virological examination, was held at Mainz, Federal Republic of Germany, from 21 to 25 April 1975. There were 22 participants (temporary advisers) from 12 countries of the Region and the United States of America, and also representatives of the Commission of the European Communities and several nongovernmental organizations.
The third, on biological examination, met in Brussels from 17 to 20 June 1975. There were 19 participants (temporary advisers) from 12 countries of the Region and the United States of America, and also representatives of the Commission of the European Communities and a nongovernmental organization.
Provided—the cost of attendance of the participants, additional temporary advisers and the services of staff members.

CEP 207 Pollution control of the Rhine (1974– ) VD—To study the feasibility of using observation of physiological, biochemical, histological and other basic biological effects on aquatic organisms as indications of possible hazards to man; to establish steering committees for the Rhine that will plan and carry out relevant studies coordinated with those of other international or national organizations.
A working group met in Biltoven, Netherlands, from 9 to 13 December 1974 to review the ecological aspects of pollution. It had 8 participants (temporary advisers) from 5 countries of the Region and was attended also by representatives of the Commission of the European Communities, the International Association on Water Pollution Research and the International Commission for the Protection of the Rhine against Pollution.
Provided—2 consultants, the cost of attendance of the participants, and the services of 2 staff members.

CEP 210 Health aspects of eutrophication (1973– ) VD—To study the health aspects of eutrophication, especially in so far as it affects the preparation of drinking-water and the use of water for recreational purposes; and to review methods for restoring the purity of lake water following discharge of pollutants.
A draft document on the causes, effects and means of control of eutrophication was submitted to the working group that met in Brussels from 17 to 20 June 1975 (see intercountry project CEP 206) and is being revised by the author.

CEP 303 Health aspects of air quality management (1971–72; 1974– ) R—To review scientific and technological information on air quality control with specific reference to public health; and to prepare manuals and codes of good practice in air pollution control and study their application in pilot areas.
WHO participated in a meeting of air pollution experts in Düsseldorf, Federal Republic of Germany, on 28 and 29 April 1975 to discuss the preparation of the Manual on Urban Air Quality Management, which was subsequently published as the first of the Regional Publications series of the Regional Office for Europe.
CEP 702 Noise control management (1972–) R VD—To promote studies on the health effects of sound in the audible range and at its limits, with a view to recommending measures for the protection of the public; to review present technological measures and legislation for the control of noise, including traffic noise, in urban areas; to develop procedures for the monitoring of environmental noise; and to prepare sets of recommendations set out in a model code for the wider use of control measures.

CEP 803 Non-ionizing radiation protection (1974–) R—To promote studies on the health effects of non-ionizing radiation with a view to recommending measures for the protection of the public; and to review existing laws and regulations on the subject with a view to making recommendations on their improvement and on the practicability of their enforcement.

CEP 804 Public health and environmental aspects of nuclear energy (1975–) VD—To promote studies on the health effects on man and the impact on the environment of the development of nuclear power and the operation of installations for its production.

HWP 001 Advisory services in occupational health (1973–) R—To provide assistance to Member States and to cooperate with ILO in the field of occupational health.

HWP 004 Course on the epidemiology of intoxications in industry, Helsinki (20 Oct.–5 Nov. 1975) R—To prepare staff intending to arrange courses in their own countries in epidemiology as applied to occupational health. The course was given, in English, at the Institute of Occupational Health in Helsinki. Provided—2 lecturers, fellowships to 6 trainees from 2 of the countries of the Region—France and the USSR—where similar courses are scheduled to be held in subsequent years, and the services of a staff member.

SES 001 Training for environmental health engineers (Russian language) (1966–) R—A consultant visited the Warsaw Technical University for one week in September 1975 to advise on the training programmes for environmental health engineers.

SES 003 Manpower requirements in environmental health (1972–75) R—To make a survey of manpower requirements in environmental health, covering the various categories of executive and operative personnel, as a basis for evaluating current training programmes and preparing new ones.

SES 004 Postgraduate training in environmental sciences (1973–) R—To assist postgraduate training courses in environmental sciences for engineers, chemists, biologists, public health medical staff and others.

The leaders of training courses in human ecology held their annual meeting in 1975 at the Regional Office. Fourteen experts from 6 universities and institutions in 3 countries took part in the meeting; the Organization for Economic Cooperation and Development was represented by one of the participants. Provided—the services of 2 staff members.

SES 006 Courses in environmental pollution control (1974–) R—To assist short courses in environmental pollution control with special reference to public health.

SES 009 Role of public health services in environmental pollution control (1973–75) R VD—To study the present role of the public health services in environmental pollution control and discuss ways of assisting them to cope with the problems arising from urbanization and industrialization and the appearance of new pollutants.

A preliminary review of environmental legislation and of the distribution of administrative responsibility for environmental programmes in the Region was prepared by a consultant who visited 9 countries in 1973 and 1974. The completion of the study and the final report were discussed at a meeting held at the Regional Office on 20 and 21 February 1975, for which the services of 2 temporary advisers were provided.

FSP 002 Harmful residues in food for human and animal consumption (1972–) VD—To study the methods used in the Region for the control of harmful residues (including antibiotics, hormones, pesticides and conserving chemicals) in food; and to prepare proposals for drawing up and periodically reviewing public health guides and criteria for the control of such residues.

During the period under review a staff member visited Brussels (21 Feb. 1975) to plan for a consultation to be held in December 1975 on the health aspects of antibiotic-resistant bacteria.

PPH 001 Programme supporting services (health statistics) (1974–) R—To meet requests from countries for advice on subjects for which no regional officer is available and for organizing national activities to follow up intercountry projects sponsored by the Regional Office; to continue assistance to seminars and conferences conducted by the United Nations and other organizations whose work is of special interest to the Office; and to prepare and print reports on conferences, seminars and other meetings held by the Regional Office.

PPH 002 Health statistical services (1962–66; 1968–74) R—To sponsor and coordinate studies on health statistical methodology and on the organization and functions of health statistical services. The following 8 studies were completed:

1. **Accuracy and comparability of statistics on causes of death.** To assess the accuracy of national statistics on causes of death and examine the influence on accuracy of the various procedures involved; to study the comparability of statistical information on mortality within countries and from one country to another; and ultimately to improve the quality and usefulness of mortality statistics in the Region. Six Member States in the Region participated in the work. The final report was prepared in 1966 and was distributed to all medical schools in Europe. It was also used as the background document for the implementation of a separate project under the long-term cardiovascular diseases programme.

2. **Epidemiology of home accidents.** To stimulate interest in home accidents by providing complete and accurate information on the extent of the problem and to identify etiological factors, high-risk groups, and differences by age, sex, occupation, residence and other characteristics, as a guide to preventive measures. Nine Member States in the Region took part in the study, which was reported in a paper presented to the eighteenth session of the Regional Committee in 1968.

3. **Continuous health surveys of the population.** To stimulate interest in the development of new methods of obtaining information on the health of populations to supplement routinely available health statistics. A working group of 6 temporary advisers and 4 staff members met from 6 to 8 December 1966 to study the potential usefulness of continuous health surveys of the population.

4. **Methods of surveillance of congenital disorders.** To survey the methods employed in various European countries for obtaining data on the occurrence of congenital disorders. Information collected from 19 Member States was considered at a working group held on 7 and 8 September 1967 in Copenhagen and attended by 8 temporary advisers and 4 staff members.

5. **Social and health insurance records as sources of health statistical information.** To improve the use of social and health insurance records as an additional source of information on morbidity and medical care in the Region. Five Member States
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took part in the study, the findings of which were published in 2 reports, the second of which was presented to the Third European Conference on Health Statistics, held in May 1971 in Turin, Italy.

(6) Measurement of the consumption of psychotropic drugs. To review existing and potential methods for the quantitative measurement and surveillance of the consumption of psychotropic drugs. In 1970 a temporary adviser collected and analysed the material. The preliminary report was presented to the European Symposium on the Consumption of Drugs held in Oslo in 1969 and the final report was submitted to the Regional Committee at its twenty-first session in 1971.

(7) Linkage of child health records. To review the principal applications and techniques of record linkage in the field of child health. In 1969 a temporary adviser visited 2 countries for the purpose of the study, for which assistance was provided by correspondence by several experts in Member States.

(8) National health statistical services. To examine the contribution of national health statistical services to the planning, monitoring and evaluation of health services, and the possibilities of linking health information with social and demographic information. Nine Member States took part in the study, which was assisted by 3 temporary advisers. The findings were reported in 2 papers presented to the Conference on Health Information Systems and to the Second International Conference of National Committees on Vital and Health Statistics, both held in Copenhagen in 1973.

ICD 001 Promotion of the Ninth Revision of the International Classification of Diseases (1975–) R—To prepare teaching material and curricula on the Ninth Revision of the Classification for courses (to be held in the working languages of the Region) for service personnel of national coding services and coding instructors; and to assist countries engaged in establishing national versions of the Ninth Revision of the Classification or complementary classifications.

A temporary adviser attended the International Conference for the Ninth Revision, held in Geneva from 30 September to 6 October 1975 and a staff member from the Regional Office attended the 4-day meeting held following the Conference to discuss training activities.
EASTERN MEDITERRANEAN REGION

Afghanistan

SHS 001 Development of basic health services (1965–77) R UNICEF—To establish, throughout the country, basic health services into which the malaria eradication services may be integrated in areas where the consolidation phase of the antimalaria programme is well advanced; and to strengthen the provincial health administration so as to secure adequate supervision of the basic health services personnel.

SHS 002 School of radiography (1969–77) R—To train assistant radiographers, provide refresher courses for trained radiographers, and inspect the radiological facilities from the point of view of radiation protection.

MCH 001 Maternal and child health/family planning (1972–76) UNDP—To reorganize and strengthen comprehensive services for maternal and child health care, including family planning, and to provide refresher and orientation courses in maternal and child health for professional and auxiliary health personnel.

HMD 001 Nursing advisory services (1957–76) UNDP—To strengthen nursing administration at national and local levels, and develop and coordinate nursing and midwifery education and services.

HMD 002 Nursing administration and education (1967–) R—To improve nursing services administration in order to provide effective nursing care of patients.

HMD 003 Medical education (1952–77) R—To develop medical education, with particular attention to improving the teaching of the basic medical sciences and community medicine and to the further training of teachers in their subjects and in educational science and methodology.

HMD 009 Health manpower development: fellowships R

ESD 001 Institute of Public Health, Kabul (1956–58; 1961–77) R—To develop the Institute for service, research and training in the epidemiology, surveillance and control of communicable diseases, and in nutrition and health education.

MPD 001 Malaria control programme (1956–) R UNDP—To eradicate malaria from Afghanistan north of the Hindu Kush, and to continue antimalaria “holding” operations to conserve the gains achieved south of this mountain range, with the ultimate objective of achieving the eradication of malaria from the whole country.

SME 001 Smallpox eradication (1967–77) R—To keep the country free from smallpox by vaccination of the most vulnerable population groups and the operation of a reporting and surveillance containment system.

MBD 001 National tuberculosis programme (1958; 1961–78) UNDP—To implement a national tuberculosis control programme integrated into the basic health services.

OCD 001 Liver diseases (May 1975) R—Two consultants undertook a study of cirrhosis of the liver (etiology and clinical diagnosis) in the Herat region. According to the results, the disease would appear to be caused by toxic seeds of a weed gathered with wheat.

SOP 001 Pharmaceutical quality control (1972–77) R—To establish a division of pharmacy and medical supplies in the Ministry of Public Health; and to develop the quality control laboratory for the analysis and assay of pharmaceutical preparations and administrative control measures such as legislation, licensing and registration of locally manufactured and imported drugs.

BSM 001 Environmental health (1966–) R VW—To develop the environmental sanitation unit in the Ministry of Public Health and plan and implement a long-term programme of community water supply, waste disposal and general sanitation.

PIP 003 Final design of water supply and sewerage in Kabul (1975–77) UNDP FR (Canadian International Development Agency)—To prepare final engineering and technical analysis, detailed design drawings and tender documents for waterworks facilities for the areas of Waizir Akbar Khan, Shush-darak and the old city, as well as for the Logar well field development and related pumping, transmission and storage works; also, subject to availability of funds, to prepare final design and relevant bidding documents for sewerage works.

DHS 001 Advisory services on vital and health statistics (1971–) R—To develop the national vital and health statistical services and train the necessary staff.

DHS 002 Infant and childhood mortality survey (1971–) UNFPA—To organize a survey on infant and childhood mortality that will provide information on the magnitude of the problem, the factors affecting it, and the impact of specific public health measures; to test statistical methods for collecting information on infant and childhood mortality in the absence of or as a supplement to a vital statistics system; and to train staff for the project.

Bahrain

HMD 001 Nursing fellowships (1974–) R—Two 1-year fellowships were awarded—one in nursing administration and education, and the other in public health nursing.

HMD 003 Health and medical fellowships UNDP

HMD 004 Nurse training (1975–77) UNDP—To improve curricula for the training of nurses, with special attention to midwifery, and to develop all aspects of midwifery education.

HMD 099 Health manpower development: fellowships R

PIP 001 Bahrain sewerage (1973–75) UNDP—To make a pre-investment survey for sewerage and drainage for the metropolitan areas of Bahrain, and to formulate a master plan and a phased programme for development. Provided—2 consultants (July–Aug. and Oct. 1974), contractual services, and a fellowship.

The master plan and preliminary engineering and feasibility study have been prepared and WHO’s comments on the relevant reports have been submitted to the Government.

Cyprus

SHS 001 Development of basic health services (rural health) (1974–77) R—To strengthen the public health services at local and district levels with the ultimate aim of establishing a comprehensive and well integrated preventive and medical care service operated through local centres.

HMD 099 Health manpower development: fellowships R

LAB 001 Public health laboratory (1970–77) R—To raise the standard of performance of the public health laboratory services.

Democratic Yemen

SHS 001 Public health advisory services (1968– ) R—To strengthen the administration of the health services and develop health programmes.

MCH 001 Maternity-centred family planning programme (1975–77) UNFPA—To implement the health component of the national family planning programme and train technical personnel for the programme.

HMD 001 Institute of Health Manpower Development, Aden (1970–78) UNDP—To establish an institute for training the technical personnel (nursing staff and middle-grade personnel of various categories) required for the health services.

HMD 002 Nursing education, Mukalla School (1975–) R—To develop nurse training programmes at levels in keeping with the socioeconomic level of the country and the academic ability of the students, and to develop standards of training and practice for the whole country.

HMD 099 Health manpower development: fellowships R

MPD 001 Malaria control (1969–) R—To carry out anti-malaria measures and coordinate the development of the malaria service with that of the rural health services.

SME 001 Smallpox eradication (1969–77) R—To carry out mass vaccination against smallpox and to organize and intensify reporting and surveillance, in order to keep the country free from smallpox.

MBD 001 Tuberculosis control (1971–) R VA—To implement a comprehensive national tuberculosis control programme, integrated into the general health services in the provinces and with a specialized service at the central level.

MBD 002 Leprosy control (March-April 1975) R—A consultant made a limited survey of the leprosy situation and submitted recommendations on the type and scope of a future control programme.

LAB 001 National health laboratory (1971–77) R—To establish a central public health laboratory that will serve as the nucleus for the development of national health laboratories.

BSM 001 Community water supply and environmental health services (1975–) R—To improve the environmental health situation, particularly as regards community water supplies, sewerage systems, and disposal of all types of wastes; and to develop new services where required.

DHS 001 Advisory services on vital and health statistics (1974–) R—To develop a national vital and health statistics service and train staff.

Egypt

SHS 002 Medical emergency centres (1970; 1973–77) R—To establish centres to deal with accidents and medical emergencies in Cairo and Alexandria.

SHS 006 Strengthening of basic health statistical services (1975–) R—To strengthen the central health statistical services, develop health statistics services at the provincial level, and train national staff.

MCH 001 Prophylaxis of recurrence of rheumatic fever in schoolchildren (1972–) R—To prevent and control rheumatic fever in schoolchildren.

MCH 002 Family planning (1970–) UNFPA—To plan and implement the health components of the national family planning programme, carry out research, and train technical personnel for the programme.

HMD 002 High Institute of Nursing, Cairo University (1965–75) R—To develop a 4-year degree programme in nursing, designed to prepare nurses for leading posts in nursing service and education. Provided—10 nurses (for a total of 388 months) who planned and taught in courses in their various specialties.

The first 5 nurses graduated in September 1969 and during the period of the project 239 nurses graduated. In 1974 there were 323 students enrolled in the programme. The Institute has 39 faculty members with qualifications ranging from B.Sc. to Ph.D; 10 of them have been awarded WHO fellowships.

One of the major accomplishments of the Institute is its internship programme, which is a closely supervised period of practical work at the end of the course.

HMD 003 Centre for educational technology in the health sciences (1973–77) R UNDP—To develop a centre for the application of modern educational technologies in order to increase the number and raise the standard of health personnel in Egypt and prepare teaching/learning material of high quality that can be used in health manpower training programmes in other countries.

HMD 004 Medical education (1970–77) R—To develop medical education through a planned programme of assistance to the medical faculties.

HMD 005 High Institute of Public Health, University of Alexandria (1956–77) R—To develop the Institute, which provides postgraduate training in public health for Egyptian graduates and WHO fellows from other countries of the Region.

HMD 099 Health manpower development: fellowships R

MPD 001 Malaria eradication programme (1957–) R—To carry out studies on malaria in the country, with particular emphasis on the bionomics of the vectors and their susceptibility to insecticides, and to make studies of spraying equipment.

MBD 001 BCG vaccine production, Cairo (1972–76) UNDP—To establish a laboratory for the large-scale production of freeze-dried BCG vaccine.

VIR 001 Virus research, training and production centre, Agouza (1966–) UNDP—To set up a vaccine production centre for poliomyelitis, measles and other virus vaccines.

VBC 001 Strengthening of work on mammalian toxicology at the Central Agricultural Pesticides Laboratory, Cairo (March-May 1975) UNDP/FAO—A consultant advised on measures, including training, for reducing the acute and long-term toxicological hazards of the use of pesticides in agriculture.
CVD 001 Intensive care unit, Alexandria University Hospital (1970-74) R—Fellowships were awarded to 2 senior officers of the University Hospital to enable them to advise on and assist in the establishment of an intensive care unit, and to nurses and technicians to be assigned to the unit to provide them with the necessary specialized training. The services of a consultant were also provided (May 1972), as well as supplies and equipment.

CVD 002 Intensive care units, Cairo (1972-77) R—To plan, organize and manage intensive care units in the large hospitals and train the necessary staff.

SQP 001 Development of a national control laboratory for biological substances (1974-) UNDP—To develop a national control laboratory that will ensure that the domestic production of biological substances is of adequate quality, and also control the quality of imported products.

SQP 002 Pharmaceutical quality control (1970-77) R—To develop specific aspects of the control of locally manufactured and imported pharmaceutical preparations, carry out research, and train specialists in this field.

ISB 001 Concentrated sera production (1972-76) R—To establish a unit for the production and purification of concentrated sera at the Agouza laboratories, Cairo.

LAB 001 Shigella and Salmonella survey (1969-) R—To establish a national reference centre for the identification of Shigella and Salmonella.

LAB 002 Central blood bank (1974-) UNDP—To develop the blood transfusion centre by the introduction of modern methodology and the utilization of component blood therapy.

CEP 001 Air pollution control (1975-77) R—To study sources of air pollution and devise measures for their control.

DHS 001 Electronic data processing in health services (1970-74) R—To improve the use made of computers for vital and health statistics and for research. Nine fellowships were awarded for training in computer applications in radiotherapy, cancer epidemiology and statistics, and hospital records. In addition, supplies and equipment were provided to the Ministry of Health, the Computation Centre of Cairo University, the Cairo University Hospitals, and the High Institute of Public Health, Alexandria.

Ethiopia

SHS 002 Health planning (1968-) UNDP—To plan and develop national health services and coordinate health programmes as part of the national 5-year development programme.

SHS 003 Hospital planning and administration (1970-1972) R—To develop the hospital and medical care services.

SHS 004 Maintenance and repair of medical equipment (1974-) R—To establish a central service for the maintenance and repair of medical equipment and train staff for this work.

SHS 005 Medical emergency services (1974-) R—To plan and organize an emergency centre in Addis Ababa to deal with accidents, medical emergencies etc., that may be used as a model for the development of similar services throughout the country.

SHS 006 (formerly SQP 001) Pharmaceutical services (1971-1977) R—To establish a division of pharmacy and medical supplies in the Ministry of Public Health; and to develop the quality control laboratory for the analysis and assay of pharmaceutical preparations and administrative control measures such as legislation, licensing and registration of locally manufactured and imported drugs.

SHS 007 Public health assistance in drought relief (medical coordinator) (1974-1976) UNDP—To provide advice and coordinate health assistance provided to drought-stricken areas from various sources.

SHS 008 Drought relief (sanitary and water supply engineer) (1975-1976) UNDP—To survey the water supply situation in the drought-affected areas; to take emergency measures for providing water to the population; and to carry out immediate and medium- to long-term water supply programmes.

HMD 001 Medical education (1964-1977) R—To develop medical education at the University in Addis Ababa, with special attention to the improvement of teaching in the basic medical sciences and in community medicine, and to providing further training to teachers in their subjects and in educational science and methodology.

HMD 099 Health manpower development: fellowships R

ESD 001 Advisory services in epidemiology (1966-1975) UNDP—To plan, develop and operate epidemiological services at all levels of the health services.

MPD 001 Malaria eradication training centre (1959-1975) R—To train various categories of personnel for the malaria eradication programme.

MPD 002 Malaria eradication programme (1967-) R—To eradicate malaria from those areas in which technical and administrative conditions ensure its feasibility.

MPD 003 Schistosomiasis control (Sept.-Nov. 1975) R—A consultant made a follow-up of the malacological survey conducted in 1972, assisted in evaluating the results of the schistosomiasis control programme that has been carried out for the past 6 years and the plans drawn up for a future large-scale programme, and trained some national staff in malacological techniques.

SME 001 Smallpox eradication (1968-1977) VS—To achieve the eradication of smallpox through a system of reporting and surveillance/containment operated with the cooperation of the health services.

MBD 001 Tuberculosis control (1959-1977) UNDP—To implement a comprehensive national tuberculosis control programme, integrated into the provincial health services.

LAB 002 (formerly LAB 001) National health laboratory service (1972-) UNDP—To establish a national health laboratory service by strengthening and modernizing the Central Laboratory and Research Institute and expanding the services to cover the provinces; and to train the necessary personnel.

BSM 001 Public and environmental health control, Awash Valley (1971-) UNDP—To review the epidemiological situation and assess the health and environmental hazards in the area covered by the Awash Valley development programme, to plan a network of basic health services and to improve sanitary facilities, especially as regards community water supplies, disposal of domestic and industrial wastes and control of schistosomiasis.

BSM 002 Community water supply (1967-1979) UNDP—To plan, design, and supervise the construction of community water supplies in the small towns.

SES 001 Environmental health services (1967-) R—To plan and administer a national environmental health programme.
Iran

SHS 001 Rehabilitation of the physically handicapped (1969-75) R—To train personnel required for the development of rehabilitation services throughout the country at the school of physical therapy, University of Teheran, and the Shafa Yahayan Rehabilitation Hospital.

SHS 003 Health services development research (1973-77) UNDP—First phase: to provide an analytical description of the health and health services situation in West Azerbaijan that would enable an appraisal to be made of means of developing health services in order further to improve community health. Second phase: on the basis of the analysis, to design a network of health services for the province and plan and implement training programmes.

SHS 004 Training in technical orthopaedics (1975-77) UNDP—To train prosthetic and orthotic technicians and provide national staff in these fields with training in teaching methodology.

SHS 006 Hospital services expansion (1975-77) R—To provide for advice on the expansion of hospital services, including planning, architecture, administration, and equipment requirements.

MCH 001 and MCH 002 Health aspects of family planning (1971-75) UNFPA—To plan and implement the health components of the national family planning programme, and to train technical personnel for the programme.

HMD 001 High Institute of Nursing, Teheran (1967-76) UNDP—To develop basic nursing education at university level.

HMD 002 Postbasic nursing education (1967-77) R—To develop a 2-year postbasic programme leading to a degree of Bachelor of Science in nursing at the Department of Nursing, College of Arts and Sciences, Pahlavi University, Shiraz.

HMD 003 Medical education (1971-77) R—To develop medical education, with particular attention to improving the teaching of the basic medical sciences and community medicine and to the further training of teachers in their subjects and in educational science and methodology.

HMD 004 Postgraduate education in public health (1964-77) R—To develop the School of Public Health of the University of Teheran, giving particular attention to the further training of teachers in the various disciplines and to the improvement of the teaching of radiation health.

HMD 099 Health manpower development: fellowships R

CAN 001 Cancer control (1967-77) R—To develop the programme of the Research Department of the Teheran Cancer Institute.

SQP 001 Laboratory for pharmaceutical quality control (1966-75) R—To develop the quality control laboratory for the analysis and assay of pharmaceutical preparations, chemicals and dependence-producing drugs, revise legislation governing the trade, and train local staff in modern techniques of drug analysis.

LAB 001 Public health laboratory services (1973-77) R—To introduce, in the reference laboratories, recent immunological techniques for the identification of malaria and tuberculosis.

PIP 001 Pre-investment survey of sewerage needs and facilities in Teheran (1968; 1970-76) UNDP—To undertake a pre-investment survey for sewerage and storm drainage in the Greater Teheran area and draw up master plans and first-stage feasibility studies to assist in securing investment for construction.

The work done under this project between 1970 and 1974 is described in the Annual Report for 1974.1

PIE 002 Water and sewerage in urban areas (1975- 77) UNDP—To assess the manpower needs for water and sewerage works in urban areas, and to draw up and implement training programmes.

CEP 001 Air pollution control (1974-77) R—To study sources of air pollution in the main industrial cities, devise measures for their control, train staff in the techniques of pollution measurement and control, and prepare standards and regulations.

CEP 002 Industrial pollution survey (1975-77) UNDP—To carry out a survey of pollution from industrial sources and take measures to improve control of the environment in general and the quality control of water and air.

CEP 003 Domestic and agricultural pollution survey (1975-77) UNDP—To develop, in the Department of Environmental Conservation, a comprehensive environmental engineering programme, including particularly the control of pollution from domestic and agricultural sources.

HWP 001 Occupational health (1963-64; 1972-77) R—To develop teaching and research in the School of Public Health, University of Teheran, and carry out a field survey for assessment and control of the working environment in a selected sample of Iranian industry.

SES 001 Teaching of sanitary engineering, Pahlavi University, Shiraz (1968-70; 1972-74) R—To develop a programme of sanitary engineering education and research, initially at undergraduate level, at the University. Provided—a visiting professor from 1968 to 1970 and another from August 1972 to July 1974, a fellowship for a future faculty member, and supplies and equipment.

The visiting professor taught in the sanitary engineering courses given in the Department of Civil Engineering. In 1972 there were 2 such courses, but others were instituted in the following years, and special studies and research were promoted. The main achievement of the project was the formulation of a comprehensive proposal for a department of environmental and water resources engineering, together with the construction of a new sanitary engineering laboratory.

Iraq

SHS 001 Comprehensive basic health services: training (1964-75) UNDP UNICEF—To provide in-service training for professional and auxiliary personnel of the rural health services and field training to undergraduate medical and nursing personnel.

SHS 002 Hospital services administration (1966-77) R—To strengthen the administration of the Medical City Teaching Hospital, Baghdad, plan and organize nursing services, establish an intensive care unit and a central sterile supply department, and develop food and dietetics services.

SHS 003 Maintenance and repair of medical equipment (1973-77) R—To organize, under the Ministry of Health, a central workshop for the maintenance and repair of medical equipment and, at a later stage, 2 peripheral workshops; to train staff in this field; and to provide courses for X-ray engineering technicians.

SHS 004 Poison information centre (1972; 1974-75) R—To establish a poison information centre, formulate procedures for dealing with poison cases whenever they occur, and ensure timely treatment.

SHS 005 Speech therapy (1975– ) R—To establish a speech and audiology unit in the Rehabilitation Centre, Baghdad.

HMD 001 College of Nursing, Baghdad (1962– ) R—To develop a university nursing education programme to prepare nurses for leading posts in nursing service administration and in nursing education.

HMD 002 Medical education (1971–77) R—To develop medical education, with particular attention to improving the teaching of the basic medical sciences and community medicine and to the further training of teachers in their subjects and in educational science and methodology.

HMD 099 Health manpower development: fellowships R

ESD 001 Pilot project in epidemiological surveillance (1975–77) R—To study the epidemiology of communicable diseases in the country and develop control measures and epidemiological surveillance.

MPD 001 Malaria eradication programme (1957– ) R—An extension of the malaria control programme with which WHO has assisted since 1952.

MPD 002 Visceral leishmaniasis control (Oct.-Nov. 1975) R—A consultant was assigned to undertake epidemiological studies on the reservoir host and vector of visceral leishmaniasis, explore feasible approaches to control of the disease, assist in improving laboratory work, and train national staff in field work and laboratory techniques.

MBD 001 Leprosy control (Dec. 1974) R—To assist with the development of a leprosy control programme a consultant made a review of some health institutions and submitted recommendations regarding future policy in leprosy control.

CAN 001 Cancer control (1968–77) R—To develop the radiotherapy department of the Institute of Radiation and Nuclear Medicine, Baghdad, and to train radiotherapy technicians.

LAB 001 Public health laboratory services (1969– ) R—To develop microbiological diagnostic facilities adequate for the needs of the curative and preventive health services and also to develop the production of vaccines.

PIP 002 Rural water supply programme, phase II (1974–76) UNDP—To carry out preliminary engineering and feasibility studies on the first-phase programme in the master plan and prepare a design manual. Under this project assistance will be provided also with respect to construction planning, further groundwater studies, strengthening of the rural water supply department, water quality control, and other aspects of the rural water supply programme.

HWP 001 Occupational health (Oct.-Dec. 1975) R—A consultant was provided to assess occupational health problems and advise on the development of an occupational health unit, suitable equipment, and the training of personnel.

HMD 002 Medical education (1957–77) R—To develop medical education, with particular attention to improving the teaching of the basic medical sciences, community medicine, nutrition and mental health and to the further training of teachers in their subjects and in educational science and methodology.

HMD 099 Health manpower development: fellowships R

CAN 001 Cancer control (cytopathology) (March-April 1975) R—A consultant assisted in the organization and supervision of a 6-week course in cytopathology, attended by 15 trainees. Thirteen of these have passed the examination of the International Academy of Cytology.

CVD 001 Coronary care unit (1969; 1972; 1974) R—Two consultants (May 1969 and Oct.-Nov. 1972) assisted in developing the coronary care unit of the Tel Hashomer Government Hospital for use as a training centre, and in analysing the operation and role of coronary care units in the country's hospitals. Supplies and equipment were provided in 1974.

RAD 001 Radiation protection (1970– ) R—To improve dosimetry in therapeutic X-ray installations and increase the protection of personnel occupationally exposed to ionizing radiation by introducing thermoluminescent dosimeters; to train hospital physicists; and to carry out surveys of environmental radioactivity in the Central Laboratory for Prevention of Air Pollution and Radiation Hazards, Tel Hashomer Government Hospital.


CEP 002 Quality of the environment (1974–75) UNDP—To survey air pollution problems, plan studies and measures for abatement and control, and train personnel.

Jordan

SHS 002 Rehabilitation services (1967–77) R—To develop the rehabilitation centre and introduce modern methods of physical therapy; also to plan and develop training programmes for physical therapists and establish a prosthetic workshop.

HMD 001 Nursing education (1965–77) R, UNDP—To strengthen nursing services and develop professional and auxiliary nursing education programmes.

HMD 002 Health training institute (1966–70; 1972– ) R—To establish and develop an institute for training multipurpose health personnel for staffing health centres and dispensaries in rural areas.

HMD 003 Medical education (1972–77) R—To strengthen the Faculty of Medicine and Pharmacy of the University of Amman, particularly as regards the teaching of community medicine and the further training of teachers in their subjects and in educational science and methodology.

HMD 099 Health manpower development: fellowships R

MPD 001 Malaria eradication programme (1958– ) R, UNDP

MBD 001 Tuberculosis control (1963–75) R—To formulate and implement a comprehensive national tuberculosis control programme, integrated in the general health services.

DHN 001 Dental health (1972–75) R—To develop and improve dental services, with particular attention to the prevention of dental disease. Provided—supplies and equipment.

LAB 001 Public health laboratory (1971– ) R—To set up an oncology register in the public health laboratory services, develop the productoin of bacterial vaccines and establish a virology diagnostic section.

BSM 002 Sanitary engineering (1974–76) UNDP—To plan sewerage systems for the main towns and cities and train sanitary engineering personnel.
Kuwait

HMD 001 Nursing advisory services (1966-67; 1969-77) R—To develop nursing education and nursing services, define standards of nursing care, and organize inservice education programmes for nursing personnel.

HMD 099 Health manpower development: fellowships R

Lebanon

SHS 002 Rehabilitation of the physically handicapped (1963-77) R—To establish a physical therapy department in the government hospital, Beirut, and reorganize an orthopaedic workshop in a new prison on the outskirts of the city.

HMD 099 Health manpower development: fellowships R

ESD 001 Advisory services in epidemiology (1974-77)—To set up a department of epidemiology for the control of the most prevalent communicable and noncommunicable diseases.

MBD 001 Tuberculosis control (1974-75)—To strengthen the tuberculosis control services.

SQP 001 Pharmaceutical services (1967-77) R—To develop specific aspects of the control of locally manufactured and imported pharmaceutical preparations and train specialists in this field.

LAB 001 Public health laboratory services (1957-67; 1973-) R—To establish a virology section in the central public health laboratory.

PIP 001 National waste management plan (1973-) UNDP—To carry out a pre-investment survey for sewerage and solid waste disposal covering the whole country, and to draw up master plans and first-stage feasibility studies to assist in securing investment for construction.

Libyan Arab Republic

SHS 001 Strengthening of health services (March-Sept. 1975) FT—A consultant assisted the Ministry of Health in the organization of health services at various levels.

HMD 001 Nursing education, Benghazi (1968-75) R—To develop the nursing school in Benghazi, which trains women nurses for the curative and preventive health services. Provided—a nurse educator, a fellowship, and supplies and equipment.

Most of the students at the school were assistant nurses and there were few applications from school leavers. The first group was enrolled in October 1968. During the course of the project 75 nurses graduated and have been employed in the health services. Coordination was maintained with the Ibn Sina Institute of Health, which has a course for training male nurses.

WHO assistance was terminated in June 1975, since the country is now able to provide its own teaching staff for the school.

HMD 003 Ibn Sina Institute of Health (1955- ) FT—To train health auxiliaries and sanitarians, radiographers, laboratory technicians and male nurses for hospital and health centres, particularly in rural areas.

HMD 004 Medical education (1972-76) R FT—To develop medical education through a programme of assistance to the medical faculties in which special attention is given to teaching of the basic medical sciences and of community medicine and to the further training of teachers in their subjects and in educational science and methodology.

HMD 005 Health manpower development (1974-) R—To plan the development of health manpower at the national level.

HMD 099 Health manpower development: fellowships R FT

ESD 001 Epidemiological services (1971-74) R—To establish in the Ministry of Health a department of epidemiology with the functions of collecting, analysing and interpreting data on diseases of public health importance and applying modern techniques for their control or eradication. Provided—an epidemiologist.

The Ministry of Health's Communicable Disease Section, later renamed the Section of Epidemiology, was established in mid-1971. At the peripheral level the basic network of preventive services, including the epidemiological services, was developed in 1972. Surveillance and control programmes were prepared for plague, measles, poliomyelitis and other enteric infections, viral hepatitis, meningococcal infections, and cholera. Several epidemiological surveys and studies were carried out, including surveys of plague, poliomyelitis, and influenza, and a survey of the immunization status of children between 5 and 6 years of age.

MPD 001 Schistosomiasis control (Feb.-March 1975) R—A consultant made an assessment of the situation in the Taourga area, where mollusciciding had been carried out for 2 years and where periodic surveys in 1974 had revealed the presence of infected Biomphalaria snails in water channels. It was found that incomplete coverage of mollusciciding operations constituted the main problem, especially where vegetation was dense, and also that foreign workers employed in agricultural projects were a source of infection.

MBD 001 Tuberculosis control (1974-77) R—To implement a national tuberculosis control programme.

VIR 001 Communicable eye disease control (1969-76) FT—To set up, within the public health infrastructure, services for maintaining the control of communicable eye diseases on a permanent basis.


The project began in September 1973, following the visit of a consultant in January-February 1972, who helped to draw up a plan for cobalt-60 radiotherapy. A radiotherapy department and mould-room were organized and a national cancer registry was set up. There is, however, still a lack of national staff trained in radiotherapy, chemotherapy, medical physics, pathology, and cytology.

The project was terminated in September 1975 at the request of the Government.

LAB 001 Public health laboratory services (1972-75) R—To establish a national health laboratory service, starting with a central public health laboratory in Tripoli. Provided—a microbiologist (July 1972-May 1975).

The public health laboratories were reorganized, with central laboratories in Tripoli and Benghazi. A close link with peripheral laboratories was established through inservice training of national laboratory technicians and standardization of tests and methods. A manual of laboratory techniques for the use of the peripheral laboratories was prepared. Following an outbreak of cerebrospinal meningitis at the beginning of 1975 the laboratory for clinical bacteriology included the typing of isolated strains of meningococci in routine practice. Venereal disease serology was controlled regularly by proficiency tests at the Center for Disease Control, Atlanta, USA. The department of...
biochemistry and haematology was extended and a new section for immunohaematology, closely linked with the blood transfusion centre at Tripoli, was established.

**Oman**

**HMD 099** Health manpower development: fellowships R

**MPD 001** Malaria control (1972– ) R UNDP—To institute antimalaria measures shown to be feasible by a survey completed in 1972.

**MBD 001** Tuberculosis control (1974–77) R—To plan and implement a tuberculosis control programme integrated into the general health services.

**MBD 002** Leprosy control (Dec. 1974) R—A consultant carried out a survey of the leprosy situation and submitted recommendations for future action, preferably combined with tuberculosis control work.

**BSM 001** Port sanitation (Feb.–April 1975) UNDP—A consultant made a survey of the environmental sanitation situation in the port area at Mutrah, advised on needed health regulations and made recommendations for a long-term programme in port sanitation including the training of personnel.

**Pakistan**

**SHS 003** Country health programming (1975–76) UNDP—To identify the priority health problems in the context of the national development plan, and to prepare a detailed plan for the development of health services.

**MCH 001** Family planning (1970– ) UNFPA—To plan and implement the health aspects of the national family planning programme and to train technical personnel for the programme.

**NUT 001** Nutrition Institute, Islamabad (1967–78) R—To organize a Nutrition Institute at Islamabad and promote nutrition programmes and services.

**HMD 001** Medical education (1973–77) R—To develop medical education through a programme of assistance to the 10 medical faculties, special attention being given to the development of the faculties' libraries and to the further training of teachers in their subjects and in educational planning and methodology.

**HMD 002** Postgraduate education in public health, Institute of Hygiene and Preventive Medicine, Lahore (1966–77) R—To develop postgraduate teaching in public health at the Institute.

**HMD 004** Institute of Public Health Engineering Research, Lahore (1974–76) UNDP—To establish an Institute of Public Health Engineering Research for applied and academic research, training of public health engineering personnel at different levels, and provision of service to government agencies and private industries.

**HMD 099** Health manpower development: fellowships R

**MDP 001** Malaria eradication programme (1961– ) R

**SME 001** Smallpox eradication (1967–77) R VS—To keep the country free from smallpox by carrying out vaccinations, active surveillance, and strengthening of the reporting system.

**MBD 001** Tuberculosis control (1962– ) R—To implement a national tuberculosis control programme integrated into the general health services.

**VBC 001** Vertebrate pest control centre, Karachi (1975–76) UNDP/FAO—To assess the nature and extent of the problems of rodents and other vertebrate pests, particularly as regards to the damage they cause to stored and growing crops and the hazards they represent to human and animal health; and to study the relationships between the pest populations and predators and other natural factors of control.

**SQP 001** Pharmaceutical quality control (1973–77) R—To establish a central laboratory for the quality control of locally manufactured and imported pharmaceutical preparations, and to train staff in modern techniques of drug testing and analysis.

**LAB 001** National health laboratories, Islamabad (1964– ) R—To establish national health laboratories in Islamabad, with a view to making them reference laboratories for the whole country.

**BSM 001** Community water supply and rural sanitation (1964– ) R—To develop and improve community water supplies and rural sanitation in the provinces, and to provide technical support to the UNICEF/UNDP/USAID handpump and tube well programme in the flood-affected areas in Punjab and Sind.

**PIP 001** Peshawar water supply extension (1973–76) UNDP—To plan and design the extension of the Peshawar water supply system.

**SES 001** Teaching of sanitary engineering, Lahore (1968– ) R—To strengthen the postgraduate sanitary engineering course at the University of Engineering and Technology, Lahore.

**Qatar**

**HMD 001** Training of health personnel (1969– ) R—To train auxiliary health personnel, including assistant sanitarions, assistant male nurses, laboratory assistants and others from Qatar and neighbouring countries for staffing health services and hospitals; also to develop inervice and refresher training of health personnel already in government employment.

**HMD 099** Health manpower development: fellowships R

**LAB 001** Central public health laboratory (1973–77) R—To organize and develop the public health laboratory services.

**Saudi Arabia**

**SHS 001** Public health advisory services (1975–77) R—To improve the administration of the public health services. ¹

**SHS 002** Rehabilitation services (1974–76) FT—To establish a rehabilitation centre in Riyadh and physiotherapy departments in Jeddah and Hufuf.

**HMD 099** Health manpower development: fellowships R

**ESD 001** Epidemiological services (1973–77) R—To assist the work of the health services in connexion with the influx of pilgrims during the Haj pilgrimage, particularly as regards the planning of programmes for the prevention and control of communicable diseases.

¹ For work carried out under this project between 1967 and 1974, see WHO Official Records, No. 221, 1975, p. 276.
Saudi Arabia (continued)

MPD 001 Malaria pre-eradication programme (1963-77) R—To build up the technical, administrative and operational facilities for a control programme as a step towards malaria eradication, and at the same time to develop the rural health services, so that they may provide efficient support to the control and eventual eradication operations.

SES 001 Sanitary engineering and municipal programming (1963-77) FT—To develop the municipal environmental health programmes, especially as regards water supplies, disposal of sewage and other wastes, housing, and town planning; and to organize an environmental engineering service for the purpose in the Ministry of Interior.

Somalia

SHS 001 Basic health services (1962-64; 1969-77) R UNICEF—To develop an integrated basic health service and a rural demonstration area to be used for the training of health personnel.

SHS 002 Centre for the repair and maintenance of medical equipment (1973-77) R—To establish a centre and a countrywide service for the repair and maintenance of medical equipment, and to train personnel.

HMD 002 Health Training Institute (1959- ) R—To train various categories of auxiliary health personnel, and provide inservice training and refresher courses.

HMD 003 Medical education (1973-77) R—To develop medical education through a programme of assistance to the Faculty of Medicine of the National University, Mogadishu, in which special attention will be given to the development of a "block-teaching system" curriculum and to organizing the department of basic medical sciences.

HMD 006 Nursing education (1961- ) R—To strengthen the nursing and midwifery services through provision of courses at the nursing schools in Hargeisa and Mogadishu.

HMD 099 Health manpower development: fellowships R

MPD 001 Malaria pre-eradication programme (1962-77) R UNDP VA—To coordinate the development of the national malaria service and that of the rural health services, and to carry out malaria control measures as a step towards malaria eradication.

MPD 002 Schistosomiasis control (June-Aug. 1975) R—A consultant advised the Government on the impact of the crash agricultural programme on the epidemiology of schistosomiasis and on measures to minimize adverse effects, and submitted recommendations for an economic and effective control programme based on a combination of mollusciciding, water management, and drug therapy.

SME 001 Smallpox eradication (1967-76) R VS—To carry out mass vaccination against smallpox and intensify reporting and surveillance in order to keep the country free from smallpox.

MBD 001 Tuberculosis control (1960-77) R UNDP—To implement a comprehensive national tuberculosis control programme, integrated into the basic health services.

SQP 001 Pharmaceutical services (1973-74) R—A consultant (July-Aug. 1974) assisted in the development of pharmaceutical production and quality control. Two fellowships were awarded, and pharmaceutical equipment was supplied.

Assistance was previously provided between 1962 and 1965, when a pharmacist helped to systematize medical supply procedures and to prepare training courses for auxiliary personnel in pharmacy and medical storekeeping.

LAB 001 Public health laboratory services (1966- ) R—To develop sound technical methods for laboratory investigation and to provide training facilities, including inservice training, for all grades of technical staff.

Sudan

SHS 002 Public health advisory services, southern region (1972- ) R FR—To strengthen the planning, organization and administration of the health services in the southern region.

MCH 001 Maternity-centred family planning (1975-77) UNFPA—To improve the health and welfare of the population, especially the vulnerable groups of mothers and children, by the provision of integrated family planning, maternal and child health and general health services.

NUT 002 Nutrition programme (1966-76) UNDP—To develop, through the Ministries of Health, Education, and Agriculture, nutrition services and programmes for improving the nutritional status of the population.

HMD 002 Medical and dental education (1971-77) R UNDP—To develop the medical faculty of the University of Khartoum and its dental school, special attention being given to improving teaching in the basic medical sciences, community medicine, and dentistry, and to the further training of teachers in their subjects and in educational science and methodology.

HMD 003 Health training institute (1975- ) FT—To train various categories of auxiliary personnel for the health services.

HMD 099 Health manpower development: fellowships R

ESD 001 Multipurpose epidemiological survey, Rahad irrigation scheme (1974-75) R—To effect a medical survey of the Rahad area prior to the construction of irrigation canals, in order to obtain a comprehensive picture of disease prevalence, determine diseases whose prevalence might increase with irrigation practices, and plan accordingly for the provision of health services in the area. Provided—consultant services, and supplies and equipment.

A consultant paid several visits to the project area in 1974 to assist with preparatory work. In March 1975 he helped to initiate the first (dry season) of the 2 surveys planned. He also participated in the work of the National Health Programme Committee (analysis of data and definition of indicators) and assisted in evaluating the work being carried out for the immunization of children.

MPD 001 Malaria control programme (1963-77) R VM—To build up the technical, administrative and operational facilities for a control programme as a step towards malaria eradication, and at the same time to develop the rural health services, so that they may provide efficient support to the antimalaria operations.

MPD 002 Malaria eradication training centre (1963- ) R—To train staff for the malaria service, and to provide training in antimalaria measures to staff of the general health services.

MPD 003 Schistosomiasis control (1975- ) R—To strengthen measures for the control of schistosomiasis.

MPD 004 Onchocerciasis control (1963- ) R—To carry out surveys of onchocerciasis infection of populations along the Nile north of Khartoum and in Bahr el Ghazal and Equatoria Provinces; to develop a programme for prevention and control of the disease; and to train personnel.
MPD 005 Trypanosomiasis control (1974- ) FR (UNHCR)—To undertake studies on the epidemiology of trypanosomiasis, the ecology and behaviour of the human population, the vector and possible hosts; and to draw up plans for chemotherapy and chemoprophylaxis campaigns and for vector control.

MPD 007 Leishmaniasis control (1974- ) R—To make an epidemiological study of the prevalence of visceral leishmaniasis in the Upper Nile provinces, and studies of the vectors and reservoirs of the disease; to train national health personnel; and to formulate short-term and long-term plans for control.

SME 001 Smallpox eradication (1967-76) R VS—To keep the country free from smallpox through mass vaccination of the population and the operation of a reporting and surveillance/containment system.

BAC 001 Cerebrospinal meningitis control pilot studies (1974-77) R—To study the efficacy of meningococcal vaccines at community level and assess their practical application in association with other programmes for the immunization of children.

MBD 001 Tuberculosis control (1974-76) R—To implement an integrated national tuberculosis programme, study the applicability of various tuberculocid control measures in a selected area, and train personnel in control methods and techniques.

MBD 002 Leprosy control (1972- ) R—To implement a comprehensive leprosy control programme integrated into the general health services in the provinces.

RAD 001 Training of X-ray technicians (1970-75) R—To train X-ray technicians from Sudan and neighboring countries in a 3-year course at the Institute of Radiography and Radiotherapy, Khartoum. Provided—a technical officer (Sept. 1970-Oct. 1974), fellowships to train tutors, and supplies and equipment. The technical officer assisted in planning new X-ray departments and made several field visits to assess the diagnostic radiological facilities as regards staffing, and equipment and its maintenance. In the initial stages of the project, while national tutors were still on fellowship studies abroad, he also assisted in teaching. Of the first batch of 18 students, enrolled in 1970, 14 graduated in 1973. Since 1972 the intake of students has been 40 per year. The number of women students has gradually increased, reaching 20 in 1974.

LAB 001 National public health laboratory service (1969-1977) UNDP—To establish a national public health laboratory service.

BSM 001 Treatment of industrial wastes (Oct.-Nov. 1975) R—A consultant made a study of waste water treatment and disposal problems in Khartoum North and submitted recommendations. He also advised on the treatment and disposal of wastes from sugar factories and other industries.

PIP 001 Rural water supply programme, southern Sudan (1975-79) UNDP—To establish a southern regional water supply development organization to programme and coordinate international aid for water supplies and to implement rural water supply projects.

HWP 001 Occupational health (1969-77) R—To develop the division of occupational health and draw up an occupational health programme, particularly with respect to industrial hygiene.

DHS 001 Advisory services on vital and health statistics (1970- ) R—To strengthen the vital and health statistics unit in the Ministry of Health, develop a vital and health statistics system, and train staff.

DHS 002 Ad hoc infant and early childhood mortality survey (1974- ) UNFPA—To organize a survey of infant and childhood mortality in order to obtain reliable estimates of the magnitude of the problem, factors affecting it, and effects of specific public health measures; to test statistical methods for collecting information on infant and childhood mortality in the absence of, or supplementary to, a vital statistics system; and to train national staff.

Syrian Arab Republic

SHS 001 Rehabilitation services (1973-77) R—To develop rehabilitation services in hospitals and train staff.

SHS 002 Maintenance and repair of medical equipment (1975-77) R—To establish a service for the maintenance and repair of medical equipment and train personnel.

SHS 003 Strengthening and development of the hospital administration services (1975- ) UNDP

MCH 001 Maternal, child and family health (1975- ) UNFPA—To provide comprehensive maternal, child and family health services, including contraception and management of infertility, and also domiciliary midwifery services wherever they are indicated and practicable.

HMD 001 Nursing education, Damascus (1960- ) R—To develop a pattern of nursing education that will provide graduate nurses to meet the needs of the health services.

HMD 002 Technical Health Institute (1973- ) UNDP—To develop the Institute in order to train health personnel of various categories for the expanding health services and to improve the technical standards of health workers.

HMD 003 Medical education (1974- ) R—To develop medical education, special attention being given to improving teaching in the basic medical sciences and community medicine, and to the further training of teachers in their subjects and in educational science and methodology.

HMD 099 Health manpower development: fellowships R

ESD 001 Advisory services in epidemiology (1972-77) R—To set up a department of epidemiology in the Ministry of Health and strengthen the epidemiological services for the control of the most prevalent communicable and noncommunicable diseases.

MPD 001 Malaria eradication programme (1956- ) R

MPD 002 Schistosomiasis control (1974- ) R—To develop schistosomiasis control measures in the whole country, but particularly in the area of the Euphrates dam, and to train personnel to implement them.

MBD 001 Tuberculosis control (1965-75) R—To implement a national tuberculosis control programme.

CVD 001 Intensive care unit (1974- ) R—To set up an intensive care unit in a hospital in Damascus and train personnel for the unit.

DNH 001 Faculty of Dental Medicine, University of Damascus (1975-76) UNDP—To improve dental public health by introducing modern teaching methods and techniques and establishing a pilot dental clinic attached to the Faculty of Dental Medicine.

SFP 001 Faculty of Pharmacy, University of Damascus (1973-77) UNDP—To develop graduate studies in pharmacy, with emphasis on studies and research in pharmacology, at the Faculty of Pharmacy of the University of Damascus.
Syrian Arab Republic (continued)

LAB 001 Public health and endemic diseases laboratory (1959-77) R—To develop the services of the public health and endemic diseases laboratory, and particularly the food microbiology section.

Tunisia

SHS 002 Strengthening and development of basic rural public health services and of services for family planning and maternal and child health care (1974-77) VG—To provide a framework within which to carry out research, training and other health-related activities, supported by studies to determine the most efficient way of organizing the health services, improving their utilization and increasing their coverage, particularly as regards maternal and child health care and family planning, and by studies to assess the effect of the measures for improving family health.

MCH 001 Family planning aspects of maternal and child health (1971-74) UNFPA—To develop integrated maternal and child health and family planning services as part of the health service, train personnel, and develop biomedical research. Provided—a medical statistician (1971-74) and 2 nurse/midwives (1972-74), 8 fellowships, a vehicle, and audiovisual equipment.

The project did not develop in accordance with the plan of operation owing to changes in the policy of the National Office for Family Planning and Population. Considerable progress, however, was achieved. The WHO statistician assisted the National Office in the compilation and presentation of the results of family planning activities, the improvement of individual record and contraceptive operation records in hospitals, and the organization of family planning statistics in health institutions. Emphasis was placed on the training of allied health personnel and auxiliaries. Several categories of midwives, obstetrical assistants and health care assistants were trained in maternal and child health and family planning through long-term and short-term courses and orientation and refresher courses. A manual on maternal and child health and family planning for allied health personnel and auxiliaries was prepared for distribution to all health workers engaged in maternal and child health and family planning activities as well as to public health schools.

HMD 002 Medical education (1961-77) R—To develop the medical faculty of the University of Tunis, special attention being given to improving the teaching of the basic medical sciences and to the further training of teachers in their subjects and in educational science and methodology.

HMD 099 Health manpower development: fellowships R

MPD 001 Malaria eradication programme (1966- ) R UNDP

CAN 001 Cancer control (1964; 1972-75) R—To develop the programme of the National Cancer Institute, Salah Azaiz. Provided—a technical officer (April 1972-Sept. 1975), consultant services, and fellowships.

In May 1964 a consultant studied with the Tunisian authorities the organization of the National Cancer Institute which was then being built in Tunis. In 1972 a consultant made 2 visits to the Institute (in March and November) to study the possibility of setting up a programme for the early detection of cancer and a demonstration area in Tunis for cancer control. Beginning in 1973, the cancer registry was organized with the help of the WHO technical officer. A pilot study was carried out in the D Jebel Lahmar area of Tunis to assess the possibility for early detection of cancer of the cervix uteri, breast, and skin. In February 1974 a consultant assisted with the diagnosis and classification of lymphoma cases at the Institute, and in January 1975 the consultant assigned in 1972 made a further visit to the Institute to help improve the work being done on breast cancer immunology.

The technical officer left the project in September 1975, since the Institute was by then able to continue the cancer registry with its own staff.

The Salah Azaiz Institute has been designated as a regional reference centre for cancer of the breast and the cervix uteri.

LAB 001 National public health laboratory service (1974-78) UNDP—To establish a national health laboratory service, train laboratory technicians, develop epidemiological surveillance, and improve vaccine production and pharmaceutical quality control.

BSM 002 National plan for wastewater treatment and disposal (1975- ) FT (SIDA)—To review wastewater treatment and disposal projects and develop a long-term programme in wastewater disposal.

BSM 003 Community water supplies (Sept. 1975) R—A consultant assisted in reviewing needs and priorities regarding the development of community water supplies and the control of water quality through the establishment or strengthening of central and regional laboratories, and submitted recommendations, including a list of equipment for the laboratories.

DHS 001 Advisory services on vital and health statistics (1968-77) R—To establish a permanent statistical service in the Ministry of Public Health and train national staff in health statistics techniques.

United Arab Emirates

SHS 001 Public health advisory services (1973- ) R—To develop the public health services. Under this project advice is being provided to the ministries of health on the strengthening of the administration of the services and the formulation, coordination, evaluation and follow-up of health programmes.

HMD 099 Health manpower development: fellowships R

MPD 001 Malaria survey (1973- ) R—To carry out a malaria survey and control operations.

Yemen

SHS 001 Local health services, Taiz (1965-77) R UNICEF—To develop comprehensive health services for Taiz town and province, using a health centre in Taiz for demonstration and for training auxiliary health personnel, and establishing further centres and subcentres, training their staff and developing their services.

SHS 002 Local health services, Hodeida (1963-77) R UNICEF—To develop comprehensive health services for Hodeida town and province, using a health centre in Hodeida for demonstration and for training auxiliary health personnel, and establishing further centres and subcentres, training their staff and developing their services.

SHS 003 Public health administration (1961- ) R VC—To improve the planning and administration of health services.

SHS 004 Hospital administration and nursing services (1975- ) UNDP FT—To improve the standards of hospital services and management practice; and to improve the practical training of national health workers providing medical care services.
MCH 001 Maternal, child and family health (1975- ) UNFPA
—To implement a comprehensive and integrated maternal and child health and family planning programme, organize training in maternal and child health and family planning for medical, nursing and auxiliary personnel, and develop maternal and child health and family planning activities in hospitals and health institutions.

NUT 001 Food and nutrition programme (1971-75) UNDP/FAO
—To organize and extend school feeding and hospital dietary services, train personnel and promote nutrition education. Provided—a medical officer (food hygienist) (May 1971-May 1973), a hospital dietitian (June 1972-April 1975), and a sanitaryian (April 1974- April 1975).

Hospital diets were improved and hospital staff and food handlers were trained. Hospital kitchens, school feeding services, food stores, slaughterhouses and bakeries were inspected and improved.

It is expected that further assistance can be provided under the hospital administration and nursing services project (Yemen SHS 004).

HMD 002 Health Manpower Institute, Sana’a, phase II (1974-79) UNDP—To provide trained workers for the health services through the Institute’s courses and by fellowships for training abroad.

HMD 099 Health manpower development : fellowships R

ESD 001 Epidemiological advisory services (1974-77) R—To evaluate the epidemiological situation as regards communicable diseases of public health importance, establish priorities for their control, and prepare a control programme.

MPD 001 Schistosomiasis control (1972- ) R—To make epidemiological and malacological studies of schistosomiasis, formulate and implement a control programme and train the necessary staff.

SME 001 Smallpox eradication (1968-77) R VS—To carry out mass vaccination against smallpox and organize a reporting and surveillance system in order to keep the country free from smallpox.

MBD 001 Tuberculosis control (1970-77) R VA—To implement a comprehensive national tuberculosis control programme, integrated into the basic health services.

SQP 001 Pharmaceutical services (1974-77) R—To establish, in the Ministry of Public Health, a division of pharmacy that will also deal with the administration of medical supplies and the repair and maintenance of medical equipment.

LAB 001 Public health laboratory services (1971- ) R—To establish public health laboratory services, starting with a central public health laboratory in Sana’a and provincial laboratories in Taiz and Hodeida; and to train personnel.

BSM 001 Environmental health services and community water supply (1969- ) R VW—To develop the national community water supply programme, investigate and design various types of water supply systems, particularly for small towns and rural areas, and take measures for the solution of environmental health problems.

PIP 002 Water supply and sewerage systems for Sana’a and Hodeida, phase II (1973-76) UNDP—To carry out final engineering design for the first-stage water supply programme for Sana’a and Hodeida, and complete preliminary engineering and feasibility studies for the first-stage water supply programme for Hodeida; to prepare sewerage master plans for Sana’a and Hodeida; and to carry out feasibility studies on the proposed first-stage sewerage systems for the 2 cities.

PIP 003 Strengthening of the rural water supply department in the Ministry of Public Works (1974-78) UNDP—To strengthen the rural water supply department to enable it to carry out its functions effectively, particularly as regards the preparation of a water supply programme for the country, the design of water systems, supervision of and assistance with construction, and coordination of international and bilateral assistance for the development of water supplies.

Intercountry Programmes

CWO 001 United Nations Development Programme coordinating services (1970- ) R—To help countries of the Region to obtain and use UNDP resources for assistance in the health field. A special service, available to governments, has been established.

SHS 005 Regional training centre for technical orthopaedics, Teheran (1972-77) R—To develop the teaching programmes and improve the training at the centre.

MCH 003 Regional training programme in child health and midwifery (1970-75) R UNICEF—To improve the teaching of child health to medical and other health personnel at the American University of Beirut and plan and initiate a programme for training midwives as midwife tutors, administrators and supervisors. Provided—a midwife tutor (Dec. 1970-Aug. 1975), who acted as director of the programme until January 1973, when a counterpart from the University was appointed.

The project was based on the Department of Community Health Practice of the University’s School of Public Health. Four postbasic midwifery courses in administration and teaching were held, at certificate and diploma levels. They were attended by 39 midwives from 15 countries of the Region. Tuition was given in English and, since some students’ knowledge of the language was insufficient, extra classes were arranged for them. Twenty-eight received a certificate, 6 a diploma, and 5 a letter of attendance.

An advisory committee of 6 members (representatives of the University, UNICEF, WHO and the International Planned Parenthood Federation, plus 2 maternal and child health specialists from the Region) was set up to meet annually in order to review and advise on the programme. It has recommended that the course at the American University of Beirut be continued at diploma level only, and that a certificate level course, in Arabic, be arranged in another country of the Region.

In 1975 a refresher course in child, school and family health was organized for physicians and highly qualified nurses. These courses are continuing with assistance from UNICEF.

MCH 004 Fellowships, International Children’s Centre, Paris (1965- ) R—To enable maternal and child health staff from the Region to attend courses, seminars and other educational activities organized by the International Children’s Centre.

MCH 005 Integration of family planning activities into health services (1970- ) UNFPA—To assist countries of the Region in the planning, organization, management and evaluation of family planning programmes as part of the health services, in the training of all categories of personnel and in the upgrading of institutions for training and research in human reproduction and population dynamics.
Intercountry Programmes (continued)

NUT 001 Public health aspects of the hygiene of food under storage (1975-77) UNDP/FAO—To define the extent and causes of food loss or shortage due to unhygienic conditions of storage and promote suitable public health measures for minimizing such loss.

NUT 004 Regional nutrition training programme (1970-77) R FR—To establish within the Region adequate facilities for the training of nutrition workers and high-level government personnel from ministries of health, agriculture and planning and from other ministries in various aspects of nutrition, with a view to promoting the formulation of nutrition policies and the execution of food and nutrition programmes.

HMD 001 Regional training centre for the maintenance and repair of medical equipment (1972- ) R—To organize courses for training technicians to service and maintain hospital, laboratory and other equipment in health establishments in the Region.

HMD 003 Radiological health (1973-75) R—To conduct a regional course, leading to a master of science degree with specialization in radiological health, at the School of Public Health, University of Teheran. Provided—4 consultants (Sept. 1973; April-July 1974; Aug. 1974-Jan. 1975; April-June 1975) to assist with the course, organize practical training and supervise preparation of theses, fellowships for the 11 participants in the course, and a nuclear inspection kit.

The course began in October 1973. In 1974 a study tour was organized to enable the students to visit radiation protection services in Egypt, Lebanon, and Romania.

HMD 004 Participation in educational meetings (1959-77) R—To enable countries of the Region to participate in seminars, conferences and training courses organized in other regions and by other agencies.

HMD 008 Health manpower development (1965-77) R—To promote the development of health manpower in the Region at the subprofessional, undergraduate and postgraduate levels by a programme of assistance to the health training institutions, including particularly assistance in establishing new institutions.

HMD 009 Regional visiting scientists programme (1969-77) R—To promote the exchange of ideas among the health professional faculties of the Region, and the general development of education in the health professions, through a programme of exchange visits of professors and scientists.

HMD 010 Regional and national teacher-training centres for health professionals (1971-77) R—To promote the training of members of the medical faculties of the Region in educational science and methodology. (Assistance is being provided through the regional teacher-training centre at the Pahlavi University, Shiraz, Iran, and national centres.)

HMD 017 Seminar on the Training and Utilization of Medical Assistants, Khartoum (16-20 Dec. 1974) R—Senior national health administrators from 10 countries of the Region took part in the Seminar, the purpose of which was to examine the existing patterns of training and utilization of health assistants for the delivery of health care with a view to their adaptation to the conditions in and requirements of individual countries. Provided—2 consultants, a temporary adviser, and the cost of attendance of the participants.

HMD 018 Working Group on Postgraduate and Continuing Education of Physicians in the Eastern Mediterranean Region, Alexandria (7-11 July 1975) R—The Working Group was convened to promote the development of postgraduate and continuing education of physicians in the Region. Two consultants contributed working papers and assisted in the preparation of the report.

PPC 001 Seminar on Immunization Programmes, Damascus (30 Aug.-4 Sept. 1975) R—To review immunization activities in the countries of the Region; to discuss the place of immunization in the control of communicable diseases and the importance, for the implementation and assessment of immunization programmes, of development of communicable disease surveillance; and to suggest an outline for the development of an immunization programme. There were 24 participants—senior officers in charge of communicable disease control—from 18 countries or areas of the Region, and from Mozambique. Provided—a consultant, a temporary adviser, the services of 7 staff members, and the cost of attendance of participants.

EFD 001 Epidemiological services (1969- ) R VC—To assist governments in developing their epidemiological services in order to be able to cope with epidemics or natural disasters such as earthquakes and floods, and to develop epidemiological surveillance systems in conjunction with the development of basic health services.

EFD 002 Seminar on the Coordination of Communicable Disease Control, Khartoum (10-14 Nov. 1975) R—To bring together public health administrators, epidemiologists, scientists and veterinarians in charge of communicable disease control at the national level to exchange views on the prevention of the intercountry spread of communicable diseases and the efficacy of the existing measures for preventing their importation, and to recommend coordinated measures of control. The Seminar, organized jointly by the African and Eastern Mediterranean Regional Offices, had participants from countries of both Regions. Provided—2 consultants, a temporary adviser, the cost of attendance of the participants, and the services of staff members.

SME 001 Smallpox eradication (1967-77) R VS—To assist countries of the Region in the planning, implementation and assessment of their smallpox eradication programmes, and also to assist national laboratories in developing diagnostic methodology and in improving the production of freeze-dried smallpox vaccine.

MBD 001 Seminar on Recent Trends in Tuberculosis Control, Karachi (23-30 Oct. 1975) R—To acquaint participants with recent trends in tuberculosis control, review the progress of and problems encountered in national tuberculosis programmes in the Region, recommend new approaches to planning, implementation and assessment of control programmes under various epidemiological and socioeconomic conditions, and reformulate methods of training staff and the content of training. The Seminar had 26 participants from 21 countries of the Region, and was attended also by representatives of UNDP, UNICEF and the International Union against Tuberculosis and 26 observers from Pakistan. Provided—a consultant and the cost of attendance of the participants.

VIR 001 Communicable eye disease control (1973- ) R—To assist countries of the Region in the planning, implementation and assessment of their national programmes for the prevention of visual impairment and blindness caused by communicable eye diseases, particularly trachoma and associated infections; and to provide advisory services with regard to other causes of preventable blindness, such as onchocerciasis and xerophthalmia.
VBC 001  Vector and pest control (1967– ) R—To investigate problems arising from infestation by vectors of disease and pests, such as rodents, mosquitoes and flies, and to promote control measures.

VBC 002  Seminar on Public Health and Economic Aspects of Rodent Control, Alexandria (2-8 Dec. 1974) R—To discuss the effects of rodent infestation on public health and economic development in countries of the Region, current control measures and plans for the future, and the role of international and bilateral agencies in the establishment of rodent control programmes. There were 25 participants—national officials in charge of rodent control—from 16 countries of the Region. Provided—a consultant, 2 temporary advisers, the cost of attendance of participants, and supplies and equipment.

The Seminar was the first of its kind to be organized in the Region, and it was found that for certain countries basic information on rodents and their control was not available. To overcome this and associated problems, further research and training programmes, at both country and regional levels, will be needed.

CAN 001  Symposium on Lymphomas, Teheran (19-21 April 1975) R—To decide upon methods of clinical and epidemiological investigation of intestinal lymphomas and alpha heavy chain disease. There were 10 participants from 6 countries in the Region, 2 in the European Region, and the United States of America, and the Symposium was also attended by a representative of UNDP and 11 observers. Provided—3 consultants, the cost of attendance of the participants, and the services of staff members.

CAN 002  Training courses in cytopathology and cytotechnology (1975) R—Two consultants assisted respectively with a 2-week course in cytopathology and a 6-month course in cytotechnology, both held in Teheran. Each course had 8 participants.

CAN 003  Meeting of the Regional Advisory Panel on Cancer, Alexandria (19-21 Feb. 1975) R—The first meeting of the Panel, which is composed of 6 temporary advisers from 5 countries of the Region, reviewed the experience of cancer institutes in the Region in cancer control and in the organization of cancer registries and mass screening campaigns for early detection of cancer, and prepared a regional programme for the guidance of countries in developing their national cancer control programmes.

MNH 002  Seminar on Application of Psychiatric Epidemiology, Khartoum (17-21 Feb. 1975) R—To familiarize participants with possibilities for the application of basic epidemiological methods in the planning and evaluation of services and in the development of knowledge of the etiology, diagnosis and prognosis of mental disorders. There were 10 participants from 9 countries of the Region. Provided—2 consultants, the cost of attendance of the participants, and some publications.

RAD 001  Assistance to radiotherapy centres (dosimetry services) (1972– ) R—To assist radiotherapy centres by checking the output of radiotherapy machines and other physical parameters, and assessing the procedures used for clinical dosimetry and planning of treatment.

SOP 001  Clinical pharmacology (1973-77) R—To train clinical pharmacologists from countries of the Region, with a view to the provision of information on drugs and the monitoring of drug usage.

DEM 004  Working Group on Rational Drug Therapy: Efficacy, Safety and Economy, Alexandria (3-5 March 1975) R—To define the major problems in drug therapy, analyse their causes and propose remedies. Two consultants assisted in planning and preparing the programme for the meeting, which had 22 participants from countries of the Region.

LAB 001  Training course in virology, Cairo (Oct. 1975-Jan. 1976) R—To train a group of virology technologists who will be able to act as instructors in their own countries. Provided—fellowships for the 11 trainees.

DHS 001  Medical records and statistical documentation advisory services (1966– ) R—To provide advice on medical records in hospitals and health centres to countries in the Region that are developing medical records units, and to train national medical records officers.

DHS 002  Regional training centre for medical record science (1974– ) R—To assist in establishing a centre to train senior staff for directing medical record departments in major hospitals, controlling the implementation of new medical record systems and conducting national training courses.
WESTERN PACIFIC REGION

American Samoa
HMD 099  Health manpower development : fellowships R

MNH 099  Mental health : fellowships R

LAB 099  Health laboratory technology : fellowships R

SES 099  Establishment and strengthening of environmental health services and institutions : fellowships R

Australia
HMD 099  Health manpower development : fellowships R

Cambodia 1
SHS 001  Hospital administration (1971- ) R—To strengthen the medical care services, and particularly hospital and dispensary institutions, in Phnom-Penh and its environs; to coordinate the medical and health care services to enable them to respond better to demands; to train the necessary personnel; and ultimately to extend activities to other areas.

SHS 002  Rehabilitation of the physically handicapped (1971- ) R UNDP—To establish a unit that could later become a school for training physical and occupational therapists and set up a national rehabilitation service.

SHS 003  Health laboratory services (1968- ) R UNDP—To organize laboratory services to meet the needs of the health and medical services, strengthen and develop the resources of the Institute of Biology, improve laboratory services in the hospitals in Phnom-Penh and in the provinces and in urban and peripheral dispensaries, and train laboratory staff.

MCH 001  Family health (1973- ) R UNFPA UNICEF—To develop and strengthen (i) family health care, including maternal and child health, family planning and nutrition care, as part of the basic health services; (ii) maternity, family planning, paediatric and nutrition services in hospitals; and (iii) the family health aspects of the basic, postbasic, inservice and refresher training of all categories of health personnel concerned.

HMD 001  Development of health manpower (1971- ) R—To develop and strengthen the centres for the training of all categories of health personnel and to develop a community health centre to serve as a model for centres to be established later in other parts of the country.

ESD 001  Epidemiology and health statistics (1966- ) R—To establish in the Ministry of Public Health an epidemiological and health statistical service responsible for planning and evaluating national disease control programmes; to study local epidemiological patterns of causes of morbidity and mortality as a basis for the formulation of such programmes; to reorganize the health statistics systems in hospitals, health centres, dispensaries and other health care institutions; and to train health service personnel in epidemiology and health statistics.

MPD 001  Malaria control (1962- ) R UNDP—To extend antimalaria activities in order to protect the people living under malaria risk; and to promote the development of an integrated health service by training malaria personnel for the provincial and district health organization and involving the rural health services in malaria case-detection and treatment.

MBD 001  Tuberculosis control (1965- ) R UNDP—To set up the nucleus of a national tuberculosis control service, with emphasis on preventive measures, and to carry out a control programme.

PIP 001  Preparation of a master plan for Phnom-Penh (water supply, sewerage and drainage studies) (1972- ) UNDP—To formulate a plan for improving urban health in Phnom-Penh and its environs through the provision of adequate quantities of safe water for domestic and other uses and of measures for the proper collection, treatment and disposal of waste water and the satisfactory removal of stormwater.

Cook Islands
HMD 099  Health manpower development : fellowships R

BSM 001  Environmental health engineering advisory services (1973-76) UNDP—To develop plans for sewage disposal systems and for an improved water supply system for the island of Rarotonga, and water supply projects for the other islands, as well as programmes and standards for improved housing, and other sanitation activities.

Fiji
HMD 001  Fiji School of Medicine (1972-81) R—To strengthen the School of Medicine.

HMD 099  Health manpower development : fellowships R

LAB 001  Health laboratory services (1975-77) R—To strengthen the health laboratory services, and in particular the microbiology services of the central laboratory in Suva; to upgrade the training of laboratory technicians; and to strengthen the courses in microbiology at the Fiji School of Medicine.

SES 099  Establishment and strengthening of environmental health services and institutions : fellowships R

French Polynesia
HMD 099  Health manpower development : fellowships R

Gilbert Islands and Tuvalu 2
MCH 001  Family health (1971- ) UNFPA UNICEF—To organize and make available to the whole population services related to human reproduction and fertility, including services for spacing and limitation of births and for treatment of subfertility, and to carry out a programme of information and education of the public.

1 The projects for Cambodia are in abeyance.

2 Formerly Ellice Islands.
The adoption of hygienic practices by rural inhabitants.

To improve environmental health in the rural areas by developing rural water supply schemes, constructing water-seal latrines, and undertaking other sanitation work at village level; to establish a training programme for sanitation staff and auxiliary workers; and to establish a health education programme to promote the adoption of hygienic practices by rural inhabitants.

Guam

MPD 001 Control of Intestinal parasitism (April-May 1975) R—Following the visit of a consultant in 1974, a further consultant reviewed and analysed the results of intensified surveys of intestinal parasitism and assisted the Government in assessing the results of control programmes. He also reviewed the prevalence of other parasitic diseases and made recommendations regarding control measures.

CEP 001 Environmental pollution control (Dec. 1974-Feb. 1975) R—A consultant assisted the Government in strengthening the water pollution control laboratory and in organizing inservice training.

Hong Kong

HMD 099 Health manpower development: fellowships R

CEP 001 Treatment of agricultural wastes (March-April 1975) UNDP—A consultant reviewed proposals for the treatment of agricultural wastes, and advised the Agriculture and Fisheries Department on the setting-up of trial schemes for the treatment of pig and poultry manure.

Japan

SHS 099 Strengthening of health services: fellowships R

MCH 099 Maternal and child health: fellowships R

HMD 099 Health manpower development: fellowships R

MNH 099 Mental health: fellowships R

SES 099 Establishment and strengthening of environmental health services and institutions: fellowships R

Laos

SHS 001 Development of health services (1968–79) R UNDP UNICEF—To develop and strengthen the general health services, beginning in Vientiane Province, which will serve as a pilot area; to organize a central advisory body to review the organization, programmes and coordination mechanism of the health services; and to formulate and carry out a programme for training health manpower.

Within the framework of the master plan of operation for this project, assistance was also provided by the regional tuberculosis control team (intercountry project MBD 001).

SHS 002 Rehabilitation of the physically handicapped (1967–75) R UNDP—To assess the extent of the problem of the physically handicapped, plan and operate rehabilitation facilities and train staff for them, and review legislation dealing with the physically handicapped.

SHS 003 Organization of medical care (1974–80) R—To strengthen medical care services, and particularly the hospital system, and adapt them to the requirements of the present situation; to improve cooperation between the medical and health care services; and to optimize, through the formulation and continuing assessment of an overall medical care programme, the use of the available resources to meet current needs.

SHS 004 Health laboratory services, Vientiane (1953–77) R UNICEF—To establish a public health laboratory service and train laboratory personnel.

MCH 001 Family health (1971–75) UNFPA UNICEF—To provide effective maternal and child health care and advice on family planning, with the ultimate objective of securing a higher standard of living for the family as a whole. Provided—a medical officer and a nurse educator (from 1971), a sociologist (from 1973) and a health education specialist (from 1974), and supplies and equipment.

In the pilot province of Vientiane maternal and child health/family health services were integrated into the work of all health centres and subcentres (6 main centres and 15 subcentres), and of the 12 provincial and 18 district maternal and child health centres. Family planning services were also made available. In 1974 and 1975 school health activities were started in 2 health zones. Family planning activities conducted in special clinics by the Lao Family Welfare Association, Operation Brotherhood and USAID began in 1970. By the end of 1974 the total number of acceptors had reached some 13 000.

With the aim of introducing maternal and child health and family planning subjects into all training curricula, lectures and practical work were organized for medical students and student medical assistants and refresher courses were given to auxiliary rural midwives, teaching staff of the schools for auxiliaries and health personnel working in maternal and child health and health centres.

As from 1974, health education, oriented particularly towards family health, was introduced into the health services at the central and peripheral levels. The subject was included in training programmes; lectures on health education in family health were given to students of the Pedagogic School in Vientiane, and a pamphlet on family health and other education materials were prepared.

A demographic survey on aspects of health and reproduction, carried out in the health zone of Thadeua, indicated that the birth rate was about 34 per 1000, the general mortality rate about 10 per 1000, and the infant mortality rate about 12 per 1000. The birth rate was found to have decreased since the previous year. The results of the survey also showed that rural communities in Vientiane Province are not unfavourably disposed to fertility regulation, but reject induced abortion. The most acceptable method is oral contraception.

Sociological surveys carried out in 1973 and 1974 indicated that the rural population of Vientiane Province is concerned to maintain good health and able to participate in the organization of a community service for primary health care.

NUT 001 Nutrition advisory services (1968–76) R UNICEF—To improve nutritional levels in the community and to coordinate, under a national nutrition policy, all health aspects of food and nutrition work carried out by international and national governmental and nongovernmental agencies.

HMD 001 Health manpower development (1967–78) R—To strengthen the faculty of the School of Medicine.
Laos

HMD 002 Nursing education (1962– ) UNDP UNICEF (USAID) (Asia Foundation) (Colombo Plan)—To set up a school of nursing and midwifery for training personnel for the country's hospital and health services, which are to be extended and improved.

HMD 099 Health manpower development: fellowships R

ESD 001 Epidemiological surveillance (1975–80) R—To strengthen the communicable disease control services, develop coordination with other branches of the health services, and train professional and auxiliary health staff in the epidemiological approach to disease control.

MPD 001 Malaria control (1969– ) R UNDP—To build up the administrative and operational facilities of the Central Malaria Service to the level required to carry out an antimalaria programme, in the first place in the Vientiane plain.

MNH 001 Mental health (Jan.–March 1975) R—A consultant studied the position regarding mental health needs and services, advised on methods for strengthening the mental health services and integrating them into the general health services, and assisted in planning a national mental health programme.

RAD 001 Training in the maintenance of X-ray and other laboratory equipment (1975– ) R—To develop a programme for the maintenance and repair of X-ray and other medical equipment and a programme for training engineering technicians.

SES 001 Environmental health advisory services (1975–79) R—To improve environmental health conditions in the municipalities and rural areas.

DHS 001 Vital and health statistics advisory services (1968–78) R—To establish a vital and health statistics service in the Ministry of Public Health, and to train staff.

Malaysia

SHS 001 Development of health services—advisory services (1964–75) R UNICEF—To strengthen and expand the basic health services and train personnel according to a consolidated plan which includes phasing of expansion and the development of uniform standards throughout the country.

MCH 001 Development of maternal and child health/family planning programmes in the rural health services (1973–77) UNFPA—To strengthen the maternal and child health/family planning services as an integral part of the rural health services; to organize the training of medical, nursing and other health personnel in the clinical, medical and health aspects of maternal and child health/family planning; and to evaluate these activities.

NUT 001 Nutrition advisory services (1967–77) R UNICEF (FAO)—To plan and carry out nutrition surveys in a pilot area where an applied nutrition programme is being launched, develop nutrition education and supplementary feeding programmes and train the personnel needed for implementing and evaluating the health aspects of the programme.

HMD 001 University of Malaya (1965–75) R (Colombo Plan)—To strengthen the teaching staff of the Faculty of Medicine, particularly in the fields of preventive medicine, public health, nursing, and medical recording. Provided—long-term staff, consultants, 24 fellowships, and supplies and equipment.

Nursing education and administration

Assistance in strengthening and upgrading nursing services, mainly in the new university hospital complex but also throughout the country, was phased as follows: (i) 1966–67—development of nursing service administration in the university hospital; (ii) 1966–69—development of the nursing school (from September 1966 until 1973 a nurse educator was also provided under the Colombo Plan to assist in developing the basic nursing programme); (iii) 1967–75—establishment of postbasic nursing education programmes to prepare nurse administrators and nurse and midwife teachers; (iv) 1970—organization of inservice training programmes for hospital staff. Following the completion of phases (i), (ii) and (iv) emphasis was placed on assistance to the postbasic education programmes, of which there are 3, all extending over one academic year. Since the first course in 1968, 93 nurse teachers, 34 nurse administrators and 7 midwife teachers have been prepared. The midwife teacher programme was introduced in the 1974/75 academic year.

In 1972, faculty and students of the nursing school and the postbasic nursing education unit participated in a WHO study, extending to the African, Eastern Mediterranean and Western Pacific Regions, on the evaluation of selected audiovisual aids in auxiliary nursing education programmes. As a result, the school and unit have both begun the preparation of educational technological material for use in the training of nurses and midwives.

Medical school and teaching hospital

In 1963 a tutor in medical laboratory technology was appointed for 2 years to assist in establishing a course to train technicians for hospital laboratories. In 1966, a statistician was appointed for 2 years to help establish a comprehensive hospital records system and train staff to operate it. A lecturer in medical statistics was assigned in 1967 for 22 months.

Between 1968 and 1975 consultants in social and preventive medicine, internal medicine, psychiatry, paediatrics, anaesthesiology and pathology assisted in establishing departments and developing teaching programmes at undergraduate and postgraduate levels. Three consultants helped with the first National Workshop in Medical Education, held in Kuala Lumpur from 30 October to 3 November 1973, and in 1975 a consultant assisted in evaluating undergraduate and postgraduate programmes and recommended future lines of development.

The new teaching hospital complex was opened in 1968 and the first group of students graduated in 1969. Once undergraduate teaching had been well established, WHO assistance was mainly given to postgraduate programmes. The master of public health course started in 1973 and the medical school now offers 3 postgraduate programmes: M. Sc. in public health, M. Sc. in pathology, and M. Sc. in psychological medicine.

HMD 003 Public Health Institute (1970– ) R UNICEF—To develop the Public Health Institute, whose functions are to provide a high standard of training for health personnel, geared to the needs of the country; to undertake studies in public health and disseminate the knowledge thus gained; to provide services, not otherwise available, for the improvement of health programmes and for demonstration purposes; and to assist the Ministry of Health in the coordination of its various health training programmes.

HMD 099 Health manpower development: fellowships R

ESD 001 Epidemiological services (1971– ) R—To establish, in the Division of Communicable Disease Control, Ministry of Health, an epidemiological and statistical service responsible for planning and evaluating national disease control programmes; to study the local epidemiology of causes of morbidity and mortality as a basis for the formulation of such programmes; to improve liaison and coordination among the Ministry's com-
munificable disease control, medical records and health statistics services, the laboratory services (particularly the Institute of Medical Research) and other peripheral government units concerned with disease control; and to train staff in epidemiological work.

**MDP 001** Malaria eradication programme, Peninsular Malaysia (1967-82) R

**MDP 002** Malaria control, Sabah (1961-82) R—To improve the control of malaria with the aim of eventually eradicating the disease.

**MDP 003** Malaria control, Sarawak (1961-78) R—To maintain the gains already achieved by continuing antimalaria operations throughout the malarious areas; to provide health assistance, particularly to the groups engaged in developing natural resources; and to continue the training of basic health service personnel and voluntary agents for work in the malaria programme.

**MNH 001** Prevention and control of drug abuse (1975) R—During the period under review fellowships were awarded to assist the development of a national training programme and to prepare for advisory services, scheduled to begin in 1976.

**RAD 099** Biomedical aspects of radiation: fellowships R

**LAB 099** Health laboratory technology: fellowships R

**HWP 001** Occupational health advisory services (1975-80) R—To establish an occupational health unit for promoting the formulation of measures and the development of services for the health protection of workers; to train health workers in occupational health; and to establish a national occupational health centre that will undertake research and training and provide advisory services.

**SES 001** Environmental health advisory services (1966-76) R UNICEF—To develop a national environmental health scheme, to implement sanitation projects, including water supplies for rural communities, through the health authorities and other governmental agencies, and to train sanitation staff.

**SHS 001** Development of health services (1969-80) R UNDP UNICEF—To develop the general health services, establish methods and practices for the efficient operation of the rural health programme (particularly as regards maternal and child health, tuberculosis control and antimalaria and environmental sanitation work), and provide training, including in-service training, for health service personnel.

**SHS 002** Hospital administration (1974-76) R—To set up a hospital records system for the new British National Service Base Hospital.

**MCH 001** Development of family health services (1974-76) UNFPA VD—To develop and strengthen family planning services in urban and rural areas.

**HED 099** Health education: fellowships R

**HMD 001** Nursing education (1970-76) R—To formulate and implement short-term and long-term plans for the strengthening and development of a system of nursing education in the country.

**HMD 099** Health manpower development: fellowships R

**MPD 001** Malaria control (1970-81) R—To build up the operational facilities for an antimalaria programme and organize antimalaria operations within the framework of the general health services.

**MBD 001** Tuberculosis control (1975-76) R—To improve the tuberculosis control services and integrate them into the rural health services; and to train general health workers in tuberculosis control methods.

**DNH 099** Dental health: fellowships R

**LAB 099** Health laboratory technology: fellowships R

**SES 099** Establishment and strengthening of environmental health services and institutions: fellowships R

**DHS 099** Development of health statistical services: fellowships R

**New Zealand**

**HMD 099** Health manpower development: fellowships R

**SES 099** Establishment and strengthening of environmental health services and institutions: fellowships R

**DHS 099** Development of health statistical services: fellowships R

**Niue**

**HMD 099** Health manpower development: fellowships R

**Papua New Guinea**

**SHS 001** General health services development (1974-79) R UNICEF—To strengthen the planning, organization and management of an integrated health service (including statistical services) for the whole country; to improve the delivery of health services; to review, update and initiate education and training programmes for health personnel; and to stimulate participation of the population in community health activities.

**MCH 001** Family health (1974-78) UNFPA VD—To make available to the population measures for the improvement of family health, reduce maternal mortality and morbidity due to unwanted pregnancies, and achieve family sizes compatible with the provision of adequate care.

**NUT 001** Nutrition advisory services (1975-77) R—To develop nutrition work within the basic health services, train the necessary staff, and prepare for the eventual formulation of a national food and nutrition policy.

**HMD 001** Medical faculty, University of Papua New Guinea (1970-80) R—To strengthen the faculty of the School of Medicine (formerly the Papua Medical College) and raise the standard of teaching.

**HMD 002** Nursing education (1970-77) R—To plan for current and future needs in nursing education and administration, establish postbasic courses to prepare nurse teachers and administrators, and develop the postbasic course in community health nursing.

**HMD 003** Port Moresby Dental College (1975-77) R—To train dental therapists for providing routine preventive and curative dental care to children and emergency treatment to adults.

**HMD 004** Education and training advisory services (1971-77) R—To plan, implement, and evaluate various types of courses in training institutions under the jurisdiction of the Division of Medical Training and other institutions designated by the Government for the purpose of training government personnel.

**HMD 099** Health manpower development: fellowships R
Papua New Guinea (continued)

MPD 001  Malaria control (1973-79) R UNDP—To intensify the antimalaria programme and extend it progressively, in order to reduce malaria incidence to a level that will not affect socio-economic development; and to train staff for the programme.

MBD 001  Tuberculosis control (1975-77) R UNICEF—To strengthen the tuberculosis control service within the general health services, in order to reduce the incidence of the disease in urban areas and prevent it from developing in the population of the highlands.

LAB 001  Health laboratory services (1974-76) R—To organize, strengthen and develop the central public health laboratory at Port Moresby; and to train various categories of technicians, particularly public health microbiology technologists and technical assistants, for operating the health laboratory services at different levels.

SES 001  Environmental health advisory services (1971- ) R—To develop an environmental health programme in the Department of Public Health, improve the coordination of environmental health activities, carry out surveys of environmental health problems (particularly those related to water supply, waste disposal, and environmental pollution) throughout the country, prepare designs, standards and specifications for water supply and waste disposal facilities, and review the training programme for health inspectors.

Philippines

SHS 001  General health services development (1969-77) R UNICEF—To improve the organization and administration of the health and medical care services, undertake national health planning in the context of overall planning for development, review health manpower education and training schemes, and develop working relationships between the national health administration and other agencies, both public and private, that are concerned with health.

SHS 002  National health planning (1972- ) R—During the period under review a consultant assisted in making an assessment of current activities, particularly as regards the formulation of the national health plan in the context of the national development plan. He also recommended measures for strengthening the organization and functioning of the National Planning Office, including the training of staff in planning.

MCH 002  Maternity-centred family planning (1971-75) UNFPA UNICEF—To develop the staff and facilities at 25 teaching hospitals and the affiliated teaching institutions with a view to establishing family planning as part of the maternal and child health services; to upgrade these services; and to strengthen training programmes. Provided—a medical officer and a public health nurse (1971-73), a sanitary engineering consultant (Aug. 1972-May 1973), and local costs.

The programme was implemented in 3 phases. Premises and water and sewerage facilities were constructed or adapted in 23 of the 25 hospitals, and the staff of every hospital was strengthened. One hundred and nine medical officers, 54 nurses and 10 technicians were trained at the Institute of Public Health. Eight more nurses received training in the provision of comprehensive family planning services.

In the period 1971-1975 deliveries and abortions at the 25 hospitals totalled 111,591; 52,131 of the parents accepted the use of contraceptives.

BCG vaccination was administered to all newborn and, whenever possible, to nonimmunized children receiving treatment in other parts of the hospital. Breastfeeding was encouraged and, to facilitate it, rooming-in was organized in most of the hospitals. Nutrition education was carried out regularly.

A special task of the project staff was to train other hospital personnel (medical officers, nurses, nursing auxiliaries and administrative personnel) how to motivate patients towards family planning.

MCH 003  Maternal and child health-based family planning, Bohol Province (1974- ) UNFPA—To improve maternal and child health and regulate fertility; and to determine the effectiveness of delivering family planning services through a well-organized maternal and child health care programme in a large predominantly rural area.

HED 001  Research, development and training in family planning communications, Institute of Mass Communication, University of the Philippines (1973-74) FR—A health education specialist assisted in developing and testing communication approaches, designing educational and information materials, and organizing training programmes in communication techniques and methods. The two major accomplishments were the training of indigenous midwives and the development of “barrio” women’s clubs to enable mothers in rural areas to participate actively in family welfare and community development.

HMD 001  University of the Philippines (1971-81) R—To strengthen the staff of the University of the Philippines, in particular that of the Institute of Public Health, which is the only school of public health in the country and which serves as a regional training centre and is used by WHO in the organization of courses on national health planning.

HMD 002  Nursing education (Dec. 1974-April 1975) R—In connexion with the Government’s study for revising basic nursing curricula, a consultant advised on adjustments needed in nursing education programmes to meet the requirements of the health services and organized and conducted a seminar on curriculum development for the directors of schools and colleges of nursing.

HMD 003  Nursing education in family planning (1971-74) UNFPA—To organize national workshops to prepare faculty members to integrate population dynamics, human sexuality and family planning in basic nursing curricula. Provided—the services of the public health nurse assigned to the intercountry family health field advisory services project (MCH 003) for all activities; and, for 3 months in 1973, a consultant to evaluate the educational soundness and assist in the final preparation of a Guide for the Teaching of Population Dynamics, Human Sexuality and Family Health in the Nursing and Midwifery Curricula. (This guide was subsequently published by the Department of Health and the Institute of Public Health, University of the Philippines, and is being used extensively by the faculties of schools of nursing and midwifery throughout the country.)

The major activity over the 4-year period was a series of 4 one-month workshops for the faculty of 71 schools of nursing and midwifery. Following these workshops, teaching supplies and equipment were provided to the schools that sent participants. Follow-up visits were made to about two-thirds of the schools to provide assistance in the integration process. An additional workshop was held in January 1975 under funds from the intercountry project MCH 003.

HMD 099  Health manpower development: fellowships R
ESD 001 Communicable disease control (Nov.-Dec. 1974) R—A team of 3 consultants (an epidemiologist, a malacologist and an engineer/agronomist) made a review of the schistosomiasis control programme.

MPD 001 Malaria eradication programme (1958- ) R

MBD 001 National Tuberculosis Institute for Training and Research (1975–80) R UNICEF—During the period under review fellowships were awarded in preparation for advisory services scheduled to begin in 1976.

CAN 001 Cancer control (Sept.-Nov. 1975) R—A consultant assisted in reviewing the community cancer control programme in Rizal Province following the visit of a WHO consultant in 1973. He also helped to assess the progress made with the Central Tumour Registry at the Philippine Cancer Society, to coordinate control work at various medical centres, and to train national staff in cancer control methods.

DNH 001 Dental health advisory services (1975– ) R UNICEF—Fellowships were awarded during the period under review, and advisory services were provided under the intercountry project DNH 001.

MNH 002 Organization of drug abuse control programmes (1974–77) R—Between November 1974 and May 1975 a consultant assisted in developing a drug education programme, and a fellowship was awarded in 1975 in preparation for further advisory services in 1976.

RAD 001 Radiation health advisory services (Sept.-Oct. 1975) R—A consultant assisted in establishing and developing a radiation protection programme with particular reference to the registration and inspection of all radiation facilities other than those exclusively for the use of radionuclides. Two fellowships were awarded.

LAB 001 Health laboratory services (1975– ) R FT—In 1975 consultant services were provided for these activities.

PIP 001 Manila sewerage project (11-29 Aug. 1975) UNDP—A consultant cooperated with the Government in the preparation of the project document and description for the initial construction programme for the sewerage system for metropolitan Manila.

CEP 002 Comprehensive water quality management of Laguna de Bay (1975–77) UNDP—To support the comprehensive programme aimed at abating and controlling pollution of the Laguna de Bay and at the improvement of lake water quality for water supply, fisheries, irrigation and other purposes.

HWP 001 Industrial health advisory services (Jan.-Feb. 1975) R—A consultant studied the industrial health services and assisted in formulating a plan for developing them to keep pace with growing industrialization. A new course for postgraduate training has been established.

SES 001 Environmental health advisory services (May-July 1975) R—A consultant made a study of the epidemiological, social and economic significance of inadequate environmental sanitation in rural areas, reviewed the programmes in this field in operation or planned by the Department of Health and other agencies, and advised on the feasibility of establishing a basic information system to provide the Government with the necessary data for planning.

SES 002 Environmental sanitation training (May-July 1975) R—A consultant reviewed the manpower situation and the existing training programmes, particularly those for sanitary inspectors, and advised on proposals for the establishment of new categories of environmental health personnel.

DHS 001 Improvement of medical records (1975–76) R—To develop a medical records system for use in hospitals, beginning by establishing a model medical records department in one hospital and training personnel.

Republic of Korea

SHS 001 General health services development (1963–77) R UNICEF—To promote, through the development of the general health services, the health protection of the population, so as to enable it to participate more fully in the social and economic development of the country.

MCH 001 Maternal and child health services (1974– ) R—To strengthen and develop maternal and child health services as part of the general health services; to carry out field studies with a view to increasing the coverage of basic maternal and child health care; and to improve the training of maternal and child health personnel.

HMD 001 Education and training of health personnel (1969–78) R UNFPA UNICEF—To provide education and training for health and medical workers, including undergraduate and postgraduate training for physicians and basic and postbasic training for nurses, sanitarians and other health workers. (Under this project advice is also to be provided on the establishment of a national teacher-training centre for health personnel.)

HMD 002 Workshops in family planning for teachers in nursing/midwifery schools (1971–74) UNFPA—Two workshops were held, in 1971 and 1973 respectively, to assist the faculties of the schools of nursing in integrating training in population dynamics and family planning into their basic curricula. For each workshop a public health nurse assigned to another project acted as consultant.

MBD 002 Leprosy control (July-Aug. 1975) R VL—A consultant assisted in preparing a national plan for leprosy control and in training the recently appointed leaders of the mobile teams for the national control programme.

RAD 001 Radiation health advisory services (Oct.-Nov. 1975) R—A consultant advised on methods for promoting the safe use of ionizing and non-ionizing radiation, organizing training programmes for radiation health personnel and developing radiation dosimetry services.

DEM 001 Drug quality control (June-Aug. 1975) R—A consultant provided assistance in the structural identification of natural products and medicinal drugs and in the separation, identification and quantitative analysis of pesticides and medicinal drugs in mixed preparations by chromatographic methods.

LAB 001 Health laboratory services (1975– ) R UNICEF—During the period under review a fellowship was awarded in preparation for advisory services scheduled to begin in 1976.

BSM 001 Advisory services on community water supply and sewerage (1972–77) R—To plan and implement a comprehensive urban and rural water supply and sewerage programme.

PIP 001 Master plan for sewerage and waste disposal for the Seoul metropolitan region (Oct. 1975) UNDP—A preparatory assistance mission made a broad assessment of the needs of the Seoul metropolitan region with regard to sewerage and sewage disposal and assisted in preparing a project document for master plan studies.
Republic of Korea (continued)

**CEP 001** Air pollution control advisory services (July-Sept. 1975) R—A consultant advised the Ministry of Health and Social Affairs on setting up an air pollution control programme, including the training of local staff in inspection work.

**CEP 002** Water pollution control advisory services (July-Aug. 1975) R—A consultant assisted in planning a water quality monitoring and control programme, including the development of a training programme for national staff.

**FSP 001** Food hygiene (1974-77) R—To review food sanitation legislation, organize food sanitation and chemical quality control services at central and local levels, and carry out an inservice training programme.

**DHS 001** Health statistics (1975-78) R—To develop and strengthen the system of collecting, processing and disseminating statistical information on health and medical care, and to provide opportunities for national personnel to acquire new knowledge and skills in health statistics.

**Republic of South Viet-Nam 1**

**SHS 001** National health planning (1972- ) R—To strengthen the national health planning unit in the Ministry of Health, formulate a national health policy and a national health and manpower plan, and train staff.

**SHS 003** Health laboratory services (1964- ) R UNICEF—To establish a central health laboratory service and train health laboratory workers; and, later, to organize regional and peripheral health laboratory services.

**MCH 001** Family health (1973- ) R UNFPA UNICEF—To strengthen family health services by improving the health care of mothers and children and providing married couples with information and services for the planning of their families.

**HMD 001** Medical education (1972- ) R—To strengthen various aspects of the curricula of schools of medicine, with particular attention to preventive medicine and public health.

**HMD 002** National Institute of Public Health (1969- ) R VD—To build up a national institute of public health which will serve as a centre for the planning, standardization, organization, coordination, implementation and evaluation of training programmes for various categories of medical and health workers.

**HMD 003** Training of dental auxiliaries (1974- ) R—To strengthen the organization for the delivery of dental health services, develop dental service programmes, consolidate and develop programmes for training dental auxiliaries and educate the public in dental health.

**ESD 001** Epidemiological surveillance and quarantine (1970- ) R—To develop epidemiological services at the central and regional levels, strengthen the application of the International Health Regulations (1969) and train staff for these purposes.

**MPD 001** Malaria control (1974- ) R UNDP—To strengthen the antimalaria service in order to reduce malaria morbidity and mortality to the greatest possible extent, giving particular attention to high risk population groups; and subsequently to reduce malaria to a level at which it will no longer constitute a public health problem, with the objective of eventually eradicating the disease.

**MBD 001** Tuberculosis control (1958- ) R—To set up a national tuberculosis control programme as a permanent part of the basic health services.

**MNH 002** Drug abuse control (Dec. 1974) R UNFDAC—A consultant made a review of the epidemiological information available on drug problems, advised on a future plan of action, and assisted in establishing a national centre for the treatment and rehabilitation of drug-dependent persons.

**SQP 001** Drug quality control (Dec. 1974-Jan. 1975) UNDP—Under preparatory assistance, a consultant helped to assess the technical aspects of the production and quality control of drugs and to formulate a project for the reorganization of the drug quality control laboratory, including staff training, proposed to be carried out with UNDP assistance.

**BSM 001** Water supply and sewerage in urban communities (1975- ) UNDP

**BSM 003** Advisory services on programmes for the provision of water supplies and sanitary facilities (1975- ) R

**CEP 001** National pollution control programme (1974) UNDP—To formulate and implement a phased countrywide environmental pollution control programme, prepare legislation and institutional arrangements for its implementation, and establish a system of regional monitoring and laboratory facilities. Provided—a consultant (April and Oct.-Dec. 1974), 2 fellowships, and air pollution control equipment.

The consultant reviewed the water pollution control situation and helped to formulate proposals for a further programme of activities in air and water pollution control to be carried out with UNDP assistance. A draft Clean-Air Act was prepared under contractual arrangements and submitted to the Government.

**SES 001** Environmental health advisory services (1965- ) R—To strengthen the environmental sanitation service in the Ministry of Health and introduce improvements in public water supply, human excreta disposal, refuse disposal, food hygiene and vector control in urban and rural areas.

**DHS 001** Vital and health statistics advisory services (1969- ) R—To organize an efficient and up-to-date system of collecting and recording vital and health statistical data so as to produce vital and health statistics that will meet national and international needs; and to train personnel in the administration and operation of a national health statistical service.

Singapore

**SHS 001** Hospital administration (1975-77) R—To reconstruct the Outram Road General Hospital, which will become the main hospital in the country, and to build a university teaching hospital at Kent Ridge.

**SHS 099** Strengthening of health services: fellowships R

**HMD 001** University of Singapore (1968-76) R—To strengthen the teaching staff of the Faculty of Medicine of the University, particularly in the fields of preventive medicine, public health and organization of medical care.

**HMD 002** Development of medical specialties (1971-75) R—To establish and organize specialist units in hospitals and to train in advanced techniques staff to man these units.

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1 The projects for the Republic of South Viet-Nam (except for those completed) are in abeyance.
HMD 099 Health manpower development : fellowships R

ESD 001 Communicable diseases advisory services (1972-77) R—
To develop and strengthen the epidemiological service of the Ministry of Health, study the epidemiology of the main causes of morbidity and mortality (particularly communicable diseases), develop procedures for the investigation, prevention, diagnosis and control of certain diseases, and train staff in epidemiological work.

RAD 099 Biomedical aspects of radiation : fellowships R

PIP 002 Closed storm drainage system design (1973-75) UNDP
—To draw up plans for closed storm drainage, pumping and water storage schemes to serve new developments and other selected areas; and to prepare a preliminary plan for a closed storm drainage and storm-water capture scheme to replace the existing open drain system serving the developed areas of Singapore. Provided—a sanitary engineer.

In addition to the drainage system, the major part of which was completed, the Government constructed impoundments to increase drinking-water resources. In order to obtain a higher quality of run-off from the impoundments, which are replenished by rain water discharge from built-up areas, studies were made of the possibility of converting the existing open drain system into an underground system. To serve as a guide for the computation and the final design of the underground drainage system, detailed graphs and drawings were prepared, showing also methods for achieving efficient surface drainage.

A master plan for the areas of the island which remain undeveloped was also prepared, together with recommendations for the design of the main drains.

HWP 001 Occupational health (Feb.-June 1975) R—A consultant assisted in drawing up a 5-year development programme for the Occupational Health Nursing Section of the Industrial Health Unit. She also helped to define the duties of occupational health nurses in the private sector and the training they required, and studied the feasibility of the Government’s setting up a register of occupational health nurses. Other consultants in occupational hygiene have assisted in postgraduate training at the University.

SES 001 Environmental control advisory services (Jan.-March 1975) R—A consultant assisted the Ministry of the Environment in designing an accounting system in connexion with the management and disposal of solid wastes.

DHS 099 Development of health statistical services : fellowships R

Solomon Islands

SHS 001 Basic health services (1965-78) R UNICEF—To expand and strengthen the network of local health services and train auxiliary health personnel.

HMD 099 Health manpower development : fellowships R

MPD 001 Malaria eradication programme (1970-78) R UNDP
—This programme follows the malaria eradication pilot project (1961-64) and the pre-eradication programme (1965-69).

In March and April 1975 the project was visited by an independent assessment team composed of a malariologist, a public health administrator and an economist (under the intercountry project MPD 002).

MBD 001 Tuberculosis control (1975-76) R—To review and evaluate the tuberculosis problem and the control services; to improve control methods, taking into consideration available resources; to strengthen coordination between the tuberculosis services and the basic health services; to train the health staff engaged in tuberculosis control work; and to promote community support for and participation in the programme.

DNH 001 Dental health : fellowships R

Tonga

MCH 001 Maternal and child health/family planning (1972-76) UNFPA UNICEF—To organize and implement a family planning programme within the health services, particularly as part of maternal and child health care, and to train the necessary staff.

HMD 001 Nursing education (1975) R—During the period under review a fellowship was awarded.

HMD 099 Health manpower development : fellowships R

BAC 001 Typhoid and leptospirosis control (Sept.-Oct. 1975) R—A consultant assisted in further analysing the mode of transmission of typhoid fever, reviewed the present epidemiological situation, and advised the Government on control measures.


LAB 001 Health laboratory services (1975-76) R—To strengthen the Vaiola Hospital laboratory and develop its function as a central reference laboratory; and to train various categories of technicians for the operation of a health laboratory service network.

Trust Territory of the Pacific Islands

HED 099 Health education : fellowships R

HMD 001 Refresher course for indigenous doctors (March-April 1975) R—Consultants in internal medicine, surgery, and maternal and child health assisted in organizing a refresher training course for Micronesians doctors.

HMD 099 Health manpower development : fellowships R

DNH 099 Dental health : fellowships R

LAB 099 Health laboratory technology : fellowships R

SES 099 Establishment and strengthening of environmental health services and institutions : fellowships R

DHS 099 Development of health statistical services : fellowships R

Western Samoa

SHS 001 National health services development (1967- ) R UNDP UNICEF—To develop and strengthen the organization and operation of the general health services, particularly at district and local levels; to improve the operation of the rural health programme; to organize in-service training for medical and allied personnel; to conduct epidemiological studies on the most important causes of morbidity and mortality in the country; and to plan disease control programmes as part of the general health services.
Western Samoa (continued)

SHS 003 Hospital administration (1975-76) R UNDP—To plan and strengthen the organization of the Apia General Hospital and any other hospitals that may be constructed, renovated, or scheduled for development; and to improve the nonmedical aspects of hospital management.

MCH 001 Maternal and child health/family planning (1971-76) UNFPA UNICEF—To organize a family planning programme including advice on the spacing and limitation of births and the treatment of subfertility, and train the necessary staff; to conduct surveys on the influence of high fertility and high birthrate on the health of mothers and children; and to undertake operational research on methods of meeting the country's family planning needs.

HMD 001 Nursing education (1972-75) UNDP—To improve the standard of nursing and midwifery education and services. Provided—a nurse educator (1972-74), 8 fellowships, and supplies and equipment.

Assistance was provided in revising the nursing curriculum, developing an inservice education programme for nursing personnel, and establishing an education committee for nursing and a community health demonstration area offering practical experience for nursing students.

HMD 099 Health manpower development: fellowships R UNDP

BAC 001 Typhoid control (1971-76) R—To control typhoid fever through the development of safe excreta disposal facilities, the provision of an adequate and safe water supply and the immunization of high-risk population groups with combined vaccines containing typhoid vaccine.

MBD 001 Tuberculosis control (1960-63; 1966-68; 1971-74) R UNICEF—Provided—a medical officer and supplies and equipment (1960-63); consultants (1971-74); and the services of the regional tuberculosis control team (intercountry project MBD 001).

The Government launched the first nationwide tuberculosis campaign with WHO assistance in 1960. The campaign, which took 3 years to complete, was based on tuberculosis testing of children under 15 and X-ray and, when required, bacteriological examination of persons aged 15 and over. Tuberculin reactors were prescribed isoniazid for prophylaxis and tuberculosis cases were treated with specific drugs.

The second campaign was carried out between 1966 and 1968. The whole population was tuberculin tested; non-reactors were vaccinated with BCG and reactors were examined further for pulmonary tuberculosis. All positive cases were treated.

Following the first campaign, 2436 children received chemoprophylaxis and 1440 suspects, diagnosed radiologically, including 312 cases proved to be positive through bacteriological examination, were placed on chemotherapy. During the second campaign 1026 suspects diagnosed by X-ray, including 77 cases found by sputum microscopy to be positive, were placed on treatment; 80039 persons (61% of the total population and 80% of the estimated total susceptible population) were vaccinated with BCG.

The two campaigns achieved significant results, not only as regards prevention and therapy, but also as regards public education. The tuberculosis service, however, was organized on a specialized basis; most of the control work was carried out by staff of the tuberculosis clinic in Apia and staff of the district health services rarely participated, except during the campaigns. Patients had to travel a long way to collect drugs and undergo follow-up examinations and for this reason a considerable number were prematurely lost.

The third phase of the project was launched in August 1971 with the aim of integrating tuberculosis control into the district health services. At the national level, the tuberculosis control unit was made a section in the Division of Public Health of the Health Department. A working manual was prepared for all categories of workers at the central and district levels. Following a pilot trial at Leulomea, tuberculosis control services, including BCG vaccination, case-finding and domiciliary treatment, were extended to all 16 districts of the country.

Intercountry Programmes

SHS 001 Public health advisory services (1961-77) R—To meet requests from countries of the Region for advisory services in connexion with the planning of long-term projects or with specific problems. The following assistance was provided during the period under review:

Health literature services (Feb.-March 1975). Advisory services were provided to Japan, Malaysia, the Philippines, the Republic of Korea, and Singapore.

SHS 002 Public health advisory services, South Pacific (1962-63; 1965-76) R UNDP (South Pacific Commission)—To assist in strengthening and developing general health services in the area, particular attention being given to maternal and child health work integrated into the general health services and to the development of a system of basic health statistics and records.

During the period under review individual members of the team assigned to the project visited American Samoa, Cook Islands, Fiji, New Caledonia, New Hebrides, Papua New Guinea, Solomon Islands, Tonga, and Western Samoa.

SHS 003 Training in the field of health planning (1968-77) R UNICEF—To acquaint national health administrators with the general principles of national planning for socioeconomic development and familiarize them with the principles and methods of national health planning within the framework of such development planning and as an integral part of health administration.

The seventh regional training course in national health planning, organized in collaboration with the Institute of Public Health, University of the Philippines, was held in Manila from 15 September to 21 November 1975. There were 11 participants (health administrators or teachers in the health professions) from 7 countries and areas in the Region and 1 observer from the Philippines.

SHS 004 Health planning and management (1968-78) R—To assist governments in formulating national health plans as part of their national development plans, and to provide assistance in management and health practice research to WHO-assisted projects and other government health activities on request.

During the period under review, attention was given to drawing up general outlines for the preparation of plans of operation and plans of work.

Assistance was also provided to:

Japan—with operations research activities at the Research Institute of Tuberculosis, Tokyo.

Laos—in evaluating its health zones, and with a management review of the development of the health services project Laos SHS 001.

Malaysia—with preliminary discussions on information systems planning and in drafting a strategy for the development of a health information system.

Philippines—in designing the plan of work (including supervision, logistics, and information monitoring) for the second phase of the operational study on rural health care services,
being carried out under the general health services development project Philippines SHS 001.

SHS 007 Workshop on Nursing Service Administration, Manila (8-15 Sept. 1975) R—To review the functions being performed and the positions currently held by nurses and midwives at the central and intermediate levels of health administrations, and to consider how nurse/midwife administrators can provide the maximum contribution to the planning and management of health programmes using nursing and midwifery services. There were 23 participants from 19 countries or areas in the Region and observers from UNICEF, the International Committee of Catholic Nurses, the International Council of Nurses, and the Philippine Nurses’ Association. Provided—a consultant, a temporary adviser, and the cost of attendance of the participants.

SHS 011 Health laboratory services (1971–75) R—To assist in the organization and development of public health laboratory services, coordinated with other laboratory facilities, that can support epidemiological work, rural health services and sanitation projects. Provided—a medical officer (July 1971-Feb. 1975) and 2 consultants (June-Nov. and Oct.-Nov. 1975).

The medical officer assisted the Gilbert Islands and Tuvalu (formerly Ellice Islands), the Solomon Islands, Tonga, and Western Samoa in assessing the laboratory facilities and activities, together with the general health situation, and in planning for immediate and long-term development in accordance with needs and resources.

Between June and November 1975 a consultant helped to set up an immunology laboratory in the Institute of Medical Research, Kuala Lumpur (Malaysia). In October and November 1975 another consultant visited venereal disease serology and bacteriology laboratories in Fiji, Hong Kong, Japan, Malaysia, the Philippines, the Republic of Korea, and Singapore to assess their programmes of proficiency testing for quality control, carried out under the auspices of WHO and the Center for Disease Control, Atlanta (USA) following the training course on venereal disease serology and bacteriology held in Manila in 1973. The consultant also discussed in each country or area the organization of national quality control and the need for standardization programmes.

MCH 002 Seminar on the Evaluation of a Family Planning Programme, Manila (2-8 Oct. 1975) UNFPA—To review the components of family planning programmes and the methods presently used to evaluate the programmes; to discuss problems in utilizing the results of evaluations for programme development; and to formulate practical guidance for evaluation. There were 20 participants from 14 countries or areas in the Region and observers from UNFPA, UNICEF, ESCAP, the International Planned Parenthood Federation, the Population Council, and USAID. Provided—a consultant, 3 temporary advisers, and the cost of attendance of the participants.

MCH 003 Family health field advisory services (1971–78) UNFPA—To provide advisory services to governments in connexion with the strengthening and development of family planning programmes and their integration into basic health services.

HMD 001 Participation in educational meetings (1964– ) R—During the period under review 3 fellowships were awarded to candidates from 3 countries of the Region.

HMD 002 Institutions for the training of health personnel (1966– ) R—During the period under review 3 fellowships were awarded to candidates from 3 countries of the Region.

HMD 004 Regional centre for the training of anaesthetists (1970–80) R—To assist in the operation of a regional centre in Manila for training anaesthesiologists for the countries and areas of the Region.

During the period under review, fellowships were awarded to candidates from 7 countries or areas, and a consultant (July-August 1975) assisted with the theoretical and practical aspects of the teaching programme.

HMD 005 Nursing advisory services, South Pacific (1967–74) R—To assist in strengthening nursing education and administration and in developing nursing services in the South Pacific area. Provided—a nurse educator.

Accomplishments include the revision of basic nursing curricula and the development of continuing education programmes. Fiji received assistance in planning and implementing courses in public health nursing at basic and postbasic levels and in planning the nursing component of a course for the vocational teacher’s certificate at the University of the South Pacific. In 1971 the health services of the Cook Islands, Fiji, the Gilbert Islands and Tuvalu (formerly Ellice Islands), the New Hebrides, the Solomon Islands, and Tonga were assisted in carrying out surveys of nursing manpower and nursing education. In 1972 the nurse educator directed an intercountry nursing workshop in Fiji that had 20 participants from 10 countries or areas of the Region.

HMD 007 Teacher-training centres for health personnel (1971–87) R UNDP—To assist in establishing and developing a regional teacher-training centre for health personnel at the medical faculty of the University of New South Wales, Australia, and national centres in selected countries of the Region.

The following intercountry activities were undertaken during the period under review: International Seminar on Teacher-training Centres for the Medical and Health Professions (1-8 Feb. 1975); International Workshop on General Health Personnel Education (8-20 June 1975); Workshop on Evaluation (23 Nov.-6 Dec. 1975). These activities had a total of 55 participants from 13 countries or areas of the Region.

In addition, consultant services were provided for the establishment of national teacher-training centres or alternative units. In the Republic of Korea assistance was given in planning for a national teacher-training centre, which was officially inaugurated in January 1975. In the Philippines 2 consultants conducted a feasibility study which led to the establishment of a national teacher-training centre in the University of the Philippines in March 1975.

Consultant services were also provided for: a national workshop on medical education held in Japan (14-21 Dec. 1974); a national workshop on evaluation of student learning held in the Philippines (15-20 April 1975); a national workshop on curriculum development held in the Republic of Korea (6-11 May 1975); and an inter-university disciplinary workshop on medical education held in the Philippines (19-25 Oct. 1975).

A consultant made a preparatory visit to Fiji in connexion with a national workshop on medical education to be held in 1976.

HMD 011 Nursing education (1974–76) R—To assist national health administrations in the development of basic and postbasic nursing and midwifery education programmes; to study, in cooperation with the staff of national health administrations and of other WHO-assisted projects, the feasibility of establishing an intercountry centre for postbasic education in nursing and midwifery to meet the needs of countries with only a small number of students; and, should the establishment of such a centre be considered feasible, to advise on and assist in planning it and setting it up.
During the period under review the nursing adviser attached to the project visited Fiji, Papua New Guinea, the Philippines, and Western Samoa.

HMD 016 Seminar on the Teaching of Community Health in Medical Schools, Manila (7-12 April 1975) R—To define the objectives in teaching community health to medical students, the subjects to be covered, and methods for assessing student performance; and to identify the main areas in which courses being offered at present can be improved and how the improvements can be achieved. There were 18 participants from 12 countries or areas in the Region. Provided—3 consultants and the cost of attendance of the participants.

HMD 017 Meeting of Directors and Representatives of Schools of Public Health, Manila (10-14 March 1975) R—In continuation of the discussions held during previous meetings, to review the action taken to implement the recommendations of the last meeting (Brazzaville, 1973) and to discuss in depth (i) the role of schools of public health in health manpower planning and development, and (ii) the future of schools of public health, taking into consideration structural and organizational factors and the implications of multidisciplinary cooperation. There were 36 participants from the African, South-East Asia, Eastern Mediterranean and Western Pacific Regions and observers from the Association of Schools of Public Health of North America and the World Federation for Medical Education. Provided—a consultant and the cost of attendance of the participants from the Western Pacific Region.

ESD 001 Epidemiological and surveillance services (1972–81) R—To assist with epidemiological surveys, the strengthening of epidemiological and related laboratory and statistical services, the establishment of disease intelligence networks, the investigation and control of communicable diseases such as filariasis and dengue fever, the evaluation of control programmes, and the study of special disease problems in the South Pacific area.

During the period under review the medical officer assigned to the project provided assistance to American Samoa, the New Hebrides, Papua New Guinea, Tonga, and Western Samoa. A consultant (April-June 1975) made a review of the national leprosy control programme in Malaysia and the prevalence of leprosy in the country.

MPD 002 Malaria special studies and evaluation (1967– ) R—To make independent appraisals of the status of malaria and of any special aspects of the malaria programme in the Region.

During the period under review, independent assessment teams visited Papua New Guinea (Feb.-March 1975) and the Solomon Islands (March-April 1975).

MPD 004 Filariasis advisory services (1971–75) R—To assist governments, especially in the South Pacific area, in studying the epidemiology of filariasis and in carrying out or evaluating programmes for controlling the disease. Provided—an epidemiologist and an entomologist.

Assistance was provided to:
- New Hebrides, Papua New Guinea and Solomon Islands—to study the effectiveness of DDT indoor residual spraying, used as an anti-malaria measure, in controlling filariasis.
- Solomon Islands—to investigate the vector species in one of the islands where filariasis is known to exist but where the vector mosquitoes of the Anopheles punctulatus group are absent.

Gilbert Islands and Tuvalu (formerly Ellice Islands), Niue and Western Samoa—to commence mass drug administration and to assess the results.
- Tonga—to start a nationwide antifilaria programme.
- Fiji—to undertake insecticide susceptibility tests of vector mosquitoes.

In Western Samoa the second round of mass administration of diethylcarbamazine undertaken in 1971 was shown by conventional methods to have reduced the microfilarial rate from 2.26% in 1969 to 0.14% in 1973 and 0.11% in April 1974. However, a brief survey undertaken in mid-1975 using the membrane filter concentration technique for examining the blood of 178 people in 3 areas indicated a crude microfilarial rate of 60%, mostly due to ultra-low microfilarial densities. It is not known whether natural transmission is taking place at the ultra-low microfilarial density and study is urgently required.

An analysis of the data in Western Samoa not only revealed differences between communities but also showed that in the more mobile population group of young adult males deficiencies in total drug coverage existed. Applied research on filariasis surveillance in Western Samoa has been proposed and large-scale field trials for vector control are planned. The results of the studies in Western Samoa will be applied to other areas in the South Pacific where the microfilarial rates have been shown by the conventional methods to be very low after mass drug administration.

MPD 006 Malaria training (1973– ) R—To provide training in malariology for professional and senior technical health personnel in the Region.

MPD 008 Seminar on Tropical Skin Diseases, Manila (17-23 Sept. 1975) R—To review the public health importance and the prevalence of skin diseases in tropical areas of the Region and to consider recent developments in their diagnosis, treatment and control. There were 10 participants from 10 countries or areas in the Region. Provided—3 consultants, a temporary adviser, and the cost of attendance of the participants.

BAC 003 Seminar on Immunization in the Control of Communicable Diseases, Manila (9-15 Oct. 1975) R—To review the status of immunization programmes in the Region and discuss the problems involved in planning, implementing and evaluating them. There were 18 participants from 17 countries or areas in the Region. Provided—4 consultants and the cost of attendance of the participants.

MBD 001 Regional tuberculosis control team (1961–80) R—To assist countries and areas in the Region in assessing their tuberculosis programmes.

During the period under review the team, or individual members, visited American Samoa, Laos, Papua New Guinea, the Philippines, the Republic of Korea, Singapore, and Western Samoa.

MBD 002 Tuberculosis course, Tokyo (9 June-15 Oct. 1975) R (Japan International Cooperation Agency)—To train national workers in the application of modern methods of tuberculosis control and stimulate the provision of practical training and demonstration in national institutions. The course, the tenth of a series, had 5 participants from 3 countries of the Region. Provided—a consultant, 6 temporary advisers, and the cost of post-course country visits for all participants.

MBD 003 Regional BCG vaccine laboratory, Philippines (1973–79) R UNICEF—To develop and expand the Alabang BCG vaccine laboratory into a regional laboratory for the production of freeze-dried BCG vaccine for countries and areas of the Region.
MBD 006 Leprosy control advisory services, South Pacific (1972-80) R VL.—To assist in assessing the leprosy problem in countries and areas of the South Pacific, in strengthening leprosy services, and in training personnel. During the period under review assistance was provided to the New Hebrides.

VIR 001 Technical Advisory Committee on Dengue Haemorrhagic Fever, second meeting, Bangkok (26-28 Feb. 1975) R—The Technical Advisory Committee is composed of temporary advisers and staff members from the South-East Asia and Western Pacific Regions and WHO headquarters. At its second meeting the Committee reviewed the epidemiological situation of dengue haemorrhagic fever and the technical guidance on clinical diagnosis and treatment, laboratory diagnosis, prevention and control, and epidemiological surveillance prepared as a result of the first meeting. Recommendations on a programme of research were formulated. Provided—4 temporary advisers and the services of staff members.

CAN 001 Working Group on the Organization of a Comprehensive Cancer Control Programme, Manila (22-29 Oct. 1975) R.—To exchange information on the prevalence and incidence of cancer of various types and sites; to assess existing and potential resources in the Region for the detection and treatment of the disease; and to discuss and recommend practical methods for long-term prevention and community control. There were 12 participants from 11 countries in the Region. Provided—a consultant and the cost of attendance of the participants.

CVD 001 Seminar on the Prevention and Control of Cardiovascular Diseases, Manila (31 March-5 April 1975) R.—To review the information available on the prevalence and incidence of cardiovascular diseases; to outline measures for prevention and community control and assess the resources available for implementing them; and to promote the exchange of experience and cooperation between countries at different stages of development of medical care in relation to cardiovascular diseases. There were 11 participants from 11 countries of the Region. Provided—a consultant and the cost of attendance of the participants.

DNH 001 Dental health advisory services (1972-77) R.—To advise on the establishment or strengthening of national dental health services, particularly those for preventive dentistry, on the basis of data gathered from national surveys, and to assist in setting up or improving programmes for training dental auxiliaries.

During the period under review the dental health adviser provided assistance to Papua New Guinea and the Philippines. He also planned, organized and took part in the course in public health dentistry held in Singapore and Malaysia (see below).

DNH 002 Course in public health dentistry, Singapore and Malaysia (1 May-30 June 1975) R.—To provide theoretical and practical instruction in the basic elements of dental public health practice in relation to ongoing programmes, including the training and utilization of professionals and dental auxiliaries for the delivery of dental services. There were 23 participants from 14 countries or areas in the Region and 3 observers from Thailand. Provided—4 consultants, 5 temporary advisers, and the cost of attendance of the participants.

MNH 001 Prevention and control of drug abuse (1973-77) R To assist governments in developing effective policies and programmes for reducing the extent and severity of problems associated with the use of dependence-producing drugs and alcohol by collecting and interpreting epidemiological data, implementing and evaluating remedial measures, and developing curricula for schools and for national institutions engaged in staff training. The following activities were undertaken during the period under review.

Working Group on Measures for the Prevention and Control of Drug Dependence, Manila (9-17 Dec. 1974). Seven temporary advisers and a consultant met to help formulate strategies to be used in providing assistance requested.

Working Group on Health Education Programmes for Young People concerning Drug Abuse, Manila (4-10 Nov. 1975). Six temporary advisers and 3 consultants met to assess the problem created among young people by the use of drugs for nonmedical purposes and by the abuse of alcohol.

RAD 001 Training in maintenance and repair of X-ray and other laboratory equipment (1969-77) R.—To assist governments in assessing the needs regarding the maintenance of medical equipment, advise on the organization of maintenance services, and assist in training engineers and engineering technicians in the installation, maintenance and repair of medical equipment, and operators in the proper care and use of radiographic and electronic equipment.

During the period under review the technical officer assigned to the project provided assistance to the Cook Islands, the New Hebrides, Niue, the Philippines, the Solomon Islands, Tonga, and Western Samoa. Since February 1975 an associate expert, provided under an agreement between the Government of Sweden and WHO, has been assisting the technical officer.

A consultant (July-Sept. 1975) assisted Singapore in the development of its biomedical engineering services.

RAD 003 Radiation health advisory services (1973- ) R.—To assist governments in the organization, management and operation of radiation medicine and radiation protection services, training programmes in radiation health, and the collection and analysis of data on radioactive pollution of the environment.

During the period under review the radiation health adviser assigned to the project provided assistance to Malaysia and Singapore. In addition, a consultant (Jan.-March 1975) assisted Malaysia in establishing and developing a radiation protection programme and another consultant (Dec. 1974-April 1975) helped to improve the calibration of radiation measuring instruments and assess the output from radiation sources used for medical purposes in Malaysia, the Philippines, the Republic of Korea, and Singapore.

RAD 004 Course on medical physics, Brisbane, Australia (30 June-19 July 1975) R.—To review methods developed in physics that are applied to medicine, particularly in connexion with the use of ionizing and non-ionizing radiation and radioactive materials, and to provide practical training; and to discuss the organization of medical physics services, the basic requirements for establishing them, and how they can be developed. There were 11 participants from 5 countries or areas in the Region and 13 observers from Australia and the Philippines. Provided—a consultant and the cost of attendance of the participants.

BSM 001 Environmental health advisory services, South Pacific (1965-77) UNDP.—To assist countries and areas of the South Pacific in improving community water supplies and environmental sanitation in general.

During the period under review assistance in the preparation of plans for rural water supply facilities was provided to American Samoa, Fiji, the Gilbert Islands and Tuvalu (formerly Ellice Islands), the New Hebrides, Papua New Guinea, Tonga, and Western Samoa.

BSM 002 Provision of basic sanitary measures (1968-77) R.—To assist governments in carrying out studies on water supply, sewerage and other environmental health programmes, and in developing such programmes.
**Intercountry Programmes (continued)**

During the period under review a consultant (April-June 1975) assisted Malaysia in organizing a seminar on food hygiene for senior health officers and advised on the preparation of a food hygiene code of practice.

**CEP 002 Environmental pollution control advisory services (1972; 1975-81)**

To meet requests from governments for assistance in connexion with environmental pollution control. The following assistance was provided during the period under review:

**Malaysia (Feb.-March 1975).** A consultant reviewed aspects of the organizational structure for the collection and disposal of solid wastes in Kuala Lumpur, particularly with reference to the quantity, characteristics and composition of the wastes produced and the possibilities for increased recycling, and submitted recommendations for immediate improvements and long-range policies.

**Philippines.** A consultant (March-April 1975) assisted the National Pollution Control Commission and the Department of Health in making an assessment of the noise nuisance problem and existing control methods and advised on the resources needed for the development of a control programme and on necessary legislation. A further consultant (Nov.-Dec. 1975) assisted in reviewing the measures, in force and proposed, for controlling the use of pesticides, and in developing a phased control programme.

**CEP 003 Seminar on Water Pollution, Manila (17-24 March 1975)**

To review the water pollution situation in countries and areas of the Region, including government policies and programmes; to bring to light new problems and trends; to exchange experience and ideas; and to formulate technical projections of the scale of problems and needs at the national and regional levels. There were 21 participants from 14 countries or areas in the Region and representatives or observers from UNDP, FAO, UNESCO, ESCAP, the Asian Development Bank, the WHO collaborating centre for surface- and ground-water quality, the Manila Metropolitan Waterworks and Sewerage System, the Philippine Coast Guard, and the Laguna Lake Development Authority. Provided—4 consultants, a temporary adviser and the cost of attendance of the participants.

**HWP 001 Course on occupational health, Sydney, Australia (10 Nov.-5 Dec. 1975)**

To provide orientation in the principles and practice of occupational health, prepare participants for contributing to the development and improvement of health and welfare services for workers, and provide information on recent advances in the organization and administration of occupational health services. There were 15 participants from 9 countries or areas of the Region. Provided—WHO advisers, and the cost of local lecturers and of attendance of the participants.

**HWP 002 Occupational health (Nov. 1974-Jan. 1975)**

A consultant made an assessment of the health and safety measures in force in small industries in Fiji, Papua New Guinea, the Trust Territory of the Pacific Islands, and Western Samoa, suggested methods of improvement, and made proposals for the provision of health services to the working population in small industries.

**DHS 001 Health statistics and records (1971- )**

To assist governments to develop a system of basic health statistics and records to meet the needs of the countries concerned and facilitate international comparison; and to train personnel. During the period under review, assistance was provided to the Cook Islands, Tonga, and Western Samoa.
INTERREGIONAL ACTIVITIES

RPD 002 Advisory Committee on Medical Research (1959- ) R—To advise the Director-General on various aspects of WHO’s research programme, including priorities for research, indication of short-term and long-term trends, and establishment of policy in various fields.

RPD 003 Research training grants, exchange of research workers, and research by individual investigators (1960- ) R UNFPA VH—To enable research workers to acquire experience abroad in research or in research techniques when openings for the training they require are limited or non-existent in their own countries; to promote the exchange of scientific knowledge by enabling investigators to visit one or more scientists in other countries who are working in similar fields, for exchange of ideas, discussion of techniques and analysis of findings; and to supplement the cooperative research projects of the WHO programme by assisting projects, proposed by individual investigators, that are relevant to the Organization’s research programme.

SHS 002 Project systems analysis (1969-75) R—To apply the techniques of systems analysis and action research to providing a detailed, consistent methodology for the formulation of development projects; identifying management techniques for development projects so as to make them susceptible of monitoring, control and evaluation; specifying information system requirements for the support of project management; and proposing methods and mechanisms for propagating the development project concept, methodology and supporting systems.

Assistance was given in project formulation, development and implementation and in country health programming in the areas of rural health, maternal and child care, water supply and sewerage, health manpower, population planning, malaria eradication, drug distribution, and health information, in a total of 16 countries in all WHO regions. Workshops were organized and several man-months of WHO staff or consultant services were provided in each country concerned.

SHS 015 Health services development institutes (1968- ) R VG UNDP—To set up a chain of research and development institutes for the purpose of assisting national health administration in programming the activities of health services and in developing them progressively, in accordance with changing social, economic and epidemiological situations in such a way as to improve their efficiency and effectiveness and enable them to satisfy to a greater extent the needs of the population. The first institute of this type to be set up is based on the Institute of Public Health Research, University of Teheran. A further institute has been established in Surabaya, Indonesia.

SHS 024 Methodological study on behavioural and operational components of health intervention programmes, Rotterdam (Netherlands) and Kaunas (Lithuanian SSR) (1970-75) VG—To investigate methodological problems involved in a health intervention programme, using cardiovascular diseases as the intervention vehicle, with the specific objective of ascertaining the factors that determine (i) which individuals among those identified in a population as being at risk will participate in an intervention programme; (ii) successful adherence to the programme; (iii) the relationship of the cost of undertaking such a programme to the benefits in terms of the proportion of individuals who will be at less risk through intervention, by developing a cost-effectiveness model.

WHO’s contribution to this study, carried out in cooperation with two research teams, one from the Municipal Health Department of Rotterdam, the other from the Kaunas Medical Institute, consists of making available epidemiological, sociological and statistical advice and coordinating the data-processing methods used in both study areas.

SHS 027 Study on planning, programming, design and architecture of hospitals and other medical care facilities in developing countries (1974- ) R—To provide, at all phases of the provision of health care facilities, guidelines that will enable health authorities (i) to appraise the current situation and formulate short-term and long-term plans; (ii) to issue instructions regarding the types of hospitals needed; (iii) to prepare regulations, licensing requirements or recommendations concerning architecture, area per bed, equipment, hygiene, disinfection and environmental sanitation, etc.; and (iv) to select appropriate plans.

SHS 030 Community involvement in solving local health problems (1973-77) R VG—To establish a trial system for the provision of health care and the promotion of social wellbeing in the Wenchi and Nkoranza/Technich districts of Ghana by the encouragement of community action as an integral part of rural community development, and by strengthening the existing system for health care delivery; to measure the effectiveness of such an approach; and to gain experience in the planning and implementation of projects for health care delivery in other parts of Ghana and in other countries.

PPF 001 Advisory team on the health aspects of family planning (1970- ) UNFPA—To give technical support to intercountry and country-based staff for the formulation and implementation of country health/family planning programmes; to review the existing situation of family health activities in various geographical areas; and to participate in interagency missions to assist in appraisal of the contribution of the health sector to national population programmes.

PPF 002 Synthesis of knowledge and information exchange on human reproduction, family planning and population dynamics (1974- ) UNFPA—Through meetings, seminars, workshops, conferences, and other group activities, to promote (i) exchange of information and experiences on the development of existing family planning/maternal and child health programmes; (ii) analysis of collaborative research and studies on specific aspects of family planning and population dynamics; (iii) analysis of special areas, leading to technological or subprogramme development in terms of future research, training and service activities; and (iv) collection and dissemination of information.

MCH 001 Advanced course in maternal and child health for senior maternal and child health administrators, Warsaw (1 Sept.- 23 Oct. 1975) R UNICEF—To provide maternal and child health administrators in key positions with up-to-date knowledge and skills in the planning, delivery, management and evaluation of maternal and child care, including family planning. This course, the last in a series of 8 courses started in 1964 and based on
the National Research Institute for Mother and Child, Warsaw, had participants from 11 countries. Provided—2 consultants and a temporary adviser.


MCH 004. Collaborative studies on development of methodology for identification and assessment of high risk factors affecting mothers and children in various settings (1974-78) R UNFPA—In preparation for the implementation of studies in 1976, a consultation on identification and assessment of high risk for development of intervention strategies in maternal and child care, including family planning, was held in Geneva with 6 participants (temporary advisers) from 10 to 16 December 1974. And, on the basis of the report of the consultation, entitled "High risk and resource allocation in mother and child health services", a meeting with 8 participants (temporary advisers), also held in Geneva (21-26 Sept. 1975), produced a definition of the concept of the "risk approach" in the delivery of maternal and child health and family planning care and prepared guidelines for the development of local protocols to use this approach. WHO also provided a consultant and the services of headquarters staff members for the meeting.

MCH 011. Collaborative research on patterns and trends in breast feeding and factors influencing them (1974- ) UNFPA VG (SIDA)—To study the frequency and duration of breast feeding and the biological and psychosocial factors influencing breast feeding practices, including quality and quantity of breast milk, and lactation, reproduction and nutrition.

Visits were paid by consultants and staff members to 8 of the centres (Chile, Ethiopia, Guatemala, Hungary, India, Lebanon, Nigeria, Philippines, Sweden and Zaire) which are associated in the first phase of the study, and two meetings of 5 temporary advisers were held in Geneva (12-14 May and 12-14 Nov. 1975) to prepare protocols for later phases.

MCH 012. Support to specific family planning aspects of health services, including the maternity-centred programme (1970- ) UNFPA—To assist countries in the integration of family planning activities into health services, particularly maternal and child health services, and strengthening technical and administrative aspects and training (see also projects PPF 001 and 002), emphasizing the following programme areas: (i) the integration of family planning and maternal and child health services; (ii) subfertility, abortion, sterilization; (iii) reproductive health care needs of adolescents; (iv) specialized training in fertility management, and (v) education of health professionals in matters of human sexuality.

HRP 005. Epidemiological research on human reproduction (1967- ) R

HRP 006. Biomedical research on human reproduction (1967- ) R

HRP 008. Supplies for collaborating laboratories (1969- ) R

VH

HRP 016. Task forces for collaborative research on the development of fertility-regulation agents (1972- ) VH

HRP 017. Research training (1972- ) VH

HRP 018. Meetings and publications on human reproduction (1972- ) VH

HRP 019. Consultant services in human reproduction to research institutions (1972- ) VH

HRP 020. Services to research in human reproduction (1972- ) VH

HRP 029. Epidemiological research on health aspects of family planning (1970- ) UNFPA

HRP 030. Research team on evaluation of fertility control methods (1972-76) UNFPA—To carry out research on the acceptability, effectiveness, side-effects and use of fertility-regulating agents; to advise responsible authorities on the conduct of clinical trials of such agents and the assessment of their results; and to assist with relevant training programmes.

HRP 031. Operational research on family planning care in health services (1970- ) UNFPA

NUT 008. Collaborative research on nutritional anaemia (1961- ) R (IAEA)—To study the influence of malnutrition on the various defence mechanisms of the organism.

NUT 011. Testing of new protein foods (1966- ) R—To test new weaning food formulations as to acceptability, tolerance and nutritional value.

NUT 012. Collaborative study on anthropometry as related to nutritional status (1968- ) R—To conduct periodical anthropometric surveys in various countries in order to identify long-range trends affecting nutritional status.

NUT 014. Collaborative study on utilization of new protein resources (1969- ) R—To study the factors responsible for the disease and their prevention with a view to the safe use of broad beans (Vicia faba) in the production of weaning foods.

NUT 015. Collaborative study on prevention of vitamin A deficiency (1972- ) R

NUT 016. Collaborative study on prevention of protein-calorie malnutrition (1973- ) R—To study ways of combating the early stages of malnutrition, including supplementary feeding, nutrition education, immunization against diseases of childhood and early treatment of dehydration.

NUT 018. Studies on nutritional megaloblastic anaemias (1966- ) VG (Wellcome Trust)—To study malabsorption syndromes and their secondary effects.

HED 001. Multidisciplinary study on motivation in health behaviour (1971- ) R—To study various educational approaches and opportunities for encouraging desirable attitudes towards health and the use of available health services, both preventive and curative.

HED 002. Education of the public in family planning (1970- ) UNFPA—To provide countries with technical support and guidance in the education and communication aspects of family
planning, in order to achieve more systematic planning, implementation and evaluation of the services provided; and to promote intersectoral activities and extend WHO collaboration in health education with UNICEF, FAO, UNESCO, the International Planned Parenthood Federation, and other organizations, particularly as regards the health aspects of family life education, communications in family planning, and population dynamics.

A joint FAO/WHO workshop on educational aspects of family health and integrated rural development was held in Morogoro, United Republic of Tanzania (6-18 Oct. 1975), with 21 participants from 8 countries. A representative of UNICEF and UNESCO also attended the workshop. WHO provided 2 out of 4 temporary advisers, the cost of attendance of participants, and the services of staff from headquarters and the Regional Office for Africa, and from field projects.

**HMD 002 Exchange of teaching personnel (1972–75)** R—To enable teachers of medical and allied health sciences to exchange experience and discuss teaching problems. Provided—grants and travel costs.

**HMD 007 Collaborative research on education of health personnel (1973– )** R—To develop collaborative research covering the whole field of health manpower development, with special regard to manpower planning, and educational planning, methodology and evaluation.

**HMD 008 Collaborative research on educational technology (1974– )** R—To explore the application of recent advances in technology to educational and supervisory problems in the health field; to develop cataloguing systems and reference collections to permit easy transfer of information on audiovisual materials between institutes; and to develop the resources of educational technology for the direct solution of educational problems such as large student numbers.

**HMD 011 Collection of information by collaborating institutions (1970– )** R—To collect and analyse information and carry out research on the organization and integration of postgraduate education and on the training of teachers of health personnel.

**HMD 017 Training course on modern methods of teaching nursing, Holte, Denmark (4 Aug.–13 Sept. 1975)** VK—There were 15 participants from 15 countries. Provided—2 temporary advisers, 11 lecturers including 3 WHO staff members, and fellowships for the participants.

**HMD 032 (formerly HMD 018) Monograph on health manpower planning: principles and methods (1974– )** UNFPA—To prepare a monograph to provide guidance in, and to promote, health manpower planning.

**HMD 033 (formerly HMD 019) Development of training programmes in specific fields of family planning, human reproduction and population dynamics for various categories of health personnel (1971– )** UNFPA—To develop programmes, incorporating family planning, for nursing and midwifery education at basic and postbasic levels and as part of all continuing education for nursing and midwifery personnel; to strengthen the capability of faculty members in curriculum analysis and development to achieve the above objective and assist them in the use of modern educational technology in teaching programmes in family planning; to prepare teaching materials and produce manuals, guides and models of instruction for different categories of nursing and midwifery personnel.

**HMD 034 (formerly HMD 022) Fellowships in health aspects of family planning, human reproduction and population dynamics for various categories of health personnel (1970– )** UNFPA—To assist in strengthening family planning services by preparing health personnel at all levels to assume teaching and organization responsibilities.

**HMD 036 Multinational study of the international migration of physicians and nurses (1975– )** R VD—To study the means of influencing trends in the migration of physicians and nurses to suit the national policies of Member States.

**HMD 038 Nonverbal communication project (1974–76)** VD—To explore how far nonverbal communication in the form of animated films can communicate an educational or promotional message in health across cultural barriers and at different educational levels.

**HMD 039 Travelling seminar on the training and utilization of medical assistants (feldshers) in the USSR (18 June–3 July 1975)** UNDP—The Seminar was held in Moscow, Ordzonikidze (North Ossetian ASR), and Gomel (Byelorussian SSR), for 17 participants from 14 countries. Provided—the services of 2 staff members as co-director and secretary of the Seminar.

**HMD 043 Courses for public health administrators (1975–79)** R—To assist in training public health administrators for key posts in national administrations (English-language courses).

**PPC 006 Seminars on immunization programmes (1975– )** R—To hold seminars in the context of the expanded programme on immunization in order to review the situation and needs with regard to immunization in countries by WHO region and discuss the planning, implementation and evaluation of programmes. Seminars were held in Damascus (30 Aug.–4 Sept. 1975) (24 participants from 19 countries of the Eastern Mediterranean Region), New Delhi (19-26 Nov. 1975) (15 participants from 9 countries of the South-East Asia Region), and Manila (9-15 Oct. 1975) (16 participants from 16 countries of the Western Pacific Region). Provided—the cost of attendance of participants and the services of staff members from headquarters and regional offices.

**PPC 009 Expanded programme on immunization (1973–75)** R—To increase as rapidly as possible the rate of immunization against the specific infectious diseases, mainly those of childhood, that respond to this method of prevention, and to assist in developing national immunization programmes.

**PPC 013 Poliomyelitis vaccine programme (1975– )** R—To supervise the production of vaccine from Sabin seed virus strains.

**PPC 019 Applied research on immunization programmes (1975– )** VI—To study economical means of ensuring regular and adequate immunization of susceptible children in urban and rural areas of a developing country.

**ESD 003 Courses in epidemiology and control of communicable diseases (1975) R UNDP**—A course was held in Moscow, in English, between 27 August and 22 October 1975 to train medical officers in basic practical epidemiology, in particular for the purpose of establishing a cadre of epidemiologists in communicable diseases in developing countries. Lecturers from the USSR, together with WHO staff members, assisted with the course, which included a field practice visit to the Stavropol and Alma-Ata regions. The course continued in Alexandria from 25 October to 18 December 1975, and included field training. Lecturers from Egypt and WHO staff members assisted. Provided—fellowships for 11 participants from 11 countries, lecturers, and administrative costs of host institutes.

A course, in French, similar to that outlined above, was held in Paris and Rennes from 15 October to 21 December 1974. Lecturers from France and WHO staff members assisted. After a few days at WHO headquarters, Geneva, the course continued
in Bobo-Dioulasso, Upper Volta, from 13 January to 15 February 1975. Provided—lecturers and administrative costs of host institutes. (Fellowships for the participants—13 from 10 countries—were awarded under other projects.)

A third course, in English, with similar objectives to the Moscow/Alexandria and Paris/Bobo-Dioulasso courses, was held in Prague from 1 September to 28 November 1975 and is continuing in Delhi from 8 December 1975 to 28 February 1976. Three staff members assisted with the Prague phase. (Fellowships for the participants—14 from 7 countries—were awarded under other projects.)

**MPD 001** Project promotion and evaluation services in malaria (1961–79) R VM—To make provision for technical advisers who can be assigned at short notice to assist in the planning, implementation and evaluation of malaria control and eradication programmes, in training staff in malaria control and to advise on special technical problems.

**MPD 002** Training programme for malaria and other parasitic diseases (1958–79) R VM—To acquaint national and international staff with techniques and evaluation procedures in epidemiology, prevention and control of parasitic diseases; to give special courses on parasitic diseases in schools of public health and of tropical medicine; and to provide individual training in related research, laboratory and field techniques.

**MPD 007** Collaborative research on methodology of malaria operations (1967–80) VM

**MPD 008** Collaborative research on biology of malaria parasites (1967–80) VM

**MPD 009** Collaborative research on epidemiology of malaria (1967–80) VM

**MPD 010** Collaborative research on chemotherapy of malaria and resistance of malaria parasites to drugs (1967–80) VM

**MPD 012** Field research on special epidemiological problems of malaria (1962–79) VM—To study all aspects of epidemiology of malaria in a savanna area of Africa; to prepare from the baseline data so obtained a mathematical model which will assist in indicating the attack measures of choice aiming at the interruption of transmission of malaria and against which the results obtained may be assessed; to recommend the future approach to malaria control in savanna areas of Africa; and to provide training facilities for research and laboratory workers on the methods and techniques applied in this project.

**MPD 013** Collaborative research on schistosomiasis (1960–80) R

**MPD 014** Collaborative research on onchocerciasis and other filarial infections (1974–80) R

**MPD 015** Collaborative research on trypanosomiasis (African and American) and leishmaniasis (1974–80) R

**MPD 017** Collaborative research on chemotherapy of and laboratory techniques in helminthic infections, intestinal protozoa and fungi (1974–80) R

**MPD 023** Field investigations on filarial infections (1968–74) R—To carry out applied research on major problems in regions where filarial infections are most prevalent. Provided—an entomologist (1972–74) and consultants.

Initially consultants were employed, instead of the filarial diseases research team of an epidemiologist and an entomologist originally planned, to investigate the incidence of *Wuchereria bancrofti* in Brazil, Guyana, Guadeloupe and Surinam; surveys were made in 1970 on the filariasis situation in Réunion, and in 1972 on the ecology of vectors of *W. bancrofti* in the United Republic of Tanzania.

Consultants also visited islands in the South Pacific, including Tonga, Fiji, and Western Samoa, in 1971, 1972 and 1973 to study the *Aedes scutellaris* group of filarial vectors as part of a long-term programme on field and laboratory research. They also investigated new techniques for detection of microfilaria in the blood.

From 1972 the entomologist, stationed in Tonga, carried out vector distribution surveys for taxonomic studies, mainly on the *A. scutellaris* group, in collaboration with the Smithsonian Institute, Washington DC, and the Division of Medical Entomology of Johns Hopkins University, Baltimore, MD, USA. Investigations on Bancroftian filariasis were carried out which related recent infection rates among the population to those in the vector. Observations on *A. aegypti* extended to establishing indices for the dengue outbreak.

Consultants further studied filariasis in India and Indonesia in 1972 and onchocerciasis in the Sudan in 1973, while a comparative histopathological study of skin lesions in onchocerciasis was carried out on visits to Congo, Ethiopia, Guatemala, the United Republic of Cameroon, and Yemen in 1972. Serological studies on onchocerciasis were carried out on visits to the United Republic of Cameroon and Upper Volta in 1974.

Consultations were held in 1973 on the classification of eye lesions caused by onchocerciasis and their differential diagnosis, and on standardization of protocols for onchocerciasis studies, and, in 1974, on treatment of ocular onchocerciasis.

The project has added considerably to the knowledge of the epidemiology of Bancroftian filariasis in the Americas, the South Pacific, India and Indonesia, and has helped to improve techniques for detecting the disease. It has also contributed to research on onchocerciasis.

From 1975, activities related to those of this project are being carried on under project Interregional MPD 025, Study on the epidemiology and control of filariasis in relation to urbanization (below).

**MPD 024** Survey of parasitic diseases in relation to man-made ecological changes (1974–79) R—To develop principles and methodologies for reducing the risk of spread of certain parasitic diseases associated with the environmental changes occurring around man-made lakes and irrigation schemes.

**MPD 025** Study on the epidemiology and control of filariasis in relation to urbanization (1974–79) R

**MPD 026** Course on epidemiology and control of schistosomiasis, Mwanza, United Republic of Tanzania (21 July–15 Aug. 1975) VK—To provide a sound background in various aspects of schistosomiasis control, namely, snail biology, use of molluscsicides, chemotherapy, and sanitary engineering, as a basis for more specialized knowledge in order to increase the effectiveness of control measures applied by the staff of national services. There were 13 participants from 12 countries in 3 WHO regions. The Director of the East African Institute for Medical Research, Mwanza, directed the course jointly with a WHO consultant. Provided—a consultant and 3 temporary advisers as lecturers, and the cost of attendance of participants.

**MPD 028** Research on the epidemiology of schistosomiasis in man-made lakes (1971–81) UNDP VG (Edna McConnel Clark Foundation)—To undertake research for the development of effective and economical methods of schistosomiasis control in man-made lakes; in particular (i) to study the ecology and epidemiology of schistosomiasis in such lakes; (ii) to carry out preliminary control trials in the field; (iii) to make recommendations on methods of schistosomiasis control in man-made lake conditions; and (iv) to provide training in schistosomiasis research and control under those conditions.
MPD 029 Control of Chagas' disease through housing improvement (1974-79) VG (Edna McConnel Clark Foundation)

MPD 030 Research on selected parasitic diseases (1975-79) VD (SIDA)—To develop and apply new diagnostic methods, chemotherapeutic agents and vaccines, to strengthen research on diseases of the tropics in the countries affected by them, and to train the necessary scientific and technical staff.

MPD 031 Applied research on trypanosomiasis epidemiology and control (1975-81) UNDP (FAO)—To define a strategy for the control of trypanosomiasis in the moist savanna zone of tropical Africa where it is an obstacle to socioeconomic development.

SME 003 Smallpox surveillance and assessment team (1970- ) R VS—To support the intensified surveillance activities before and after interruption of smallpox transmission.

During the period under review assistance was provided to Bangladesh, Ethiopia, and India.

SME 004 Collaborative research on epidemiological and laboratory characteristics of human and animal poxviruses and on vaccine administration (1967- ) VS

BAC 002 Collaborative research on development of bacterial vaccines (1959- ) R—To develop new and improved bacterial vaccines and combined antigens for use in immunization programmes and more reliable potency tests for common bacterial vaccines, and to evaluate their effectiveness and safety in the laboratory and in the field.

BAC 003 Collaborative research on cerebrospinal meningitis, streptococcal infections and plague (1964- ) R—(1) To test the efficacy of new polysaccharide vaccines in the control of cerebrospinal meningitis in field studies in endemic areas; to undertake laboratory studies of Neisseria meningitidis isolated in those areas and its resistance to drugs; and to develop more effective therapeutic procedures. (2) To study the etiology and epidemiology of streptococcal infections and their sequelae (rheumatic heart disease and glomerulonephritis), particularly in developing countries; and to investigate the occurrence of M types of group A streptococci with a view to the development of a vaccine. (3) To study the epidemiology of plague in its natural foci with a view to improving surveillance and control.

This project is the result of merging the original projects Interregional BAC 003, BAC 006, and BAC 007, for collaborative research on cerebrospinal meningitis epidemiology and control, on the epidemiology of streptococcal infections, and on plague, respectively.

BAC 004 Collaborative research on cholera (1964- ) R—To make laboratory and field studies on the immunology of cholera for the improvement of cholera vaccines, and studies on the genetics of vibrios; to develop techniques for the surveillance of cholera cases and carriers; to study the pathogenesis and pathophysiology of cholera; to carry out studies on treatment of cholera, particularly on oral rehydration; to search for a suitable chemoprophylactic agent; and to develop suitable methods for short-, medium- and long-term sanitation measures.

BAC 005 Collaborative research on enteric infections (1965- ) R—To develop improved oral and parenteral immunizing agents; to devise simple laboratory techniques for isolation and identification of enteric pathogens; to study the resistance of enteric bacteria to antimicrobial agents; and to improve and simplify methods of treatment.

BAC 021 Cholera control team (1964- ) UNDP—To render emergency assistance to Member States in controlling outbreaks of cholera; to help them, by training local medical and auxiliary personnel, to improve national capabilities for developing short-term and long-term programmes of surveillance of diarrhoeal diseases including cholera, for providing treatment and for improving sanitation; and to assist in local production of intravenous and oral rehydration fluid and of cholera vaccines.

BAC 022 Seminars and courses on cholera control (1965- ) UNDP—The following took place during the period under review:

A seminar on new trends in diagnosing and treating the diarrhoeal syndromes was held in Spanish in Guatemala (24-29 Nov. 1975), to provide training in modern methods of diagnosis for surveillance of acute diarrhoeal diseases, including cholera, and in the treatment of such diseases, with emphasis on oral rehydration. There were 28 participants from 6 countries in Middle America. Provided—a consultant, the cost of attendance of participants, the services of 2 staff members, and supporting services.

A course on epidemiological aspects of cholera and other acute diarrhoeal diseases scheduled to be held in English in Bangladesh in November had to be cancelled at the last moment when some participants were already on the way.

BAC 023 Travelling seminar on plague control, Moscow, Stavropol and Ashkhabad, USSR (11-27 Sept. 1975) UNDP—The purpose of the seminar, a follow-up of that conducted in Iran and the USSR in 1970 under project Interregional 0474, was to acquaint epidemiologists and bacteriologists with laboratory and field methods of investigation and control, as well as with theoretical and practical aspects of plague surveillance. Provided—3 temporary advisers, the services of a staff member, the cost of attendance of 17 participants from 17 countries, and supplies and supporting services.

BAC 024 Collaborative research on cerebrospinal meningitis (1974- ) VD—To carry out laboratory and field studies of the effectiveness of various types of vaccine. A study group on cerebrospinal meningitis control was held in October 1975 (see Part I, para. 4.158).

MBD 002 Collaborative research on Mycobacterium leprae (1959- ) R VL—To study the morphology, biochemistry, antigenic composition and metabolic requirements of M. leprae and related mycobacteria, animal transmission and in vitro cultivation; to produce M. leprae in large quantities for the development of a specific skin test and of vaccine; to screen drugs and assess drug resistance; and to develop animal models.

MBD 003 Collaborative research on antileprosy drugs (trials) and chemoprophylaxis (1960- ) R VL—To test the effectiveness, tolerance and optimum dosage of antileprosy drugs, intensify research on alternative, fast-acting and inexpensive chemotherapeutic compounds or combinations of drugs, and to determine the long-term effects and feasibility of chemoprophylaxis.

MBD 004 Collaborative research on immunology of leprosy (1969- ) R VG—To study immunological patterns in leprosy, including cell-mediated immunity, humoral immune responsiveness and complement variation; to develop simple tests of the immune response and of infection; to develop immunotherapeutic methods; and, in the long term, to prepare and test a specific vaccine.

MBD 005 Collaborative research on epidemiology of leprosy including genetics (1962- ) R—To study the natural pattern of distribution of leprosy and its causes, transmission and spread, and to carry out genetic investigations, including twin studies.
MBD 007 Collaborative research on pathology of leprosy (1961– ) R—To study the interrelationships of M. leprae and its host cells in humans and animals with a view to the development of new therapeutic methods.

MBD 013 Leprosy/BCG trial, Burma (1964–75) R VL—To carry out a trial to assess the value of BCG vaccination in the prevention of leprosy in the child population and obtain information on epidemiology, immunology, bacteriology, therapy and clinical aspects of leprosy in the total population.

MBD 014 Collaborative research on chemotherapy of tuberculosis (1966– ) R—To carry out controlled clinical trials in different parts of the world in order to evolve standardized and acceptable treatment regimes for human application in national tuberculosis control programmes.

MBD 015 Collaborative research on tuberculosis epidemiology and surveillance methodology (1960– ) R—To follow the epidemiological trend of tuberculosis in various countries and develop a methodology for the surveillance of the disease.

MBD 016 Collaborative research on tuberculosis immunization (1966– ) R—To study various vaccination techniques, investigate the allergenic property of BCG and carry out multipurpose vaccination trials.

MBD 017 Collaborative research on microbiology of mycobacteria (1967– ) R—To endeavour to standardize and simplify laboratory methods for the detection and identification of pathogenic mycobacteria.

MBD 019 Services supporting specific tuberculosis research activities (1967– ) R—To provide on request mycobacterial antigens, mycophages, and immune sera to research institutions.

MBD 027 Tuberculosis prevention trial, Madras, India (1965–85) VK (Indian Council for Medical Research) (United States Public Health Service)—To measure the protective effect in man of various BCG products in developing countries with a high level of specific and unspecific infection.

VIR 006 Collaborative research on epidemiology of respiratory virus infections (1960– ) R—To carry out studies of infection by influenza viruses in man and animals and provide training for laboratory work in national centres.

VIR 007 Collaborative research on trachoma (1958– ) R—To carry out studies on the metabolic and antigenic properties of the trachoma agent, collaborative studies on the laboratory diagnosis of the disease, and laboratory and field studies on antibiotic treatments.

VIR 008 Collaborative research on viruses and rickettsiae in the tropics, and allied subjects (1968– ) R—To determine the distribution and importance of viral diseases. Emphasis is placed on studies of viral hepatitis, measles, the prevalence of arboviruses, and on poliomyelitis vaccine.

VIR 009 Collaborative research on virus and rickettsial vaccines and other prophylactic agents (1962– ) R—To prepare and store type 2 poliovirus vaccine seed of proved stability; and to carry out studies of poliovirus vaccine type 3 and of yellow fever vaccine.

VIR 011 Preparation, standardization and distribution of laboratory reagents for virus and rickettsial laboratories (1962– ) R

VIR 013 Team for special studies in virology, Africa (1968– ) R—To conduct research on viral diseases of public health importance in tropical regions, to collect and disseminate information on such diseases, participate in collaborative studies, contribute to diagnostic services for hospitals, and train local personnel.

VIR 028 Workshop for national influenza centres, Kuala Lumpur (17–21 Nov. 1975) R—To introduce newly developed techniques for implementing the surveillance of influenza and detecting influenza virus strains, and to exchange information on current problems of influenza prevention, treatment and surveillance. There were 12 participants from 10 countries, most of them directors of national influenza centres in the South-East Asia and Western Pacific Regions, and 4 lecturers from WHO collaborating centres for reference and research on influenza in London and in Atlanta, GA (USA), and from WHO headquarters. WHO also provided the cost of attendance of all the participants.

VDT 005 Collaborative research on the bacteriology, immunology and epidemiology of Neisseria gonorrhoeae (1968–78) R—To make comparative studies of bacteriological and serological techniques with a view to their standardization; to identify antigenic structures and study biotypes; to carry out epidemiological studies of gonorrhoea and assess methods of treatment and new drugs; and to determine cellular and humoral responses to N. gonorrhoeae or to antigenic fractions with a view to serological diagnosis and specific immunization.

VDT 008 Collaborative research on treponematoses (1968– ) R—To study the biology, biochemistry, immunology and serology of treponematoses and the treponeme/host relationship, in particular the cellular and humoral responses to treponemes or to antigenic fractions.

VDT 012 Field research in seroepidemiology of treponematoses (1968–78) R—To participate in epidemiological research on patterns of regression and recrudescence of endemic treponematoses (yaws and endemic syphilis) and advise on the epidemiological surveillance of these conditions, to assist health administrations in assessing the outcome of previous mass penicillin campaigns against them; to undertake immunological surveys to determine low-level transmission and the recrudescence potential for the invasion by venereal syphilis of previously endemic treponematoses areas; to furnish representative serum collections for use in immunological studies of treponematoses by collaborating laboratories and assess the suitability for field use of immunological tests for the treponematoses; and to provide serum collections for multipurpose immunological studies in other WHO programmes. These aims were extended to include assessment of the situation with regard to sexually transmitted diseases, in particular gonorrhoea and urethritis; serological surveys on virus infections (viral hepatitis, arboviruses), bacterial infections (brucellosis), parasitic diseases (trypanosomiasis) and studies in human genetics, child nutrition and dental health.

VPH 004 Collaborative research on the antigenic and epidemiological relationship between influenza viruses occurring in animals and man (1963– ) R

VPH 005 Collaborative research on the improvement of rabies vaccines for man, and control of rabies in wildlife (1959– ) R

VPH 006 Collaborative research on various zoonoses (1959– ) R—To carry out research on the diagnosis, epidemiology, control and surveillance of various zoonoses, including leptospirosis, toxoplasmosis and other parasitic zoonoses.

VPH 007 Collaborative research on comparative medicine (1960– ) R—To carry out research on teratological conditions, cardiovascular diseases, and neurological diseases and other conditions of animals that are analogous to human diseases.

VPH 008 Collaborative research on neoplastic diseases of animals (1975– ) R
VPH 009 Collaborative research on food hygiene (1962- ) R—To carry out research on food hygiene, including methods for determining the epidemiological pattern of foodborne pathogens and for their control, the standardization of microbiological laboratory methods, and the development of microbiological standards for foods.

VPH 010 Collaborative research on brucellosis (1959- ) R—To carry out research on the epidemiology, diagnosis, control and elimination of brucellosis, with particular attention to vaccination and surveillance of the disease.

VPH 011 Collaborative research in comparative virology (chlamydiae and mycoplasmas) (1961- ) R—To characterize animal viruses and establish typing systems and reference reagents in order to facilitate their comparison with viruses pathogenic for man.

VPH 012 Collaborative research on the socioeconomic consequences of zoonoses in countries at different stages of development (1974- ) R

VPH 022 Collaborative research on wildlife rabies (1968- ) VG—To carry out such research on a regional basis, as well as research on techniques for the assessment of immunization programmes and fox control operations.

VPH 028 Collaborative research on cysticercosis and echinococcosis (1974- ) R

VBC 003 Collaborative research on chemical control of vectors (1953- ) R—To carry out studies on the control of vectors and evaluate new pesticides emanating from the WHO evaluation and testing programme.

VBC 004 Collaborative research on rodent biology and control (1968- ) R—To carry out studies on the ecology, biology and control of rodents, with particular emphasis on the screening of new rodenticides in the laboratory and in the field.

VBC 005 Collaborative research on equipment for the application of vector control agents (1959- ) R—To test and report on various items of pesticide application equipment with a view to their suitability for making safe and effective pesticide application; and to carry out research on and develop new or improved forms of pesticide application techniques.

VBC 006 Collaborative research on the insecticide resistance and vector control aspects of international health (1953- ) R—To carry out research on problems relating to insecticide resistance, especially the cross-resistance spectrum and the speed of development of resistance to new compounds; to provide WHO standard resistance test kits; and to make investigations on the vector control aspects of international health and disinsecting of aircraft.

VBC 007 Collaborative research on chemistry and formulation of pesticides (1968- ) R—To study the chemical behaviour, methods of analysis, and formulation of pesticides.

VBC 008 Collaborative research on toxicology and safe use of pesticides (1968- ) R—To develop safe application procedures and protective clothing, and methods for the diagnosis, treatment and prevention of cases of poisoning, with emphasis on newly developed pesticides and techniques of application.

VBC 009 Collaborative research on biological control of vectors (1973- ) R—To screen and evaluate potential biological agents (viruses, bacteria, protozoa, fungi, nematodes, and predacious insects and fish) for the control of insects of public health importance; and to test these in the laboratory and in the field and prepare technical protocols.

VBC 010 Collaborative research on the ecology and surveillance of vectors and mammalian reservoirs (1969- ) R—To make surveys of and map densities and distribution of certain vectors of public health importance, as part of the Organization's programme on surveillance; and to carry out studies on the ecology of vectors and reservoirs and interpret seasonal and annual variations.

VBC 011 Collaborative research on pesticide epidemiology (1975- ) R—To study results of human exposure to pesticides in agriculture and relate the findings to protective measures in tropical areas.

VBC 023 Collaborative research on Simulium and Glossina control (1975- ) R—To study biodegradable compounds for the control of onchocerciasis and trypanosomiasis vectors, developing insecticides, equipment and procedures, and testing the insecticides for safety of man and non-target organisms, and for possible contamination of the environment.

VBC 024 Anopheles Control Research Unit No. 1, Kaduna, Nigeria (1960- ) R—To carry out hut trials and village-scale field trials of new insecticides of potential value in malaria programmes; and to perform research on the ecology, biology and control of human malaria vectors and on the operational feasibility of biological and genetic control of anopheline mosquitoes.

VBC 025 Vector and Rodent Control Research Unit, Jakarta (1973- ) R—To study (i) the ecology, biology and distribution of insect vectors of disease; (ii) the distribution, ecology and population dynamics of urban and commensal rodents, and (iii) techniques for the control of insect vectors and animal reservoirs of disease. (See also project VBC 050 below.)

VBC 026 Anopheles Control Research Unit No. 2, Kisumu, Kenya (1966- ) RV M—To carry out extended field evaluation of insecticides for use in malaria programmes on a sufficiently wide scale to assess the potential value of these compounds for countrywide application.

VBC 027 Arbovirus Vector Research Unit, Enugu, Nigeria (1973- ) R—To study the ecology, distribution and extent of arbovirus vectors and hosts in Africa, with special reference to vectors of yellow fever, chikungunya, o'nyong'nyong and dengue; to carry out basic and operational research for developing suitable methods of controlling these vectors by both chemical and biological agents; and to contribute, as required, to investigations on the biology and control of major vectors other than mosquitoes.

VBC 028 Research Unit on the Genetic Control of Mosquitoes, India (1969-1975) RV G—To conduct research into the feasibility of controlling Culex fatigans, Aedes aegypti and Anopheles stephensi on an operational scale by genetic manipulation. The Research Unit was provided with a project leader, an entomologist, an ecologist and 6 administrative and clerical staff. National staff, comprising scientists, laboratory assistants, labourers, drivers, etc., were seconded by the Indian Council of Medical Research (ICMR). Annual review and planning meetings from 1971 brought together members of the ICMR, the National Institute for Communicable Diseases in Delhi, and the United States Public Health Service, and 3 to 4 consultants—geneticists and entomologists from various countries—as well as staff from WHO headquarters and the Regional Office for South-East Asia. Methods were developed for the rearing, separation of the sexes, radiation or chemical sterilization and releasing of sterile male mosquitoes at the rate of several hundred thousand per day. Methods were also developed and regularly used for monitoring mosquito population densities. The mobility of adults and the larval mortality in relation to density were studied
because of the vital importance of these factors to the success of genetic and other forms of control. Measurements were made of the ability of sterile males of several species of *Culex* to compete for mates in the field, and the introduction of high levels of egg sterility into *C. faiilans* populations was demonstrated by the release of chemically sterilized or cytoplasmically incompatible males, or males sterilized by radiation.

**VBC 030 Chagas' Disease Vector Research Unit, Venezuela (1973- )** R—To investigate the biology, ecology, distribution and population densities of the domestic and sylvatic Triatominae vectors of Chagas' disease; to carry out field trials of insecticides and biological and environmental methods for the control of the vectors; to assess the effects of such trials on the transmission of the disease in reservoir and human populations; and to study the ecology and distribution of animal reservoirs of the disease.

**VBC 034 Course on the biology and control of vectors and rodents in urban areas, Kingston, Jamaica (17-28 Nov. 1975) UNDP VK**—To provide information on the ecology of and elaborate principles for the control of rodents of public health importance (particularly rats) and to demonstrate modern methods of control with special reference to conditions in the Americas; and to review the biology of the most important urban mosquito and houlessly populations and discuss and demonstrate methods of control. Special instruction on the organization of municipal vector control services was given, with special attention to the biology and control of mosquitoes of public health importance in the Caribbean area, and more particularly *Aedes aegypti*. There were 19 participants from 14 countries in the Region of the Americas. Provided—the services of staff members from headquarters, a scientist-entomologist from the WHO Chagas' Disease Vector Research Unit, and project staff (an engineer, a sanitary and animal health officer and a scientist-entomologist) from the Region.

**VBC 043 Rodent Control Demonstration Unit, Rangoon (1975- ) VK**—To study the ecology, population dynamics, densities, species interactions and public health importance of rats in Rangoon, to develop effective and economic techniques for rodent control, and to carry out a large-scale control trial as a model for tropical cities.

**VBC 050 Vector and Rodent Control Research Subunit, Semarang, Indonesia (1975- ) VM**—In association with the main Unit in Jakarta (project VBC 025) to conduct field trials on the ecology and breeding, resting and feeding habits of *Anopheles*; to evaluate the effect of specific insecticides as residual sprays for use on walls for malaria control; and to carry out studies before, during and after spraying operations.

**VBC 051 Applied research on Glossina and Simulium control (1975- ) R**—To study the biology and control of arthropods transmitting diseases, especially the vectors of trypanosomiasis and onchocerciasis.

**CAN 007 Collaborative research on new immunodiagnostic procedures in cancer (1972- ) R**—To evaluate the clinical usefulness of new immunodiagnostic tests and to study immune responses to the malignant tissue itself.

**CAN 022 Collaborative research on standardization of hospital-based cancer registries (1975- ) R**—To ensure comparability of cancer data reported by hospitals and cancer institutes in different countries, using parameters adjusted to different types of cancer control evaluation and to the requirements of cancer services.

**CAN 025 Course on cervical cytology, Copenhagen (22 Sept.-13 Dec. 1975) VK**—To provide an introduction to cervical cytology for countries interested in developing cytology services for cancer control in family planning programmes. The course encompassed the study of hormonal, inflammatory and malignant changes in the cervix uteri by means of cytological smears; cytopreparatory techniques; the organization of a cytological laboratory and of a screening programme; an introduction to epidemiology, registration, and the use of a standardized nomenclature; and the treatment of premalignant and malignant lesions. There were 8 participants from 8 countries. Provided—2 lecturers (one temporary adviser), and 8 fellowships for the participants.

**CAN 029 International Histological Classification of Tumours (1972- ) VN**—To accelerate the classification.

**CVD 002 Meetings of investigators on the prevention of ischaemic heart disease (1966- ) R**—To assess the WHO-sponsored prevention trial on ischaemic heart disease—a double-blind trial, covering 15,000 people, in which the lowering of blood cholesterol is evaluated in terms of its effect on subsequent ischaemic heart disease.

**CVD 004 Meetings of investigators on the community control of arteriotension and stroke (1975- ) R VR**—To assess the interim results of the WHO-assisted community control project started in 1971.

**CVD 005 Collaborative research on atherosclerosis (1969- ) R**—To clarify the etiology of the condition through studies, carried out in various population groups differing as regards the incidence and prevalence of atherosclerosis and which are at different socioeconomic and technological levels.

**CVD 006 Collaborative research on cardiomyopathies (1963- ) R**

**CVD 007 Collaborative research on rheumatic heart disease (1966- ) R**—To make studies on the prevalence, control and surveillance of rheumatic fever and streptococcal infections in children of school age and in adults.

**CVD 008 Collaborative research on arterial hypertension (1966- ) R**—To carry out studies to determine the feasibility and the effectiveness of the control of hypertension in the community; and to assist in investigations into the pathogenesis and prevention of arterial hypertension.

**CVD 009 Collaborative research on ischaemic heart disease (1966- ) R**—To test preventive measures against ischaemic heart disease and carry out studies on etiological factors in different environments.

**CVD 010 Collaborative research on cerebrovascular diseases (1966- ) R**—To carry out studies on the main types of cerebrovascular lesions in populations living under different environmental conditions and differing as regards the frequency of ischaemic heart disease.

**CVD 011 Collaborative research on altitude and cardiovascular diseases (1966- ) R**—To carry out studies on the effect of high altitude on the development of hypertension and ischaemic heart disease.

**CVD 013 Supply of drugs and light laboratory equipment (1963- ) R**—To provide for the purchase of drugs, chemicals and minor apparatus needed to ensure the smooth operation of various projects.

**CVD 014 Field research on cardiovascular diseases (1968- ) R**—To continue field investigations in specific areas of Africa where natural situations are suitable for studying the prevalence and incidence of primary diseases of the heart, rheumatic fever, and hypertension, but where local personnel for undertaking such work are lacking.
**PROJECT LIST: INTERREGIONAL ACTIVITIES**

**OCD 003** Collaborative research on diabetes (1974-) R—To standardize clinical methods of investigating different diabetic populations; to study vascular diseases among diabetics and the factors involved in the development of vascular complications; and to establish 2 central laboratories for centralized blood sample examinations.

**OCD 004** Collaborative research on endemic nephropathy (1974-) R—To investigate the etiology and pathogenesis of endemic nephropathy, including environmental factors, and to develop methods for nephrological studies in the community.

**DNH 005** Study on etiology of dental caries (1972-) VN—In a field study of dental caries etiology the relationship between dental caries and 18 elements in food, soil, water, tooth enamel, plaque and saliva were examined. The continuation of the study will involve clinical laboratory experiments, animal experiments, and further epidemiological investigations.

**DNH 006** International collaborative study on dental manpower systems in relation to oral health status (1972-) VN

**DNH 008** Course in dental public health, Copenhagen (18 Aug.-4 Oct. 1975) VK—Sixteen fellowships for participants from 16 countries and the services of a staff member from headquarters were provided for a course organized in collaboration with DANIDA.

**MNH 002** Study in forensic psychiatry (1975-80) R—To study legal aspects of psychiatry, with particular emphasis on legislation relevant to mental health and on methods of diagnosis of mentally ill offenders and assessment of mental ill health; and to collaborate with United Nations bodies such as the Social Defence Research Institute, and with other organizations, in this field.

**MNH 006** Collaborative research on biological psychiatry (1974-) R (National Institute of Mental Health, USA)—To organize a long-term collaborative multidisciplinary programme for the study of the biological bases of affective psychosis and schizophrenia.

A working group on primary prevention of schizophrenia in high-risk groups was held in Copenhagen (9-12 June 1975) with 32 participants from 10 countries. Provided—the services of staff members.

**MNH 007** Social and epidemiological psychiatry (1974-) R—To carry out comparative studies of specific mental disorders in order to gain a better understanding of their form and natural history; and to develop methods for uniform evaluation of mental disorders in different cultures and for the collection and collation of statistics on mental disorders, in order to obtain a better picture of psychiatric morbidity in different countries with a view to assessing the need for different types of mental health services and evaluating their effectiveness.

**MNH 008** Programme development in the neurosciences (1974-78) R—To develop methods for collaborative research in the neurosciences, devise programmes for prevention and treatment of neurological disorders of major public health importance, and train research and teaching personnel.

**MNH 009** Psychosocial studies (1975-79) R—To study the psychological and social factors affecting health and health care, to identify and utilize resources for behavioural science in developing countries, and to apply knowledge about psychosocial factors in country health programmes, with particular attention to urban areas and resettlements and high-risk groups such as migrants and children.

**MNH 010** Programme development in mental health (1975-80) R—To develop programmes and training in mental health, devising strategies for the best use of limited resources for mental health services and plans for specific aspects of mental health, and to promote international cooperation in mental health care.

**MNH 013** International pilot study of schizophrenia (1971-78) VN (National Institute of Mental Health, USA) (Field research centres in Aarhus (Denmark), Agra (India), Cali (Colombia), Ibadan (Nigeria), London, Moscow, Prague and Washington, DC)—To develop reliable methods for the identification and assessment of functional psychiatric disorders, particularly schizophrenia, and for the study and description of their course; to answer some of the basic questions about schizophrenia; and to produce simple and reliable instruments for investigations of social, cultural, biological and genetic factors that can cause, influence or prevent schizophrenia and for epidemiological studies of mental disorders.

**MNH 014** Operational research in mental health care (1975-85) R—To evaluate low-cost, effective methods of mental health care in developing countries and to provide a rational basis for countries to improve and extend care.

**MNH 015** Study on chronic effects of long-term use of cannabis (1972-) UNFDAC—To determine the physical, mental and social consequences of the use of different cannabis preparations taken at various dose and frequency levels for different time periods; and to determine the feasibility of carrying out a definitive comparative study of the mental and physical status and interpersonal and social adjustment of long-term heavy cannabis users and appropriately matched nonusers.

**MNH 016** Study on the therapeutic effectiveness of maintenance in the management of narcotic-dependent persons (1972-) UNFDAC—To determine the changes in patterns of behaviour in different groups of narcotic-dependent persons when they shift from illegal to legal sources of supply of narcotics under differing levels of supervision and in different sociocultural settings.

**MNH 018** Drug abuse control in Thailand (1972-) UNFDAC (UN) (Government of Thailand)—To improve the personal and social functioning of drug-dependent persons; to reduce the prevalence and incidence of the nonmedical use of dependence-producing drugs; to stimulate the development of a flexible and dynamic system for preventive, therapeutic (including medical, vocational and social rehabilitation), after-care and follow-up activities that will foster continued planning and programme development; and to evaluate the effectiveness of various approaches and methods in achieving the above objectives.

**MNH 022** Collaborative research on epidemiology and management of drug dependence (1970-75) R—To study the effects of chronic exposure to the smoke of marihuana cigarettes on cell cultures of lung and testicular tissue in order to determine the possible pathological effects of cannabis.

**MNH 023** Collaborative research on dependence-producing drugs (1969-75) R—To investigate the development and the mechanisms of dependence on opium alkaloids in primates trained to smoke such substances voluntarily.

**MNH 024** Research and reporting programme on the epidemiology of drug dependence (1974-) UNFDAC—To determine the relative effective-
ness of methadone and other treatment regimes in the management of narcotic-dependent persons in Iran.

MNH 030 Pilot drug dependence treatment and evaluation project, Burma (1974–) UNFDAC—To establish pilot programmes in different places in Burma where drug-dependent persons might be "stabilized" prior to withdrawal of the drug or maintenance dosing, and to provide medical and social supporting services.

RAD 003 IAEA/WHO Seminar on Afterloading Techniques in Radiotherapy, Hyderabad, India (9-15 Feb. 1975) R—The Seminar provided 20 participants from 9 countries. WHO provided 5 temporary advisers and the cost of attendance of participants.

RAD 004 Collaborative research on radiological protection measures (1960–) R (International Commission on Radiological Protection)—To support the studies carried out by the International Commission on Radiological Protection on maximum permissible doses from radiation and maximum permissible exposure to radionuclides.

RAD 005 Collaborative research on measurement of radiation and radionuclides used medically (1960–) R (International Commission on Radiation Units and Measurements)—To collect and evaluate the latest data and information on problems of radiation measurements and dosimetry; to prepare recommendations on the most acceptable principles, terminology and methods for current application; and to study basic physical parameters and measurement techniques, as well as medical and biological applications and radiation protection measures.

RAD 007 Collaborative research on fundamental radiobiology (1964–) R—To study the cellular reaction of tumours and the tumour bed to different therapeutic doses of radiation, particularly with a view to a better understanding of the somatic and genetic effects of radiation, and its effects on connective tissue; and methods of assessing the effects on normal and tumour tissues.

RAD 021 Course on radiation protection, supervision and inspection, Holte, Denmark (21 July–16 Aug. 1975) VK—The course provided 17 participants from 16 countries. Provided—3 lecturers and the cost of attendance of participants.

HMG 004 Collaborative research on genetics of special population groups (1968–) R—To study chromosomal, biochemical or medical anthropological subjects in populations of genetic interest.

HMG 005 Collaborative research on clinical genetics (1969–) R—To carry out research into widespread hereditary conditions such as congenital deafness, blindness and other eye defects, and skeletal deformities and other congenital malformations.

HMG 006 Collaborative research on the molecular basis of inherited disease (1970–) R—To carry out research on the detailed biochemical mechanisms which result in inherited disease, and explore the possibilities for permanent correction of hereditary defects.

HMG 007 Collaborative research on population structure (1970–) R—To carry out research on the elements of population structure that are relevant to human genetics, their effects on gene frequencies, and the relationship between gene and genotype frequencies.

HMG 008 Collaborative research on immunogenetics (1969–) R—To make studies on the genetic control of immune responses in man and the localization of antigenic specificity in serum proteins and in tissues other than blood as related to problems of organ substitution.

HMG 011 Refresher course in human genetics for teachers in medical schools, Odense, Denmark (3-22 Nov. 1975) VK—To explain new developments in human genetics, including the genetics of the human leukocyte system, immunoglobulins, human chromosome mapping, population genetics and the prevention of genetic disorders. There were 11 participants from 10 countries. Provided—3 lecturers and the cost of attendance of participants.

HMG 006 Collaborative research on immunogenetics (1969–) R—To study the factors responsible for allergy, hypersensitive states, autoimmune diseases, and diseases produced by immune complexes or other immunopathological mechanisms; and to investigate the role of immunopathological mechanisms in the pathogenesis of infectious diseases, particularly parasitic diseases.

HMG 007 Collaborative research on immunodiagnostic methods (1964–) R—To study the chemical characterization of antigens and antibodies, including research on the structure and function of the different classes and subclasses of immunoglobulins; and to study complement and other serum components, other than immunoglobulins, involved in the immune response.

HMG 008 Collaborative research on basic immunological mechanisms (1966–) R—To carry on research on the mechanisms and control of antibody formation and cell-mediated immune response, tolerance, reaction to histocompatibility antigens, and characterization and role of immunologically competent cells; and studies on phagocytosis and other factors of natural resistance.

HMG 009 Collaborative research on immunodiagnostic methods (1963–) R—To develop or improve methods for the detection and quantification of humoral and cellular immune responses in man.

HMG 011 Supplies for collaborating laboratories (1964–) R—To provide for the purchase of small amounts of specific reagents and supplies for laboratories collaborating in the WHO immunology programme.

HMG 019 Development of research and training in immunology (1967–) R VD VG—To advise on training, organize courses in immunology and immunological techniques, and to collaborate in research and in developing regional training centres for research in immunology, especially as related to parasitic and other tropical diseases.

HMG 020 Standardization of immunological reagents (1973–) VD—To standardize immunological material used in clinical laboratories.
Collaborative research on properties of biological preparations and standardization of vaccines includes:

- **ISB 002 Collaborative research on standardization of vaccines (1963- ) R** - To carry out studies and international collaborative assays for the standardization of bacterial vaccines and toxoids.

- **ISB 003 Collaborative research on properties of biological preparations and standardization of pharmacological substances (1960- ) R** - To carry out studies on (i) preparations of penicillin and other antibiotics and materials for the standardization of hormones and hormonal substances; (ii) the long-acting properties of penicillin preparations; and (iii) properties of certain biological preparations (including rabies, cholera and pertussis vaccines) for evaluation and testing for control purposes.

ISB 004 Collaborative research on standardization of antisera and antitoxins (1964- ) R - To carry out research on the provision of standards for antisera and antitoxins, and studies on antivenins.

ISB 005 Collaborative research on biological assay techniques and working standards for biological substances and standardization of diagnostic reagents (1962- ) R - To carry out studies on various widely used biological preparations with a view to improvement of techniques of preparation and maintenance of materials and studies for the preparation of materials to serve as working standards for biological substances. Also to carry out studies of biological assay techniques for certain widely used biological preparations; and studies for the preparation of α and β subunits of luteinizing hormone; as well as research for the provision of reference preparations or reagents for diagnosis and identification, and for the replacement of the international standard for pertussis vaccine.

ISB 007 Collaborative research on standardization of effective use of antibiotics (1975- ) R

DEM 003 Assessment of drug consumption pattern (1973- ) R - To carry out a study on the methodology for assessing drug requirements in connexion with governmental health planning, and to prepare lists of drugs essential for health care, particularly in developing countries.

DEM 004 Collaborative research on criteria for drug safety (1973-80) R - To carry out studies required for the formulation of principles for the evaluation of drug efficacy and safety.

DEM 005 Collaborative research on monitoring of adverse reactions to drugs (1967- ) R - To carry out studies on the development of suitable methods for the systematic collection, recording and evaluation of data on adverse reactions to drugs; provide assistance to research in national and other centres for drug monitoring in Member States; and provide assistance in developing national drug monitoring systems, particularly in developing countries.

DEM 006 International monitoring of adverse reactions to drugs (1970- ) R - To carry out the operational phase of an international system for monitoring adverse reactions to drugs, utilizing the reports on adverse reactions to drugs that are recorded in the national and special drug monitoring centres in Member States.

LAB 001 Collaborative research on new laboratory technology (research and development) (1972- ) R - To carry out laboratory research in new and simple methods in clinical chemistry, haematology and microbiology and in the use of automation in laboratory technology.

LAB 003 International Committee on Laboratory Animals (1962- ) R - To carry out research in the care and breeding of laboratory animals and provide prototype animal strains.

LAB 005 Development of standards for medical laboratory diagnostic materials (1974- ) VG (Several nongovernmental scientific organizations)

BSM 001 Development of local materials and skills (1973- ) R - To support research or research-like activities that will produce an increased awareness of indigenous resources—both in men and material—and lead to an improvement in national capability in water supply engineering. (Examples of such studies are those on the use of bamboo pipes in water supply in both open-channel and pressurized applications, and to development of methods of review and evaluation for labour-intensive projects.)

BSM 004 Field research in environmental sanitation (1973- ) R - To undertake a number of micro-scale studies of innovative methods for reducing the cost of elements forming part of a water supply or wastes disposal system. (Examples of such studies are those to test the efficiency of conventional treatment processes in removing organic contaminants from water and to assess through field trials the sensitivity of waste stabilization ponds to changing climatic and geographical conditions.)


BSM 013 Hygienic and technical guidelines for water supply and waste water systems in buildings (1975- ) R - To collect and analyse information and prepare, primarily for developing countries, hygienic and technical guidelines for water supply and waste water systems in buildings for proposed publication by WHO.

BSM 028 Joint FAO/WHO food contamination monitoring programme (1974- ) UNEP (FAO)—(1) To assess the level of certain contaminants in foods and to determine whether any food presents special hazards with reference to its intake; to continue with the development of a well-defined internationally coordinated food contamination monitoring programme with clear priorities and a framework to assure comparability of data, data collection, review, evaluation and dissemination; (2) to reach an agreement with cooperating governments having ongoing food contamination monitoring activities to participate in the programme and share appropriate data with the two agencies concerned and other bodies; (3) to provide assistance to governments of countries wishing to initiate or strengthen...
food contamination monitoring programmes; (4) to make a survey of feedstuff contamination by pesticides, minerals, industrial wastes and toxins and its effects on livestock and poultry, and to evaluate control measures taken by certain national authorities.

**BMP 29** Course on collection, analysis and evaluation of data on community water supply and waste disposal surveys, Voorburg, Netherlands (6-17 Oct. 1975) UNDP—To train senior government personnel in the development of information systems that serve the needs of national planning of community water supply and waste water disposal programmes. The course, which was held at the International Reference Centre for Community Water Supply, had 18 participants from 18 English-speaking developing countries. Provided—a consultant, 9 lecturers (temporary advisers), and the cost of attendance of participants.

**PIP 001** Cooperative programme with the World Bank on water supply, sewerage and drainage (1971- ) R FR VW (IBRD) (International Development Association)—To assist Member States in the planning and development of water supply, sewerage and drainage.

**PIP 002** Cooperative programme with the African Development Bank on water supply, sewerage and drainage (1975- ) R FR (African Development Bank)—To assist Member States in the planning and development of water supply, sewerage and drainage.

**CEP 004** Scientific aspects of marine pollution (1971- ) R—To participate in, and when required provide the technical secretariat for, a joint Group of Experts on the Scientific Aspects of Marine Pollution—an advisory panel of experts nominated by the sponsoring agencies (the United Nations, FAO, UNESCO, IMCO, WMO, IAEA and WHO).

The seventh session of the Group, which met at IMCO headquarters, London, from 24 to 30 April 1975, was concerned _inter alia_ with harmful substances in the marine environment, the dumping of waste in the sea, the determination of concentrations of marine pollutants and their effects, and the development of quality criteria for coastal waters. Provided—the technical secretary of the Group and the services of 4 temporary advisers.

**CEP 008** Design of monitoring programmes for the assessment of human exposure (1975-76) R—To determine methods of monitoring potential carcinogenic substances in the environment.

**CEP 011** Collaborative research on the epidemiology of coastal pollution (1973-75) R—To carry out studies to obtain more reliable information on the effects on human health of the microbiological and chemical pollution of coastal waters and beaches.

**CEP 012** Collaborative research on environmental pollution (field studies) (1973- ) R—To carry out studies to obtain more reliable information on the effects of environmental pollutants and hazards on health, on the levels of these hazards in different environmental media, and on measures for prevention and control of their adverse effects.

**CEP 020** Preparation of consolidated criteria documents on the effects on health of environmental agents (1974- ) R—To prepare draft documents on environmental health criteria for sulfur oxides, particulates, photochemical oxidants and carbon monoxide and other priority pollutants.

**CEP 021** Review of information on toxicology of fuel and fuel additives (1975- ) R—To evaluate the relationship of fuel composition and the release of potentially toxic substances into the environment.

**CEP 034** Air pollution monitoring (1974- ) UNEP—To establish a global air quality monitoring system for health purposes in urban and industrial areas.

**CEP 035** Water quality monitoring (1974- ) UNEP—To develop a health-related global water quality monitoring system and to assist Member States in establishing national water pollution surveillance networks.

A consultation was held in Koblenz, Federal Republic of Germany (6-10 Jan. 1975), to design the programme. There were 8 participants from 5 countries. Provided—4 temporary advisers and the services of a staff member from headquarters as secretary of the consultation.

A Workshop on Water Quality of the Danube was held in Copenhagen (3-7 March 1975), with 14 participants from 6 countries. Representatives of UNDP, UNESCO and IAEA also attended. Provided—2 consultants, 14 temporary advisers and the services of staff members from headquarters and the Regional Office for Europe.

**CEP 036** Course on public health aspects of pollutants of international significance, Sofia (9-21 Nov. 1975) UNDP—To train professional staff in environmental health subjects with particular attention to the health effects of environmental pollutants of international significance, such as pesticides, heavy metals and common air pollutants. The course was held at the Centre of Hygiene of the Medical Academy, Sofia, for 17 participants from 15 countries. Provided—4 lecturers (temporary advisers) and 16 fellowships for the participants.

**CEP 037** Environmental health criteria documents (1974- ) UNEP—To prepare critical reviews of the relationship between exposure to and health hazards of 48 priority environmental pollutants or potential pollutants.

Seven task group meetings were held to finalize the draft criteria documents for: (i) titanium and germanium; (ii) tin and organotin; (iii) lead; (iv) cadmium; (v) manganese; (vi) mercury; and (vii) polychlorinated biphenyls. In addition, draft preliminary reviews were prepared for bismuth and antimony. UNEP, ILO, WMO, UNESCO, the Commission of the European Communities and other intergovernmental and nongovernmental organizations were represented. Provided—the cost of attendance of participants.

**CEP 038** Control of coastal pollution in the Mediterranean (1974- ) UNDP UNEP—To review present and planned programmes relating to the control of water pollution in the Mediterranean.

A workshop was held in Copenhagen from 16 to 19 December 1974 to formulate and approve a detailed plan of action. Participants came from the European and Eastern Mediterranean Regions and the meeting was attended also by representatives of UNDP. The plan of action was subsequently submitted to the intergovernmental conference held in Barcelona, Spain from 28 January to 4 February 1975 to consider the direct and indirect health implications of pollution of coastal waters. Provided for the workshop—the cost of attendance of the participants (including temporary advisers) and the services of 10 staff members.

A staff member attended the interagency coordination meeting on the Mediterranean, organized by UNEP in Geneva on 7 April 1975.

**CEP 040** (formerly RAD 006) Collaborative research on radiation-induced biological and pathological changes (1960- ) R—To study radiation effects pertinent to the protection of human health, chromosomal aberrations as biological indicators of the effects of radiation in man, and chromosomal aberration rates in large population groups, and radiation-induced chromosomal aberrations in occupationally and accidentally exposed persons;
and to carry out comparative studies on the identification of human chromosome aberrations and standardize scoring procedures.

**CES 005** Land-based marine pollution (1975– ) UNEP—To make an inventory of land sources of marine pollution for coastal countries of the Mediterranean.

**CES 006** Coastal water quality control in the Mediterranean (1975– ) UNEP—To develop and implement programmes for the surveillance of coastal areas for public health purposes in selected pilot zones of the Mediterranean; to elaborate methods for the assessment, and to assist in the study of trends of coastal pollution; and to assist in the preparation of coastal water quality management plans.

**HWP 001** Assistance to national occupational health programmes (1972– ) R—To assist governments in planning and implementing occupational health programmes and in training national personnel.

**HWP 002** Meeting on Organization of Health Care in Small Industries, Geneva (22-28 July 1975) R—To review the results of epidemiological studies of conditions of health of workers and methods used in the establishment of health services in small industries, in order to prepare guidelines for health care delivery programmes. There were 8 participants from 7 countries, and a representative of ILO also attended. Provided—the cost of attendance of participants.

**HWP 004** Collaborative research on effects of exposure to combined hazardous environmental conditions at work (1970– ) R—To study the effects of simultaneous exposure to different physical and chemical hazards at work with a view to their control.

**HWP 005** Conditions of health in different occupations (1971– ) R—To study the health conditions of seafarers, miners and workers in other occupations in different parts of the world and advise on the development of preventive occupational health programmes through pilot health centres.

**HWP 006** Collaborative research on monitoring of occupational exposure and of effects on health of chemical or physical hazards (1973– ) R—To study levels of exposure to harmful physical and chemical agents and their effects on health.

**HWP 007** Collaborative research on occupational health problems of particular importance to developing countries (1972– ) R—To study health problems of workers in small industries in the developing countries with a view to control, and to study the effects of exposure to vegetable and other organic dusts on workers’ health and develop criteria for control measures.

**HWP 009** Meeting on Review and Appraisal of Information on Human Adaptation to Exposure to Chemicals at Place of Work, Copenhagen (29 Sept.–1 Oct. 1975) R—The meeting had 5 participants from 4 countries and was also attended by representatives of ILO and the Permanent Commission and International Association on Occupational Health. Provided—the cost of attendance of participants.

**SES 001** Collaborative research on health aspects of urban environmental planning and management (1973–76) R—To evaluate urban development plans which have incorporated environmental health measures and to synthesize the findings.

**SES 003** Evaluation of national experience in environmental health planning (1975–76) R—To carry out case studies as a basis for the elaboration of principles of environmental health planning.

**FSP 001** Joint FAO/WHO Food Standards Programme (1963– ) R—To protect the health of the consumer and ensure fair practices in the food trade; to coordinate work on food standardization by intergovernmental and nongovernmental organizations; and to assist in elaborating, publishing and revising such standards.

**FSP 004** Collaborative research on toxicity of food contaminants (1975– ) R—To carry out studies on certain food contaminants as health hazards.

**FSP 006** Collaborative research on food toxicity and safety of irradiated food (1975– ) R—To study the effects of ciguatoxic fish on calcium metabolisms and to test suspected ciguatoxic fish for toxicity.

**PPH 001** Support to country family planning programmes: health demographic and statistical systems (1975– ) UNFPA—To improve family planning statistical systems, and to assist in surveys and in designing standard family planning records for use in data banks, and for planning, operation and management of family planning services.

This project groups statistical activities financed by UNFPA and reported in 1974 under projects DSI 001, 002, 003, 004, 005 and 011, and also covers the production of the series of health demographic manuals formerly reported under project DHS 007.

**DHS 001** Travelling Seminar on the Collection and Utilization of Statistical Information in the Planning and Evaluation of Health Services, Netherlands and Poland (2-21 June 1975) R—To enable the 10 participants from 6 countries—statisticians, medical records librarians and teachers and administrators in public health and statistics—to familiarize themselves with the different organization of health services, with the structure and functioning of integrated health statistical services at central, provincial and local levels, and with the uses of health statistics in the planning, evaluation and management of health services and for epidemiological studies and econometric analyses. Provided—a consultant, the cost of attendance of participants, and the services of staff members.


**ICD 002** Coordination of activities for classification of diseases (1971– ) R—To ensure that the Ninth Revision of the International Classification of Diseases in English, French, Russian and Spanish will adequately reflect current medical usage in each language, through consultations between the heads of the language-oriented centres for classification of diseases.

**ICD 003** Revision of the International Classification of Diseases (1972– ) VD—To ensure that the Ninth Revision of the International Classification of Diseases will be suitable for new applications, such as the planning and evaluation of health care delivery systems, without detriment to its traditional use in morbidity and mortality statistics.
ANNEXES
Annex 1

MEMBERS AND ASSOCIATE MEMBERS OF THE WORLD HEALTH ORGANIZATION

at 31 December 1975

At 31 December 1975 the World Health Organization had 146 Member States and two Associate Members. They are listed below with the date on which each became a party to the Convention or the date of admission to associate membership.

<table>
<thead>
<tr>
<th>Member State</th>
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* Member States that have acceded to the Convention on the Privileges and Immunities of the Specialized Agencies and its Annex VII.

1 Papua New Guinea, which was an Associate Member, attained independence on 16 September 1975 but continues, in accordance with resolution WHA14.45, to enjoy the rights and privileges of associate membership during the transitional period which must necessarily elapse before the country can become a full Member of the Organization.

2 Southern Rhodesia’s associate membership is regarded as in suspense.
Annex 2

MEMBERSHIP OF THE EXECUTIVE BOARD


Designated by

Designated by

Professor E. J. AUJALEU .......... France
Professor J. J. A. REID .......... United Kingdom of
Professor M. I. AZIM .......... Afghanistan
Great Britain and
Dr A. BUKAIR .......... Democratic Yemen
Northern Ireland
Dr J. CASTILLO SINIBALDI 1 .......... Guatemala
Professor G. RESTREPO CHAVARRIAGA .......... Colombia
Dr Chen HAI-FENG 2 .......... China
Dr A. SAUTER .......... Switzerland
Dr N. M. CHITIMBA .......... Malawi
Dr K. SHAMI .......... Jordan
Dr S. P. EHRLICH, Jr .......... United States of America
Professor Julie SULIANTI SAROSO .......... Indonesia
Dr L. B. T. JAYASUNDARA, Rapporteur .......... Sri Lanka
Dr C. N. D. TAYLOR, Chairman .......... New Zealand
Professor J. KOSTRZEWSKI .......... Poland
Professor J. TIGYI, Vice-Chairman .......... Hungary
Dr R. LEKIE, Rapporteur .......... Zaire
Dr R. VALLADARES .......... Venezuela
Professor L. VON MANGER-KOENIG .......... Federal Republic of
Sir Harold WALTER .......... Mauritius
Germany
Dr D. D. VENEDIKTOV .......... Union of Soviet Socia-
Mr A. S. CHOWDHURY .......... Bangladesh
list Republics
Dr Z. M. DLAMINI .......... Swaziland
Dr D. J. WRIGHT .......... Niger
Dr J. CASTILLO SINIBALDI 5 .......... Guatemala
Mr O. A. HASSAN .......... Somalia
Dr CHEN HAI-FENG 3 .......... China
Dr R. Zeceña Flores, alternate, attended the session.
Mr A. S. CHOWDHURY .......... Bangladesh
Dr R. L. S. BAIRD 4 .......... Guyana
Dr A. SAUTER .......... Switzerland
Dr S. BUTERA .......... Democratic Yemen
Dr K. SHAMI .......... Jordan
Dr J. CASTILLO SINIBALDI 4 .......... Guatemala
Professor J. TIGYI, Vice-Chairman .......... Hungary
Dr S. BUTERA .......... Democratic Yemen
Dr D. D. VENEDIKTOV .......... Union of Soviet Socia-
Mr A. S. CHOWDHURY .......... Bangladesh
list Republics
Dr Z. M. DLAMINI .......... Swaziland
Dr K. S. HODONOU, Rapporteur .......... Togo
Mr O. A. HASSAN .......... Somalia
Dr G. HOWELLS .......... Australia
Dr D. J. WRIGHT .......... Niger
Professor D. JAKOVLEVIĆ .......... Yugoslavia

Unexpired term of office at the time of closure of the
Twenty-eighth World Health Assembly

2 years
1 year
3 years
2 years
1 year
3 years
1 year
3 years
2 years
3 years
3 years
3 years

1 Dr R. Zeceña Flores, alternate, attended the session.
2 Dr Chen Chih-ming, alternate, attended the session.
3 Dr A. Dibá, alternate, attended the session.
4 Dr Claudette Harry, alternate, attended the session.
5 Dr E. del-Cid Peralta, alternate, attended the session.
Annex 3

ORGANIZATIONAL AND RELATED MEETINGS IN 1975

Executive Board, fifty-fifth session
Executive Board: Standing Committee on Nongovernmental Organizations
Executive Board: Ad Hoc Committee on Malaria

Executive Board: Ad Hoc Group on the Promotion of National Health Services
Executive Board: Ad Hoc Committee to consider the Report of the External Auditor on the accounts of WHO for 1974

Twenty-eighth World Health Assembly

Executive Board, fifty-sixth session
Regional Committee for South-East Asia, twenty-eighth session
Regional Committee for the Western Pacific, twenty-sixth session
Regional Committee for Europe, twenty-fifth session
Regional Committee for Africa, twenty-fifth session
Regional Committee for the Americas, twenty-seventh session/XXIII Meeting of the Directing Council of PAHO

Regional Committee for the Eastern Mediterranean: Subcommittee A

World Health Assembly: Special Committee of Experts to study the health conditions of the inhabitants of the occupied territories in the Middle East

Geneva, 20-31 January
Geneva, 28 January
Geneva, 31 January, and 30-31 May and 2 June
Geneva, 8-9 April
Geneva, 12 May
Geneva, 13-30 May
Geneva, 2-3 June
New Delhi, 25-30 August
Manila, 1-5 September
Algiers, 2-6 September
Yaoundé, 17-24 September
Washington, D.C., 29 September-8 October
Teheran, 8-11 October
Geneva, 10-11 November

Designated by

Dr L. B. T. Jayasundara, Vice-Chairman
Professor J. Kostrzewski, Chairman
Professor L. von Manger-Koenig
Dr A. M. Moulaye
Dr A. Mukhtar
Professor L. Noko
Professor A. Pouyan
Dr A. Sauter
Dr K. Shami
Dr E. Tarimo
Dr R. Valladares, Vice-Chairman
Dr D. D. Venediktov
Dr A. J. de Villiers
Sir Harold Walter
Dr Y. Yamanaka
Dr P. R. Yañez
Sri Lanka
Poland
Federal Republic of Germany
Mauritania
Sudan
Finland
Iran
Switzerland
Jordan
United Republic of Tanzania
Venezuela
Union of Soviet Socialist Republics
Canada
Mauritius
Japan
Argentina

Unexpired term of office at the time of closure of the Twenty-eighth World Health Assembly

2 years
1 year
3 years
2 years
1 year
3 years
2 years
1 year
2 years
3 years
2 years
1 year
2 years
2 years
3 years
2 years
1 year
2 years

1 Dr K. Leppo, alternate, attended the session.
2 Dr A. Diba, alternate, attended the session.
Annex 4

EXPERT ADVISORY PANELS AND MEETINGS OF COMMITTEES AND SCIENTIFIC GROUPS IN 1975

1. EXPERT ADVISORY PANELS

The expert advisory panels in existence at 31 December 1975 were on the following subjects:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Expert Advisory Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pollution</td>
<td>Health of seafarers</td>
</tr>
<tr>
<td>Bacterial diseases</td>
<td>Health statistics</td>
</tr>
<tr>
<td>Biological standardization</td>
<td>Human genetics</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>Human reproduction</td>
</tr>
<tr>
<td>Cancer</td>
<td>Immunology</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>International pharmacopoeia and pharmaceutical preparations</td>
</tr>
<tr>
<td>Chronic degenerative diseases</td>
<td>International surveillance of communicable diseases</td>
</tr>
<tr>
<td>Dental health</td>
<td>Leprosy</td>
</tr>
<tr>
<td>Drug dependence</td>
<td>Malaria</td>
</tr>
<tr>
<td>Drug evaluation</td>
<td>Maternal and child health</td>
</tr>
<tr>
<td>Environmental health</td>
<td>Medical research ¹</td>
</tr>
<tr>
<td>Food additives and contaminants</td>
<td>Mental health</td>
</tr>
<tr>
<td>Food hygiene</td>
<td>Neurosciences</td>
</tr>
<tr>
<td>Health education</td>
<td>Nursing</td>
</tr>
<tr>
<td>Health laboratory services</td>
<td></td>
</tr>
<tr>
<td>Health manpower</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td>Occupational health</td>
</tr>
<tr>
<td>Organization of medical care</td>
<td>Parasitic diseases</td>
</tr>
<tr>
<td>Public health administration</td>
<td>Rabies</td>
</tr>
<tr>
<td>Radiation</td>
<td>Rehabilitation</td>
</tr>
<tr>
<td>Trachoma</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Vector biology and control</td>
<td>Venereal infections and treponematoses</td>
</tr>
<tr>
<td>Virus diseases</td>
<td>Zoonoses</td>
</tr>
</tbody>
</table>

2. MEETINGS OF COMMITTEES AND SCIENTIFIC GROUPS IN 1975

**Expert Committees**

- Joint FAO/WHO Expert Committee on Food Additives, Geneva, 14-23 April
- Expert Committee on Nonproprietary Names for Pharmaceutical Substances, Geneva, 16-23 September
- Expert Committee on Insecticides (Resistance of Vectors and Reservoirs to Pesticides), Geneva, 1-10 October
- Joint IAEA/WHO Expert Committee on the Use of Ionizing Radiation and Radioisotopes for Medical Purposes (Nuclear Medicine), Geneva, 10-18 November
- Expert Committee on Planning and Evaluation of Public Dental Health Services, Geneva, 24 November-3 December
- Expert Committee on Epidemiology of Onchocerciasis, Geneva, 2-8 December
- Expert Committee on Biological Standardization, Geneva, 16-22 December
- Expert Committee on New Trends and Approaches in the Delivery of Maternal and Child Care in Health Services, Geneva, 23-27 June

**Advisory Committee on Medical Research**

Seventeenth session, Geneva, 23-27 June

**Scientific Groups**

- Scientific Group on Developments in Malaria Immunology, Geneva, 23 April-2 May
- Scientific Group on the Epidemiology of Infertility, Geneva, 30 June-4 July
- Scientific Group on Virus Diseases, Geneva, 1-5 September
- Scientific Group on Immunological Adjuvants, Geneva, 6-10 October
- Scientific Group on Methods of Toxicity Evaluation of Chemicals, Lyons, 1-5 December
- Scientific Group on Methods of Monitoring Carcinogenic Chemicals in the Environment, Geneva, 8-12 December

¹ See resolution WHA12.17.
Annex 5

WHO COLLABORATING CENTRES

The institutions that served as designated WHO Collaborating Centres during 1975 are listed under the headings shown below. Asterisks denote those designated during the year. Figures in parentheses indicate the number of collaborating centres designated within the same institute.

Antibiotics
Arbovirus diseases
Biological standardization
Biomedical sciences
Blood groups
Brucellosis
Cancer
Cardiovascular diseases
Cell cultures
Chemical reference substances
Comparative medicine
Dental health
Diphtheria
Education
Enteric infections, bacterial
Enterovirus diseases
Environmental planning and services
Environmental pollution and hazards
Filariasis
Food additives
Food contaminants
Food hygiene

Antibiotics
Laboratoire de Microbiologie générale et médicale, University of Liège, Belgium

Arbovirus Diseases
Department of Virology, Queensland Institute of Medical Research, Brisbane, Australia
Arbovirus Laboratory, Adolfo Lutz Institute, São Paulo, Brazil
Institute of Virology, Bratislava, Czechoslovakia
Laboratoire des Arbovirus, Institut Pasteur, Paris, France
Virus Research Centre, Indian Council of Medical Research, Poona, India
Department of Virology and Rickettsiology, National Institute of Health, Tokyo, Japan
Institut Pasteur, Dakar, Senegal
East African Virus Research Institute, East African Common Services Organization, Entebbe, Uganda
Department of Arboviruses, Institute of Poliomyelitis and Viral Encephalitides, Moscow, USSR
Department of Arboviruses, Ivanovskij Institute of Virology, Moscow, USSR

Antibiotics
Genetics, human
Immunology
Influenza
Leishmaniasis
Leprosy
Leptospirosis
Malaria
Meningococcal infections
Mental health
Mycoplasmas
Nutritional anaemias
Occupational health
Pertussis
Plague
Pseudotuberculosis
Rabies
Radiation
Renal diseases
Reproduction, human
Respiratory virus diseases other than influenza
Rheumatic diseases
Rickettsioses
Schistosomiasis
Serum reference banks
Smallpox
Standardization of diagnostic reagents
Staphylococcal infections
Statistics (classification of diseases)
Strengthening of health services
Streptococcal infections
Toxoplasmosis
Trachoma and other chlamydial infections
Trypanosomiasis
Tuberculosis
Vector biology and control
Venereal infections and treponematoses
Veterinary public health
Virus diseases, general
Wastes disposal
Water supply

Vector-Borne Diseases Branch, Centre for Disease Control, Fort Collins, CO, USA
Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, CT, USA

Biological Standardization
Bureau of Biologics, Drugs Directorate, Laboratory Centre for Disease Control, Department of National Health and Welfare, Ottawa, Ont., Canada
State Institute for Drug Control, Ministry of Health, Prague, Czechoslovakia
Statens Serum Institute, Copenhagen, Denmark (2)
Second Department of Bacteriology, National Institute of Health, Tokyo, Japan
Laboratory of Biological Standards, National Institute of Public Health, Utrecht, Netherlands
Tarasević State Control Institute for Medical Biological Preparations, Ministry of Health of the USSR, Moscow, USSR
Division of Cellular Biology, Matilda and Terence Kennedy Institute of Rheumatology, London, United Kingdom
National Institute for Biological Standards and Control, London, United Kingdom (2)

Haematology Department and National Reference Laboratory for Anticoagulant Control Reagents, Withington Hospital, University Hospital of South Manchester, Manchester, United Kingdom

Central Veterinary Laboratory, Ministry of Agriculture, Fisheries and Food, Weybridge, Surrey, United Kingdom

Bacteriology Section, Microbiology Branch, Center for Disease Control, Atlanta, GA, USA

Bureau of Biologics, Food and Drug Administration, Rockville, MD, USA

Institute of Immunology, Zagreb, Yugoslavia

Biomedical sciences

* Institut international de Pathologie cellulaire et moléculaire, Brussels, Belgium
* National Health Laboratories, Ministry of Health, Social Welfare and Population Planning, Islamabad, Pakistan

Blood Groups

Medical Research Council's Blood Group Reference Laboratory, London, United Kingdom

Brucellosis

Commonwealth Serum Laboratories, Parkville, Victoria, Australia

State Veterinary Serum Laboratory, Copenhagen, Denmark

Institut de Biologie, Montpellier, France

Veterinary Microbiological Institute, Athens, Greece

Indian Veterinary Research Institute, Mukteswar-Kumaon, Uttar Pradesh, India

Institute of Hygiene, Faculty of Medicine, University of Florence, Italy

National Institute of Animal Health, Tokyo, Japan

Medical Research Institute, General Hospital, Mexico City, Mexico

Institut Pasteur, Tunis, Tunisia

Institute of Veterinary Bacteriology and Serology, Istanbul, Turkey

Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR

Central Veterinary Laboratory, Ministry of Agriculture, Fisheries and Food, Weybridge, Surrey, United Kingdom

Department of Medicine, University of Minnesota Medical School, Minneapolis, MN, USA

Cancer

Latin American Registry of Bone Pathology, Osteo-articular Pathology Centre, Italian Hospital, Buenos Aires, Argentina

Pathology Department, University of Western Australia, Perth, Australia

Department of Oral Pathology, Royal Dental College, Copenhagen, Denmark (2)

Institute of Pathology, Municipal Hospital, Copenhagen, Denmark

Department of General Neurology, Max-Planck Institute for Brain Research, Cologne, Federal Republic of Germany

Institute of Veterinary Pathology, University of Giessen, Federal Republic of Germany

Institut de Cancérologie et d'Immunogénétique, Hôpital Paul-Brousse, Villejuif, Val-de-Marne, France

Institut Gustave Roussy, Villejuif, Val-de-Marne, France

Department of Pathology, Queen Mary Hospital, University of Hong Kong, Hong Kong

Sarojini Najdu Medical College, Agra, Uttar Pradesh, India

National Institute for the Study and Treatment of Tumours, Milan, Italy

National Cancer Centre Hospital, Tokyo, Japan

Netherlands Cancer Institute, Amsterdam, Netherlands (2)

Department of Pathology, Façulty of Medicine, University of Singapore, Singapore

Research Unit of Tumour Immunology, Karolinska Institute, Stockholm, Sweden

Centre de Cytologie et de Dépistage du Cancer, Geneva, Switzerland

Institute of Veterinary Pathology, University of Zurich, Switzerland

University Institute of Pathology, Canton Hospital, Zurich, Switzerland

N. N. Petrov Research Institute of Oncology, Leningrad, USSR (2)

Department of Pathology, Cancer Research Centre, Academy of Medical Sciences of the USSR, Moscow, USSR

Department of Pathology, Welsh National School of Medicine, Cardiff, United Kingdom

Department of Veterinary Pathology, Royal (Dick) School of Veterinary Studies, University of Edinburgh, United Kingdom

Veterinary School, University of Glasgow, United Kingdom

Bland Sutton Institute of Pathology, Middlesex Hospital, London, United Kingdom (2)

Research Department, St Mark's Hospital, London, United Kingdom

Department of Animal Diseases, College of Agriculture and Natural Resources, University of Connecticut, Storrs, CT, USA

Armed Forces Institute of Pathology, Washington, DC, USA (4)

Cardiovascular Diseases

Clinic of Tropical and Infectious Diseases, Faculty of Medicine, Federal University of Bahia, Salvador, Brazil

Department of Pathology, Ribeirão Preto Faculty of Medicine, University of São Paulo, Brazil

1 In collaboration with FAO.

2 In collaboration with IARC.
Laboratory Centre for Disease Control, Department of National Health and Welfare, Ottawa, Ont., Canada

Division of Cardiovascular Research, Institute of Clinical and Experimental Medicine, Prague, Czechoslovakia (2)

Second Department of Pathology, School of Medicine, Charles University, Prague, Czechoslovakia

Department of Medicine and Therapeutics, Ghana Medical School, Accra, Ghana

Department of Medicine, Hungarian Institute of Cardiology, Budapest, Hungary

Division of Streptococcal Studies, Institute of Public Health Research, University of Teheran, Iran

Department of Medical Ecology, Hadassah Medical School, Jerusalem, Israel

Department of Pathology, Faculty of Medicine, University of the West Indies, Kingston, Jamaica

Medical Research Council's Epidemiological Research Unit (Jamaica), University of the West Indies, Kingston, Jamaica

Epidemiology Unit, Wellington Hospital, Wellington, New Zealand

Cardiovascular Laboratory, High Altitude Research Institute, Peruvian University of Medical and Biological Sciences, Lima, Peru

First Medical Clinic, Sahlgren's Hospital, Faculty of Medicine, Göteborg University, Sweden

Department of Pathology, General Hospital, Malmö, Sweden

Centre de Cardiologie, Hôpital cantonal, Geneva, Switzerland

Makerere University Faculty of Medicine, Kampala, Uganda

Laboratory for Lipid Metabolism, Institute of Experimental Medicine, Leningrad, USSR

Laboratory of Cardiovascular Epidemiology, Mjasnikov Institute of Cardiology, Moscow, USSR

Department of Cardiology, Royal Infirmary, University of Edinburgh, United Kingdom

Medical Research Council's Social Medicine Research Unit, London School of Hygiene and Tropical Medicine, London, United Kingdom

Lipid Standardization Laboratory, Medical Laboratory Section, Center for Disease Control, Atlanta, GA, USA

Department of Epidemiology, School of Public Health, University of Michigan, Ann Arbor, MI, USA

Laboratory of Physiological Hygiene, School of Public Health, University of Minnesota, Minneapolis, MN, USA

Medical Service, School of Medicine, Washington University, St Louis, MO, USA

Cardiovascular Diseases Division, Ministry of Health and Social Welfare, Caracas, Venezuela

Comparative Medicine

College of Veterinary Medicine, Hanover, Federal Republic of Germany

* Institute of Microbiology and Infectious Diseases of Animals, Faculty of Veterinary Medicine, University of Munich, Federal Republic of Germany

Department of Veterinary Sciences, National Institute of Health, Tokyo, Japan

Institute of Comparative Neurology, Faculty of Veterinary Medicine, University of Berne, Switzerland

* Laboratory Animals Centre, Medical Research Council, Carshalton, Surrey, United Kingdom

Nuffield Institute of Comparative Medicine, Zoological Society of London, United Kingdom

Animal Resources Branch, Division of Research Services, National Institutes of Health, Bethesda, MD, USA

Department of Microbiology, New York State Veterinary College, Cornell University, Ithaca, NY, USA

* Laboratory of Experimental Medicine and Surgery in Primates (LEMSIP), School of Medicine, New York University, NY, USA

School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA, USA

Division of Microbiology and Infectious Diseases, Southwest Foundation for Research and Education, San Antonio, TX, USA

Dental Health

Moscow Central Research Institute of Stomatology, Ministry of Health of the USSR, Moscow, USSR

Diphtheria

Dr I. Cantacuzino Institute of Microbiology, Parasitology and Epidemiology, Bucharest, Romania

Education

* Department of Medical Education, Faculty of Medicine, Pahlavi University, Shiraz, Iran

Centre for Health Sciences, Ben Gurion University of the Negev, Beersheba, Israel

Institute of Research on Education and Examination Procedures, Faculty of Medicine, University of Berne, Switzerland

Central Institute for Advanced Medical Studies, Ministry of Health of the USSR, Moscow, USSR

Centre for Individual Learning Materials in Medical Education, B.L.A.T. Centre for Health and Medical Education, British Medical Association, London, United Kingdom

Center for Educational Development, University of Illinois College of Medicine, Chicago, IL, USA

Enteric Infections, Bacterial

Statens Seruminstitut, Copenhagen, Denmark

Institut Pasteur, Paris, France

Department of Vaccines, "Human" Institute for Serobacteriological Production and Research, Budapest, Hungary

Cell Cultures

American Type Culture Collection, Rockville, MD, USA

Chemical Reference Substances

Centre for Authentic Chemical Substances, Apotekens Central-laboratorium, Apoteksbolaget AB, Solna, Stockholm, Sweden

1 See also Cancer and Cardiovascular Diseases.
Cholera Research Centre, Calcutta, India
Central Public Health Laboratory, London, United Kingdom (2)
Center for Disease Control, Atlanta, GA, USA
Institute of Immunology, Zagreb, Yugoslavia

Enterovirus Diseases
Enteroviruses Department, Statens Serum Institut, Copenhagen, Denmark
Section de Virologie, Laboratoire national de la Santé publique, Lyon, France
Department of Enteroviruses, National Institute of Health, Tokyo, Japan
Department of Bacteriology, University of Singapore, Singapore
Institute of Poliomyelitis and Viral Encephalitides, Moscow, USSR
Center for Disease Control, Atlanta, GA, USA
Department of Virology and Epidemiology, Baylor University College of Medicine, Houston, TX, USA

Environmental Planning and Services
Swedish Water and Air Pollution Research Laboratory, Stockholm, Sweden

Environmental Pollution and Hazards
Air Pollution Control Service, Sursan Institute of Sanitary Engineering, Rio de Janeiro, Brazil
* Hygiene Centre, Academy of Medicine, Sofia, Bulgaria
Canada Centre for Inland Waters, Burlington, Ont., Canada
Institute of Hygiene and Epidemiology, Prague, Czechoslovakia
Institute of Occupational Health, Helsinki, Finland
Centre de Recherches sur la Pollution atmospherique, Institut national de la Sante et de la Recherche medicale, Le Vésinet, Yvelines, France
Regional Institute for Air Pollution and Land Use Control of North Rhine-Westphalia, Essen, Federal Republic of Germany
Industrial Hygiene Section, Labour Department, Hong Kong
National Environmental Engineering Research Institute, Nagpur, India
Division of Air Pollution and Radiation Control, Ministry of Health, Tel Aviv, Israel
Laboratory of Air Pollution, Institute of Analytical Chemistry, University of Rome, Italy
Department of Community Environmental Sciences, Institute of Public Health, Tokyo, Japan
Air Pollution Division, Research Institute for Public Health Engineering, Delft, Netherlands
* Department of Environmental Hygiene, Karolinska Institute, Stockholm, Sweden
Research Laboratory of the National Environmental Protection Board, Solna, Stockholm, Sweden
Department of Community Hygiene, Central Institute for Advanced Medical Studies, Ministry of Health of the USSR, Moscow, USSR
Medical Research Council's Air Pollution Research Unit, Medical College, Royal Hospital of St Bartholomew, London, United Kingdom

Air Pollution Control Office, National Environmental Research Center, Environmental Protection Agency, Research Triangle Park, NC, USA
* National Institute of Environmental Health Sciences, Research Triangle Park, NC, USA
Institute of Medical Research and Industrial Hygiene, Zagreb, Yugoslavia

Filariasis
Department of Medical Helminthology, London School of Hygiene and Tropical Medicine, London, United Kingdom

Food Additives
Max von Pettenkofer Institute, Berlin 1
Food Directorate, Health Protection Branch, Department of National Health and Welfare, Ottawa, Ont., Canada 1
Laboratory of Chemical Food Analysis, National Institute of Public Health, Utrecht, Netherlands 1
Institute of Comparative and Human Toxicology, Albany Medical College, Union University, Albany, NY, USA
Division of Colors and Cosmetics Technology, Food and Drug Administration, Department of Health, Education, and Welfare, Washington, DC, USA 1

Food Contaminants
World Life Research Institute, Colton, CA, USA 1

Food Hygiene
* Robert von Ostertag Institute of Veterinary Medicine, Federal Health Office, Berlin 1
* Food Research Institute, College of Agriculture and Life Sciences, University of Wisconsin, Madison, WI, USA

Genetics, Human
Department of Haematology, Chaim Sheba Medical Centre, Tel Hashomer, Israel
Sub-Department of Haematology, University College Hospital, Ibadan, Nigeria
Medical Research Council's Department of Biochemistry, University of Cambridge, United Kingdom
Population Genetics Laboratory, School of Medicine, University of Hawaii, Honolulu, HI, USA
Zoology Department, University of Texas, Austin, TX, USA
Department of Medicine, University of Washington, Seattle, WA, USA

Immunology
Walter and Eliza Hall Institute of Medical Research, Melbourne University, Victoria, Australia (3)
Instituto Butantan, São Paulo, Brazil
Division of Clinical Immunology and Allergy, Montreal General Hospital, Montreal, Canada
Department of Immunology, Institute of Microbiology, Prague, Czechoslovakia

1 In collaboration with FAO.
Centre départemental de Transfusion sanguine et de Génétique humaine, Bois-Guillaume, Seine-Maritime, France
Laboratoire d'Immunochimie, Institut de Recherches scientifiques sur le Cancer, Centre national de la Recherche scientifique, Villejuif, Val-de-Marne, France
Department of Biochemistry, All India Institute of Medical Sciences, Indian Council of Medical Research, New Delhi, India
Department of Chemical Immunology and Cell Biology, Weizmann Institute of Science, Rehovot, Israel
Department of Biochemistry, Faculty of Medicine, Hokkaido University, Sapporo, Japan
Faculty of Medicine, University of Nairobi, Kenya
School of Medicine, American University of Beirut, Lebanon
Children's Hospital of Mexico, Mexico City, Mexico
Department of Chemical Pathology, University College Hospital, Ibadan, Nigeria
Faculty of Medicine, University of Singapore, Singapore
Department of Medical Microbiology, University of Lund, Sweden
Basle Institute of Immunology, Basle, Switzerland
Institut de Biochimie, University of Lausanne, Switzerland (3)
Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR (3)
Chester Beatty Research Institute, Institute of Cancer Research, Royal Cancer Hospital, London, United Kingdom
Department of Immunology, Middlesex Hospital Medical School, London, United Kingdom
* Department of Immunology, Royal Postgraduate Medical School, University of London, United Kingdom
Medical Research Council's Blood Group Reference Laboratory, London, United Kingdom
Department of Immunology, City of Hope National Medical Center, Duarte, CA, USA
National Cancer Institute, National Institutes of Health, Bethesda, MD, USA (2)
Center for Immunology, School of Medicine, State University of New York at Buffalo, NY, USA
Roswell Park Memorial Institute, New York State Department of Health, Buffalo, NY, USA
Department of Biology, Western Reserve University, Cleveland, OH, USA
* Department of Molecular Immunology, Scripps Clinic and Research Foundation, La Jolla, CA, USA

Influenza
National Institute for Medical Research, London, United Kingdom
Center for Disease Control, Atlanta, GA, USA
* St Jude's Children Research Hospital, University of Tennessee, Memphis, TN, USA

Leishmaniasis
Department of Parasitology, Hadassah Medical School, Jerusalem, Israel

Leprosy
Laboratoire de Bactériologie et de Virologie, Institut de Médecine tropicale Prince Léopold, Antwerp, Belgium
Ecole de Santé publique, Catholic University of Louvain, Brussels, Belgium (2)
Department of Microbiology and Immunology, Ribeirão Prêto Faculty of Medicine, University of São Paulo, Brazil
Institute of Microbiology and Hygiene, University of Montreal, Canada
Medical Historical Museum, University of Copenhagen, Denmark
Armauer Hansen Research Institute, Addis Ababa, Ethiopia
Municipal Bacteriology Laboratory, Aurora Hospital, Helsinki, Finland
Ernst Rodenwaldt Institute of Experimental Medicine and Hygiene, Koblenz, Federal Republic of Germany
Laboratory of Serology, National Institute for Leprosy Research, Tokyo, Japan
Division of Bacteriology and Virus Research, National Institute for Medical Research, London, United Kingdom
Center for Disease Control, Atlanta, GA, USA
Laboratory Research Branch, US Public Health Service Hospital, Carville, LA, USA
Department of Biochemistry, Atchafalaya Basin Laboratories, Gulf South Research Institute, New Iberia, LA, USA
Leonard Wood Memorial Laboratory for Leprosy Research, Johns Hopkins University, Baltimore, MD, USA
Division of Dermatology, Ministry of Health and Social Welfare, Caracas, Venezuela

Leptospirosis
Laboratory of Microbiology and Pathology, State Health Department, Brisbane, Queensland, Australia 1
Department of Epidemiology, Faculty of Medicine, Komensky University, Bratislava, Czechoslovakia
Laboratoire de la Leptospirose, Institut Pasteur, Paris, France
Israel Institute for Biological Research, Tel Aviv University Medical School, Ness-Ziona, Israel 1
National Institute of Health, Tokyo, Japan 1
Institute for Tropical Hygiene (Royal Tropical Institute), Amsterdam, Netherlands 1
Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR 1
Public Health Laboratory Services, London, United Kingdom 1
* Division of Bacteriology, Center for Disease Control, Atlanta, GA, USA 1

Malaria
National Institute of Communicable Diseases, Delhi, India
Institute of Parasitology, Faculty of Medicine and Surgery, University of Rome, Italy
Laboratory of Medical Parasitology, Faculty of Medicine, Catholic University, Nijmegen, Netherlands

1 In collaboration with FAO.
THE WORK OF WHO, 1975

* Socola Psychiatric Hospital, Iaşi, Romania
Department of Parasitology, Liverpool School of Tropical Medicine, Liverpool, United Kingdom
Nuffield Institute of Comparative Medicine, Zoological Society of London, United Kingdom
Laboratory of Parasite Chemotherapy, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, USA
* Department of Preventive Medicine, School of Medicine, New York University Medical Center, New York, NY, USA

Meningococcal Infections
Laboratoire de Recherche de Microbiologie, Ecole de Spécialisation du Service de Santé pour l'Armée de Terre et Institut de Pathologie exotique, Marseille, France

Mental Health
Clinic of Psychiatry and Neurology, Faculty of Medicine, University of Vienna, Austria
Clinique psychiatrique, Faculté de Médecine, University of Liège, Belgium
Department of Neurology and Neurosurgery, Montreal Neurological Institute, McGill University, Montreal, Canada
Division of Psychopharmacology, Department of Psychiatry, McGill University, Montreal, Canada
* Department of Psychiatry, Faculty of Medicine, University of British Columbia, Vancouver, B.C., Canada
* Department of Psychiatry, Rigshospitalet, Faculty of Medicine, University of Copenhagen, Denmark
Behman Hospital, Helwan, Egypt
Service d'Exploration fonctionnelle du Système nerveux, Faculté mixte de Médecine et de Pharmacie de Marseille, Université d'Aix-Marseille, Marseille, France
Centre psychiatrique Sainte-Anne, Paris, France
Centre de Neurochimie, Centre national de la Recherche scientifique, Strasbourg, France
* German Society for Psychiatry and Neurology, Munich, Federal Republic of Germany
Department of Psychiatry, University of Ghana Medical School, Accra, Ghana
Department of Psychiatry, Eginition Hospital, Faculty of Medicine, University of Athens, Greece
Psychiatric Department, Seth G.S. Medical College, Bombay, India
Institute of Clinical Psychiatry, University of Milan, Italy
Faculty of Medicine, Hokkaido University, Sapporo, Japan
Department of Neurobiology, Institute of Biomedical Investigations, National Autonomous University of Mexico, Mexico City, Mexico
National Institute of Neurology, Mexico City, Mexico
* Department of Biological Psychiatry, Psychiatric University Clinic, Groningen, Netherlands
Department of Psychiatry and Neurology, Faculty of Medicine, University of Ife, Nigeria (2)
Department of Psychiatry, Aasgaard Hospital, Tromsø, Norway
Clinique neuro-psychiatrique, Faculté mixte de Médecine et de Pharmacie, University of Dakar, Senegal
Laboratory for Clinical Stress Research, Karolinska Institute, Stockholm, Sweden
Psychiatric Clinic, Faculty of Medicine, University of Basle, Switzerland (2)
* Institute of Neurology, Academy of Medical Sciences of the USSR, Moscow, USSR
* Laboratory of General Pathophysiology, Institute of Psychiatry, Academy of Medical Sciences of the USSR, Moscow, USSR
* Neuropsychiatry Unit, West Park Hospital, Medical Research Council, Epsom, Surrey, United Kingdom
* Adult Psychiatric Branch, National Institute of Mental Health, Bethesda, MD, USA
* National Institute of Neurological Diseases and Stroke, National Institutes of Health, Bethesda, MD, USA
National Institute of Mental Health, Rockville, MD, USA
Department of Neurology and Psychiatry, School of Medicine, University of Zagreb, Yugoslavia

Mycoplasmas
Institute of Medical Microbiology, University of Aarhus Medical Faculty, Denmark
Laboratory for Mycoplasmas, Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR
Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, USA

Nutritional Anaemias
Department of Pathology, Medical College, Royal Hospital of St Bartholomew, London, United Kingdom
School of Medicine, University of Washington, Seattle, WA, USA
Venezuelan Institute for Scientific Research, Caracas, Venezuela

Occupational Health
Division of Occupational Health and Pollution Control, New South Wales Department of Public Health, Lidcombe, Australia
* Central Institute of Occupational Medicine, Berlin
Centre of Hygiene, Research Institute of Occupational Hygiene and Industrial Safety, Sofia, Bulgaria
Institute of Occupational Health and Air Pollution, Santiago, Chile
* Centre of Hygiene and Occupational Diseases, Institute of Hygiene and Epidemiology, Prague, Czechoslovakia
Department of Occupational Health, High Institute of Public Health, University of Alexandria, Egypt
Institute of Occupational Health, Helsinki, Finland
* Department of Nautical Medicine, Bernard Nocht Institute of Naval and Tropical Diseases, Hamburg, Federal Republic of Germany

In collaboration with FAO.
Department of Manpower, National Institute of Occupational Health and Industrial Hygiene, Jakarta, Indonesia
Department of Public Health, Faculty of Medicine, Kurume University, Japan
Health Centre for Seafarers, Gdynia, Poland
* National Institute of Occupational Medicine, Lodz, Poland
Catholic Medical College, Catholic Industrial Medical Centre, Seoul, Republic of Korea
Occupational Health Division, Ministry of Health, Khartoum, Sudan
* Institut de Médecine sociale et préventive, Faculté de Médecine, Université de Lausanne, Switzerland
Occupational Health Centre, Ministry of Public Health, Samuthprakarn, Thailand
* Institute of Labour Hygiene and Occupational Diseases, Kiev, USSR
TUC Centenary Institute of Occupational Health, London School of Hygiene and Tropical Medicine, London, United Kingdom

Pertussis
Department of Diphtheria-Pertussis-Tetanus Vaccine, Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR

Plague
Antiplague Research Institute of the Caucasus and Transcaucasia, Stavropol, USSR

Pseudotuberculosis
Unité Peste et Germes, Institut Pasteur, Paris, France

Rabies
Institut Pasteur, Paris, France
* Rabies Laboratory, Federal Research Institute for Animal Virus Diseases, Tübingen, Federal Republic of Germany
Pasteur Institute of Southern India, Coonoor, India
Rabies Section, Institut Pasteur, Teheran, Iran
Institute of Poliomyelitis and Viral Encephalitides, Moscow, USSR
Wistar Institute of Anatomy and Biology, Philadelphia, PA, USA
Center for Disease Control, Atlanta, GA, USA

Radiation
Laboratory for Dosimetry, National Atomic Energy Commission, Buenos Aires, Argentina 1
* Institute of Radiation Protection and Dosimetry, Brazilian Nuclear Technology Company, Rio de Janeiro, Brazil 1
Human Cytogenetics Division, Environmental Health Centre, Department of National Health and Welfare, Ottawa, Ont., Canada
Radiation Protection Division, Department of National Health and Welfare, Ottawa, Ont., Canada

Service central de Protection contre les Rayonnements ionisants, Le Vésinet, Yvelines, France
Institute of Nuclear Medicine, German Centre for Cancer Research, Heidelberg, Federal Republic of Germany 1
Radiation Medicine Centre, Bhabha Atomic Research Centre, Trombay, Bombay, India 1
Radiotherapy Department, Faculty of Medicine, Pahlavi Hospital, University of Teheran, Iran 1
Department of Radiotherapy, Institute of Oncology, National Medical Centre of the Mexican Social Security Institute, General Hospital, Mexico City, Mexico 1
Department of Nuclear Medicine, Central Hospital of 20 November, Mexico City, Mexico 1
National Radiation Laboratory, Department of Health, Wellington, New Zealand
* Institute for Radiation Biology and Radiotherapy, College of Medicine, University of Lagos, Nigeria 1
National Research Institute for Mother and Child, Ministry of Health and Social Welfare, Warsaw, Poland
Radiation Hygiene Laboratory, Institute of Hygiene, Bucharest, Romania 1
Radiotherapy Department, Outram Road General Hospital, Singapore 1
National Institute of Radiation Protection, Stockholm, Sweden
Department of Medical Sciences, Ministry of Public Health, Bangkok, Thailand 1
Institute of Medical Genetics, Academy of Medical Sciences of the USSR, Moscow, USSR
Clinical Population Cytogenetics Research Unit, Medical Research Council, Edinburgh, United Kingdom
Bureau of Radiological Health, Food and Drug Administration, Department of Health, Education, and Welfare, Rockville, MD, USA
National Environmental Research Center, Environmental Protection Agency, Las Vegas, NM, USA

Renal Diseases
Department of Pathology, Mount Sinai Hospital School of Medicine, City University of New York, NY, USA

Reproduction, Human
Latin American Institute of the Physiology of Reproduction, Faculty of Medicine, University of Salvador, Buenos Aires, Argentina
Department of Obstetrics and Gynaecology, Queen Elizabeth II Research Institute for Mothers and Infants, University of Sydney, New South Wales, Australia
Clinique de Gynécologie et d’Obstétrique et Laboratoire de Gynécologie expérimentale, Hôpital universitaire Saint-Pierre, Free University of Brussels, Belgium
Department of Gynaecological Endocrinology, Faculty of Medicine, Free University of Berlin
Obstetrics Clinic, Climerio de Oliveira Maternity Hospital, Faculty of Medicine, Federal University of Bahia, Salvador, Brazil

1 In collaboration with IAEA.
Canadian Committee for Fertility Research, Montreal, Canada
* Department of Obstetrics and Gynaecology, Faculty of Medicine, University of British Columbia, Vancouver, B.C., Canada
Shatby Maternity Hospital, Faculty of Medicine, Alexandria University, Egypt
Department of Obstetrics and Gynaecology, Medical School, University of Szeged, Hungary
Department of Obstetrics and Gynaecology, and Pharmacology and Preventive Medicine, Seth G.S. Medical College, University of Bombay and Institute for Research in Reproduction, Indian Council of Medical Research, Bombay, India
Department of Obstetrics and Gynaecology, Postgraduate Institute of Medical Education and Research, Chandigarh, Punjab, India
Department of Human Reproduction, All India Institute of Medical Sciences, Indian Council of Medical Research, New Delhi, India
Gandhigram Institute of Rural Health and Family Planning, Gandhigram, Madurai District, Tamil Nadu, India
Institute of Endocrinology, Chaim Sheba Medical Centre, Tel Hashomer, Israel
Research Division, Department of Reproductive Biology, National Institute of Nutrition, Mexico City, Mexico
Department of Obstetrics and Gynaecology, Academic Hospital, University of Utrecht, Netherlands
Department of Obstetrics and Gynaecology, Faculty of Medicine, University of Ibadan, Nigeria
Reproductive Biology Centre, Department of Obstetrics and Gynaecology, College of Medicine, University of the Philippines, Manila, Philippines
Institute of Reproductive Medicine and Population, College of Medicine, Seoul National University, Seoul, Republic of Korea
Department of Obstetrics and Gynaecology, Kandang Kerbau Hospital for Women, University of Singapore, Singapore
Reproductive Endocrinology Research Unit, Karolinska Institute, Stockholm, Sweden
Family Planning Research Unit, Department of Obstetrics and Gynaecology, Siriraj Hospital, Mahidol University, Bangkok, Thailand
All-Union Scientific Research Institute of Obstetrics and Gynaecology, Ministry of Health of the USSR, Moscow, USSR
Department of Obstetrics and Gynaecology, King's College Hospital Medical School, London, United Kingdom
Department of Obstetrics and Gynaecology, Women's Hospital, University of Southern California Medical Center, Los Angeles, CA, USA
Population Epidemiology Unit and Carolina Population Center, University of North Carolina, Chapel Hill, NC, USA
Laboratory of Reproductive Pharmacology, New York Medical College, New York, NY, USA
Family Planning Institute, University Clinical Hospital, University of Ljubljana, Yugoslavia
* Department of Obstetrics and Gynaecology, School of Medicine, University of Zambia, Lusaka, Zambia

**Respiratory Virus Diseases other than Influenza**
Fairfield Hospital Communicable Disease Centre, Melbourne, Victoria, Australia
Department of Epidemiology and Microbiology, Institute of Hygiene and Epidemiology, Prague, Czechoslovakia
Respiratory Virus Laboratory, National Institute of Health, Tokyo, Japan
Ivanovskij Institute of Virology, Moscow, USSR
Common Cold Research Unit, National Institute for Medical Research, Harvard Hospital, Salisbury, Wilts., United Kingdom
Center for Disease Control, Atlanta, GA., USA
Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, USA

**Rheumatic Diseases**
Hôpital Cochin, Paris, France
Rheumatology Service, Medical Clinic, Faculty of Medicine, University of Barcelona, Spain
Institute of Rheumatology, Academy of Medical Sciences of the USSR, Moscow, USSR
Connective Tissue Division, Johns Hopkins University School of Medicine, Baltimore, MD, USA
Medical Clinic, Faculty of Medicine, University of the Republic, Montevideo, Uruguay

**Rickettsioses**
Department of Rickettsiae, Institute of Virology, Bratislava, Czechoslovakia
* Department of Microbiology, School of Medicine, University of Maryland, Baltimore, MD, USA
Rocky Mountain Laboratory, National Institute of Allergy and Infectious Diseases, Hamilton, MT, USA

**Schistosomiasis**
Danish Bilharziasis Laboratory, Copenhagen, Denmark

**Serum Reference Banks**
Institute of Hygiene and Epidemiology, Prague, Czechoslovakia
National Institute of Health, Tokyo, Japan
Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, CT, USA

**Smallpox**
Connaught Medical Research Laboratories, University of Toronto, Ont., Canada
Section des Virus, Laboratoire national de la Santé publique, Paris, France
Department of Enteroviruses, National Institute of Health, Tokyo, Japan
Virus and Rickettsial Diseases Laboratory, National Institute of Public Health, Utrecht, Netherlands
Laboratory of Smallpox Prophylaxis, Research Institute of Virus Preparations, Moscow, USSR
Department of Virology, Wright-Fleming Institute of Microbiology, St Mary's Hospital Medical School, University of London, United Kingdom
Department of Microbiology, University of Reading, United Kingdom
Center for Disease Control, Atlanta, GA, USA

Standardization of Diagnostic Reagents
* Queen Elizabeth Medical Centre, Birmingham, United Kingdom
* Center for Disease Control, Atlanta, GA, USA

Staphylococcal Infections
Central Public Health Laboratory, London, United Kingdom

Statistics (Classification of Diseases)
Section Information sur la Santé publique, Institut national de la Santé et de la Recherche médicale, Boulogne-sur-Seine, France
Department of Public Health Statistics, Semaško Institute of Social Hygiene and Public Health Administration, Moscow, USSR
Office of Population Censuses and Surveys, Somerset House, London, United Kingdom
Latin American Centre for Classification of Diseases, Centro Simón Bolívar, Caracas, Venezuela

Strengthening of Health Services
Institute of Public Health Research, School of Public Health, University of Teheran, Iran
Centre for Health Sciences, Ben Gurion University of the Negev, Beersheba, Israel

Streptococcal Infections
Streptococcus Reference Laboratory, Institute of Hygiene and Epidemiology, Prague, Czechoslovakia

Toxoplasmosis
Department of Toxoplasmosis and Viral Diseases, Statens Seruminstitut, Copenhagen, Denmark

Trachoma and other Chlamydial Infections
Ornithosis Department, Statens Seruminstitut, Copenhagen, Denmark
* Department of Clinical Ophthalmology, Institute of Ophthalmology, University of London, United Kingdom
Francis I. Proctor Foundation for Research in Ophthalmology, University of California Medical Center, San Francisco, CA, USA

Trypanosomiasis
National Institute of Rural Endemic Diseases, Belo Horizonte, Brazil

East African Trypanosomiasis Research Organization, Tororo, Uganda
Department of Medical Protozoology, London School of Hygiene and Tropical Medicine, London, United Kingdom

Tuberculosis
Second Tuberculosis Clinic, Medical Faculty, Charles University, Prague, Czechoslovakia
Department of Tuberculosis Microbiology, Institute of Hygiene and Epidemiology, Prague, Czechoslovakia
BCG Department, Statens Seruminstitut, Copenhagen, Denmark
Department of Tuberculosis, National Institute of Health, Tokyo, Japan
National Tuberculosis Institute, El Algodonal, Caracas, Venezuela

Vector Biology and Control
Research Unit on Vector Pathology, Faculty of Arts and Sciences, Memorial University of Newfoundland, St John's, Newfoundland, Canada
Institute of Parasitology, Prague, Czechoslovakia
Danish Pest Infestation Laboratory, Lyngby, Denmark
United States Naval Medical Research Unit No. 3, Cairo, Egypt
Station de Recherches cytopathologiques, Faculté des Sciences, University of Montpellier, France
Institute of Genetics, Johannes Gutenberg University, Mainz, Federal Republic of Germany
Institute of Zoology, University of Pavia, Italy
Laboratory for Research on Insecticides, Wageningen, Netherlands
Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR
Toxicology Research Unit, Medical Research Council Laboratories, Carshalton, Surrey, United Kingdom
Department of Entomology, London School of Hygiene and Tropical Medicine, London, United Kingdom
Ross Institute of Tropical Hygiene, London, United Kingdom
Division of Chemical Control Research, Centre for Overseas Pest Research, Porton Down, Salisbury, Wilts., United Kingdom
Department of Entomology, University of California, Riverside, CA, USA
Entomological Research Division, United States Department of Agriculture, Agricultural Research Service, Gainesville, FL, USA
Center for Disease Control, Atlanta, GA, USA
Department of Entomology, College of Liberal Arts and Sciences, University of Illinois, Urbana, IL, USA
Department of Biology, University of Notre Dame, IN, USA
Gulf Coast Mosquito Research Laboratory, United States Department of Agriculture, Lake Charles, LA, USA
Department of Zoology, University of Maryland, College Park, MD, USA
Department of Zoology and Entomology, Ohio State University, Columbus, OH, USA

1 In collaboration with FAO.
2 See also Malaria.
THE WORK OF WHO, 1975

* Department of Pathology, Southwestern Medical School, University of Texas, Dallas, TX, USA
Mission entomologique, Centre Muraz, Bobo Dioulasso, Upper Volta
Department of Toxicology, Institute of Medical Research, Yugoslav Academy of Sciences and Arts, Zagreb, Yugoslavia

Venereal Infections and Treponematoses
Venereal Diseases Reference Laboratory, Institute of Clinical Pathology and Medical Research, New South Wales Department of Public Health, Lidcombe, Australia
Statens Serum Institut, Copenhagen, Denmark (2)
Institut Alfred-Fournier, Paris, France (3)
Bacteriology Section, Department of Pathology, Outram Road General Hospital, Singapore
Center for Disease Control, Atlanta, GA, USA
Johns Hopkins University, Baltimore, MD, USA

Veterinary Public Health
* Faculty of Veterinary Medicine, University of Teheran; Razi State Serum and Vaccine Institute; and School of Public Health and Institute of Public Health Research, Teheran, Iran

Virus Diseases, General 1
Bureau of Virology, Laboratory Centre for Disease Control, Department of National Health and Welfare, Ottawa, Ont., Canada
Department of Virology, National Institute of Public Health, Budapest, Hungary
Department of Microbiology, University of the West Indies, Mona, Kingston, Jamaica
Department of Medical Microbiology, Faculty of Medicine, University of Ibadan, Nigeria
Stefan S. Nicolau Institute of Virology, Bucharest, Romania
Institute of Medical Microbiology, St Gall, Switzerland
Trinidad Regional Virus Laboratory, Port of Spain, Trinidad and Tobago
Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR
Central Public Health Laboratory, London, United Kingdom (2)
Division of Bacteriology and Virus Research, Medical Research Council's National Institute for Medical Research, London, United Kingdom
London School of Hygiene and Tropical Medicine, London, United Kingdom
Department of Virology, Andrija Štampar School of Public Health, University of Zagreb, Yugoslavia

Wastes Disposal
Institute of Sanitary Engineering, Faculty of Engineering, University of Buenos Aires, Argentina
Water Science Laboratories, Melbourne Water Science Institute Ltd, Carlton, Victoria, Australia

Institute for Water Supply, Sewage Purification and Water Pollution Control, Vienna Technical University, Austria
Centre belge d’Etude et de Documentation des Eaux, Liège, Belgium
Central Office for Wastes Disposal, Berlin
SURSAN Institute of Sanitary Engineering, Rio de Janeiro, Brazil
Department of Environmental Health, School of Public Health, University of São Paulo, Brazil
Centre of Hygiene, Research Institute of Occupational Hygiene and Industrial Safety, Sofia, Bulgaria
Water Research Institute, Bratislava, Czechoslovakia
Sanitary Engineering Department, Faculty of Engineering, University of Alexandria, Egypt

1 See also Arbovirus diseases, Enterovirus diseases, Influenza, Respiratory virus diseases other than influenza, and Smallpox.
ANNEX 5

National Institute for Water Research, Council for Scientific and Industrial Research, Pretoria, South Africa
Battelle Geneva Research Centre, Geneva, Switzerland
Federal Institute for Water Resources and Water Pollution Control, Dübendorf, Zurich, Switzerland
Division of Environmental Engineering, Asian Institute of Technology, Bangkok, Thailand
Environmental Engineering Department, Middle East Technical University, Ankara, Turkey
Academy of Community Services, Moscow, USSR
Water Pollution Research Laboratory, Stevenage, Herts., United Kingdom
American Public Works Association, Chicago, IL, USA
Office of Solid Waste Management Programs, Environmental Protection Agency, Rockville, MD, USA
Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina, Chapel Hill, NC, USA
National Environmental Research Center, Environmental Protection Agency, Cincinnati, OH, USA
Center for Research in Water Resources, Balcones Research Center, University of Texas, Austin, TX, USA
Faculté polytechnique, National University of Zaire, Kinshasa, Zaire

Water Supply

Institut d'Hygiène et d'Epidémiologie, Ministère de la Santé publique, Brussels, Belgium
SUSAN Institute of Sanitary Engineering, Rio de Janeiro, Brazil
Institute of Hygiene and Epidemiology, Prague, Czechoslovakia
Institute of Hygiene, University of Aarhus, Denmark
Sanitary Engineering Department, Faculty of Engineering, University of Alexandria, Egypt
Section d'Hydrologie, Office de la Recherche scientifique et technique outre-mer, Paris, France
Department of Civil Engineering, Faculty of Engineering, University of Science and Technology, Kumasi, Ghana
Victoria Jubilee Technical Institute, Matunga, Bombay, India
All India Institute of Hygiene and Public Health, Calcutta, India
National Environmental Engineering Research Institute, Nagpur, India
Institute of Hydro-Sciences and Water Resources Technology, University of Teheran, Iran

Environmental Health Laboratory, Hadassah Medical School, Jerusalem, Israel
Centre for Study and Research in Sanitary Engineering, University of Naples, Italy
Institute of Water Research, National Research Council, Rome, Italy
Department of Sanitary Engineering, Faculty of Engineering, University of Tokyo, Japan
Department of Civil Engineering, Faculty of Engineering, University of Nairobi, Kenya
Faculty of Engineering and Architecture, and School of Public Health, American University of Beirut, Lebanon
Institute for Control of Waterpipe Material, Rijswijk, Netherlands
Chemical and Bacteriological Department, Institute for Water Supply, Voorburg, Netherlands
Faculty of Engineering, University of Lagos, Nigeria
Department of Sanitation, National University of Engineering, Lima, Peru
Pan American Centre for Sanitary Engineering and Environmental Sciences, Lima, Peru
Faculty of Engineering and Architecture, University of Khartoum, Sudan
Battelle Geneva Research Centre, Geneva, Switzerland
Division of Environmental Engineering, Asian Institute of Technology, Bangkok, Thailand
Environmental Engineering Department, Middle East Technical University, Ankara, Turkey
Academy of Community Services, Moscow, USSR
Water Research Association, Medmenham, Marlow, Bucks., United Kingdom
Department of Civil Engineering, University of Newcastle upon Tyne, United Kingdom
Department of Environmental Engineering, College of Engineering, University of Florida, Gainesville, FL, USA
Division of Water Hygiene, Water Quality Office, Environmental Protection Agency, Rockville, MD, USA
National Sanitation Foundation, Ann Arbor, MI, USA
Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina, Chapel Hill, NC, USA
Department of Sanitary Engineering, Faculty of Engineering, Central University of Venezuela, Caracas, Venezuela
Annex 6

RESEARCH GRANTS AWARDED FOR TRAINING AND EXCHANGE IN 1975, BY SUBJECT AND TYPE OF GRANT

<table>
<thead>
<tr>
<th>Subject</th>
<th>Training grants</th>
<th>Grants for exchange of research workers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial diseases (other than leprosy and tuberculosis)</td>
<td>—</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Cancer</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Health manpower development</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Human genetics</td>
<td>1</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Human reproduction</td>
<td>35</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Immunology</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Malaria and other parasitic diseases</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Mental health</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Noncommunicable diseases</td>
<td>—</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Prophylactic, diagnostic and therapeutic substances</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Veterinary public health</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Virus diseases</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL** 42 | 33 | 75

1 In addition, three research grants were supported by the Swedish National Association against Heart and Chest Diseases.
### Annex 7

**FELLOWSHIPS AWARDED, BY SUBJECT OF STUDY AND BY REGION,**
1 December 1974 - 30 November 1975

<table>
<thead>
<tr>
<th>Subject of study</th>
<th>Africa</th>
<th>The Americas</th>
<th>South-East Asia</th>
<th>Europe</th>
<th>Eastern Mediterranean</th>
<th>Western Pacific</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Organization and Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Public Health Administration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public health administration</td>
<td>71</td>
<td>72</td>
<td>42</td>
<td>46</td>
<td>36</td>
<td>16</td>
<td>283</td>
</tr>
<tr>
<td>Hospital and medical care administration</td>
<td>3</td>
<td>16</td>
<td>7</td>
<td>7</td>
<td>12</td>
<td>4</td>
<td>49</td>
</tr>
<tr>
<td>Construction of health institutions</td>
<td>—</td>
<td>12</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>15</td>
</tr>
<tr>
<td>Medical librarianship</td>
<td>—</td>
<td>3</td>
<td>1</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>5</td>
</tr>
<tr>
<td><strong>Subtotal — Public Health Administration</strong></td>
<td>74</td>
<td>103</td>
<td>51</td>
<td>54</td>
<td>50</td>
<td>20</td>
<td>352</td>
</tr>
<tr>
<td><strong>Environmental Health</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Environmental sanitation</td>
<td>31</td>
<td>109</td>
<td>76</td>
<td>123</td>
<td>27</td>
<td>46</td>
<td>412</td>
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<tr>
<td>Food control</td>
<td>—</td>
<td>13</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>2</td>
<td>38</td>
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<tr>
<td><strong>Subtotal — Environmental Health</strong></td>
<td>31</td>
<td>122</td>
<td>84</td>
<td>132</td>
<td>33</td>
<td>48</td>
<td>450</td>
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<tr>
<td><strong>Nursing</strong></td>
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<tr>
<td>Nursing and midwifery</td>
<td>48</td>
<td>27</td>
<td>39</td>
<td>24</td>
<td>30</td>
<td>30</td>
<td>198</td>
</tr>
<tr>
<td>Public health nursing</td>
<td>63</td>
<td>4</td>
<td>2</td>
<td>—</td>
<td>1</td>
<td>16</td>
<td>86</td>
</tr>
<tr>
<td><strong>Subtotal — Nursing</strong></td>
<td>111</td>
<td>31</td>
<td>41</td>
<td>24</td>
<td>31</td>
<td>46</td>
<td>284</td>
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<tr>
<td><strong>Maternal and Child Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>8</td>
<td>73</td>
<td>100</td>
<td>39</td>
<td>17</td>
<td>34</td>
<td>271</td>
</tr>
<tr>
<td>Paediatrics and obstetrics</td>
<td>12</td>
<td>25</td>
<td>51</td>
<td>15</td>
<td>25</td>
<td>4</td>
<td>132</td>
</tr>
<tr>
<td><strong>Subtotal — Maternal and Child Health</strong></td>
<td>20</td>
<td>98</td>
<td>151</td>
<td>54</td>
<td>42</td>
<td>38</td>
<td>403</td>
</tr>
<tr>
<td><strong>Other Health Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental health</td>
<td>1</td>
<td>5</td>
<td>12</td>
<td>25</td>
<td>15</td>
<td>10</td>
<td>68</td>
</tr>
<tr>
<td>Health education</td>
<td>38</td>
<td>6</td>
<td>27</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>84</td>
</tr>
<tr>
<td>Occupational health</td>
<td>3</td>
<td>2</td>
<td>10</td>
<td>22</td>
<td>12</td>
<td>12</td>
<td>61</td>
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<td>Nutrition</td>
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<td>14</td>
<td>2</td>
<td>13</td>
<td>4</td>
<td>93</td>
</tr>
<tr>
<td>Health statistics</td>
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<td>19</td>
<td>19</td>
<td>29</td>
<td>21</td>
<td>16</td>
<td>110</td>
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<tr>
<td>Dental health</td>
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<td>12</td>
<td>11</td>
<td>7</td>
<td>11</td>
<td>42</td>
<td>92</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>1</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>23</td>
<td>5</td>
<td>69</td>
</tr>
<tr>
<td>Control of pharmaceutical and biological preparations</td>
<td>—</td>
<td>5</td>
<td>15</td>
<td>12</td>
<td>25</td>
<td>4</td>
<td>61</td>
</tr>
<tr>
<td><strong>Subtotal — Other Health Services</strong></td>
<td>63</td>
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<td>118</td>
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**Percentage**

| Percentage | 68 | 69 | 68 | 76 | 43 | 61 | 64 |
### Annex 7 (continued)

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<td>493</td>
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$^1$ The much lower figure than in previous years for undergraduate medical fellowships is due to the fact that these are now awarded for the entire duration of studies instead of being renewed annually and thus recurring in the annual statistics.
Annex 8

PUBLICATIONS ISSUED IN 1975

MONOGRAPH SERIES

23 Laboratory Techniques in Rabies, edited by M. M. Kaplan & H. Koprowski, third edition (R)
55 Laboratory Techniques in Brucellosis, by G. G. Alton, Lois M. Jones & D. E. Pietz, second edition (E)

PUBLIC HEALTH PAPERS

47 Aspects of Medical Education in Developing Countries. Selected papers presented at the Second WHO Conference on Medical Education in the Eastern Mediterranean Region (R)
53 Family Planning in the Education of Nurses and Midwives, edited by Lily M. Turnbull & Helena Pizurki (R)
56 The Training and Utilization of Feldshers in the USSR (S)
57 The Teaching of Human Sexuality in Schools for Health Professionals, by D. R. Mace, R. H. O. Bannermann & J. Burton (S)
58 Suicide and Attempted Suicide, edited by Eileen M. Brooke (F)
60 The Medical Assistant: An Intermediate Level of Health Care Personnel, edited by D. M. Pitcairn & D. Flahault (F, S)
61 Educational Strategies for the Health Professions, edited by George E. Miller & Tamás Fülęp (F, S)
62 Mesures à prendre en vue d’assurer la salubrité du littoral méditerranéen. Aspects sanitaires de la pollution, by J. Brisou (F, S)
63 Schizophrenia: a Multinational Study. A Summary of the Initial Evaluation Phase of the International Pilot Study of Schizophrenia (E)
64 Health Economics (E)

TECHNICAL REPORT SERIES

504 Inherited Blood Clotting Disorders, report of a WHO Scientific Group (R)
509 Treatment of Haemoglobinopathies and Allied Disorders, report of a WHO Scientific Group (R)
517 Reuse of Effluents: Methods of Wastewater Treatment and Health Safeguards, report of a WHO Meeting of Experts (R)
520 Reproductive Function in the Human Male, report of a WHO Scientific Group (R)
524 Pharmacogenetics, report of a WHO Scientific Group (R)
525 Pesticides Residues in Food, report of the 1972 Joint FAO/WHO Meeting (R)
527 Advances in Methods of Fertility Regulation, report of a WHO Scientific Group (R)
529 Chemotherapy of Malaria and Resistance to Antimalarials, report of a WHO Scientific Group (R)
531 The Use of Viruses for the Control of Insect Pests and Disease Vectors, report of a Joint FAO/WHO Meeting on Insect Viruses (R)
532 Trace Elements in Human Nutrition, report of a WHO Expert Committee (R)
533 Postgraduate Education and Training in Public Health, report of a WHO Expert Committee (R)
536 Bioavailability of Drugs: Principles and Problems, report of a WHO Scientific Group (R)
541 Disposal of Community Wastewater, report of a WHO Expert Committee (R, S)
542 WHO Expert Committee on Filariasis, third report (R)
543 Food-borne Disease: Methods of Sampling and Examination in Surveillance Programmes, report of a WHO Study Group (R)
544 Uses of Epidemiology in Housing Programmes and in Planning Human Settlements, report of a WHO Expert Committee on Housing and Health (R)
545 Pesticide Residues in Food, report of the 1973 Joint FAO/WHO Meeting (R, S)
546 Assessment of the Carcinogenicity and Mutagenicity of Chemicals, report of a WHO Scientific Group (R)
549 WHO Expert Committee on Malaria, sixteenth report (S)
550 Fish and Shellfish Hygiene, report of a WHO Expert Committee convened in cooperation with FAO (R)
551 WHO Expert Committee on Drug Dependence, twentieth report (R)
552 WHO Expert Committee on Tuberculosis, ninth report (R)
553 Ecology and Control of Rodents of Public Health Importance, report of a WHO Scientific Group (S)
554 Health Aspects of Environmental Pollution Control: Planning and Implementation of National Programmes, report of a WHO Expert Committee (R, S)
555 The Use of Mercury and Alternative Compounds as Seed Dressings, report of a Joint FAO/WHO Meeting (S)
556 Detection of Dependence-Producing Drugs in Body Fluids, report of a WHO Meeting of Investigators (S)
557 Evaluation of Certain Food Additives, eighteenth report of the Joint FAO/WHO Expert Committee on Food Additives (S)
558 Community Health Nursing, report of a WHO Expert Committee (S)

1 The language of issue is denoted as follows: E = English; F = French; P = Portuguese; R = Russian; S = Spanish; E-F = English and French; E/F, E/S = bilingual edition; E/F/S = trilingual edition.
New Approaches in Health Statistics, report of the Second International Conference of National Committees on Vital and Health Statistics (S)

Chemical and Biochemical Methodology for the Assessment of Hazards of Pesticides for Man, report of a WHO Scientific Group (E, F, S)

Ecology and Control of Vectors in Public Health, twenty-first report of the WHO Expert Committee on Insecticides (E, F, S)

Services for Cardiovascular Emergencies, report of a WHO Expert Committee (E, F, S)

Guidelines for Evaluation of Drugs for Use in Man, report of a WHO Scientific Group (E, F, S)

Organization of Mental Health Services in Developing Countries, sixteenth report of the WHO Expert Committee on Mental Health (E, F, S)

WHO Expert Committee on Biological Standardization, twenty-sixth report (E, F)

The Planning of Schools of Medicine, report of a WHO Study Group (E, F, S)

WHO Expert Committee on Specifications for Pharmaceutical Preparations, twenty-fifth report (E, F)

Smoking and its Effects on Health, report of a WHO Expert Committee (E, F, S)

Evaluation of Family Planning in Health Services, report of a WHO Expert Committee (E, F, S)

Viral Hepatitis, report of a WHO Meeting (E, F, S)

Early Detection of Health Impairment in Occupational Exposure to Health Hazards, report of a WHO Study Group (E, F)

Education and Treatment in Human Sexuality: the Training of Health Professionals, report of a WHO Meeting (E, F)

The Veterinary Contribution to Public Health Practice, report of a Joint FAO/WHO Expert Committee on Veterinary Public Health (E, F)

Pesticide Residues in Food, report of the 1974 Joint FAO/WHO Meeting (E, F)

Advances in Methods of Fertility Regulation, report of a WHO Scientific Group (E, F, S)

Evaluation of Certain Food Additives: Some Food Colours, Thickening Agents, Smoke Condensates, and Certain Other Substances, nineteenth report of the Joint FAO/WHO Expert Committee on Food Additives (E, F)

Evaluation of Dependence Liability and Dependence Potential of Drugs, report of a WHO Scientific Group (E, F)

Radioimmunoassay of Hormones for Clinical Trials of Fertility Regulating Agents in Developing Countries, report of a WHO Meeting of Experts (E, F)

Developments in Malaria Immunology, report of a WHO Scientific Group (E, F)

Control of Nutritional Anaemia with Special Reference to Iron Deficiency, report of an IAEA/USAID/WHO Joint Meeting (E, F)

Nonproprietary Names for Pharmaceutical Substances, twentieth report of the WHO Expert Committee (E, F)

The Epidemiology of Infertility, report of a WHO Scientific Group (E, F)

Pregnancy and Abortion in Adolescence, report of a WHO Meeting (E, F)
ANNEX 8

13 Manual on Practical Entomology in Malaria, prepared by the WHO Division of Malaria and Other Parasitic Diseases, Parts I and II (E)
14 Understanding Research in Nursing, by Shirley Chater (E, F)
15 Community Water Supply and Excreta Disposal Situation in Developing Countries. A Commentary, by C. S. Pineo & D. V. Subrahmanyan (E)
16 First WHO Seminar on Expansion of the Use of Immunization in Developing Countries, Kumasi, Ghana, 12-19 November 1974 (E, F)
17 Selected Bibliography on Detection of Dependence-Producing Drugs in Body Fluids, by T. L. Cruchśiel & M. Cruchśiel (E/F)
18 The Traditional Birth Attendant in Maternal and Child Health and Family Planning. A Guide to her Training and Utilization, by Maria de Lourdes Verderese & Lily M. Turnbull (E, F)
19 Annotated Bibliography of Teaching-Learning Materials for Schools of Nursing and Midwifery (E/F/S)
20 Guide to the Integration of Health Education in Environmental Health Programmes, by K. A. Pisharoti (E, F)
21 Training of Medical Laboratory Technicians: A Handbook for Tutors, by A. McMinn & G. J. Russell (E, F)

International Histological Classification of Tumours
6 Histological Typing of Bone Tumours, by F. Schajowicz, L. V. Ackerman & H. A. Sissons in collaboration with L. H. Sobin & H. Torloni (R)
12 Histological Typing of Skin Tumours, by R. E. J. ten Seldam & E. B. Helwig in collaboration with L. H. Sobin & H. Torloni (F, S)
13 Histological Typing of Female Genital Tract Tumours, by H. E. Poulsen & C. W. Taylor in collaboration with L. H. Sobin (E)

WHO Pesticide Residues Series
2 1972 Evaluations of Some Pesticide Residues in Food (F)
3 1973 Evaluations of Some Pesticide Residues in Food (E)
4 1974 Evaluations of Some Pesticide Residues in Food (E)

WHO Food Additives Series
6 Toxicological Evaluation of Some Food Colours, Enzymes, Flavour Enhancers, Thickening Agents, and Certain Other Food Additives (E)
8 Toxicological Evaluation of Some Food Colours, Thickening Agents, and Certain Other Substances (E)

History of International Public Health
1 The Scientific Background of the International Sanitary Conferences 1851-1938, by N. Howard-Jones (E, F)

Introduction to Ergonomics, by W. T. Singleton (R)
Drug Therapy of Cancer, by G. Brulé, S. J. Eckhardt, T. C. Hall & A. Winkler (R)
Health Hazards of the Human Environment, prepared by 100 specialists in 15 countries (R)
Guidelines for the Laboratory Diagnosis of Cholera, prepared by the WHO Bacterial Diseases Unit (R)
Dictionary of Epilepsy, Part I: Definitions, by H. Gastaut in collaboration with an international group of experts (R)
Methods for the Analysis of Human Chromosome Aberrations, edited by K. E. Buckton & H. J. Evans (R)
Field Methods for the Control of Trachoma, edited by M. L. Tarizzo (R)
Guide to Simple Sanitary Measures for the Control of Enteric Diseases, by S. Rajagopalan & M. A. Shiffman (E, F)
Manual on Radiation Protection in Hospitals and General Practice. Volume 1: Basic Protection Requirements, by C. B. Braestrup & K. J. Vikterfö (F)
Manual on Radiation Protection in Hospitals and General Practice. Volume 2: Unsealed Sources, by D. Frost & H. Jammet (E)
Health by the People, edited by K. W. Newell (E, F, S)
Community Wastewater Collection and Disposal, by D. A. Okun & G. Ponghis (E)
Slow Sand Filtration, by L. Huisman & W. E. Wood (F)

Guide to the Laboratory Diagnosis of Trachoma, prepared by the participants in a WHO Symposium (E, F)
Methods Used in the USSR for Establishing Biologically Safe Levels of Toxic Substances. Papers presented at a WHO Meeting held in Moscow from 12 to 19 December 1972 (E, F)
Biological Substances. International Standards and Reference Preparations, 1975 (E)

Intensive Coronary Care, by M. F. Oliver, D. G. Julian & Myra G. Brown (F)
Equipment for Vector Control, second edition (F, R)
Drug Treatment in Intestinal Helminthiases, by A. Davis (S)
The International Health Regulations. A Practical Guide, by P. J. Delon (E, F)
Contraception Explained, by Clive Wood (E, F)
World Directory of Schools for Animal Health Assistants, 1971 (F)

Introducing WHO (E)
Alternative Approaches to Meeting Basic Health Needs in Developing Countries. A Joint UNICEF/WHO Study, edited by V. Djukanovic & E. P. Mach (E, F)
Health Aspects of Human Rights, with Special Reference to Developments in Biology and Medicine (E)
PERIODICALS

World Health
- Monthly (E, F, P, R, S)

WHO Chronicle
- Volume 28, Nos. 10-12 (R)
- Volume 29, Nos. 1-8 (R)
- Volume 29, Nos. 1-11 (E, F, S)

Bulletin of the World Health Organization
- Volume 49, Nos. 4-6 (R)
- Volume 50, Nos. 1-6 (R)
- Volume 51, Nos. 1-3 (R)
- Volume 51, Nos. 1-6 (E-F)
- Volume 52, No. 1 (E-F)

Supplements to Volume 52 of the Bulletin
- Progress in Standardization: 2—A Guide to International Recommendations on Names and Symbols for Quantities and on Units of Measurements, by D. Armstrong Lowe (E)

TRANSLATED WHO PUBLICATIONS ISSUED BY OTHER PUBLISHERS IN 1975

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<th>Language</th>
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<td>Family Planning in the Education of Nurses and Midwives, edited by Lily M. Turnbull &amp; Helena Pizurki</td>
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<td>Turkish</td>
<td>The Planning and Organization of a Health Laboratory Service, fifth report of the WHO Expert Committee on Health Laboratory Services</td>
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<td>Turkish</td>
<td>Development of Environmental Health Criteria for Urban Planning, report of a WHO Scientific Group</td>
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<td>Reuse of Effluents: Methods of Wastewater Treatment and Health Safeguards, report of a WHO Meeting of Experts</td>
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<td>Bioavailability of Drugs: Principles and Problems, report of a WHO Scientific Group</td>
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<td>Hospital Legislation and Hospital Systems, by R. F. Bridgman &amp; M. I. Roemer</td>
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<td>Japanese</td>
<td>Health Practice Research and Formalized Managerial Methods, by F. Grundy &amp; W.A. Reinke</td>
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<td>Japanese</td>
<td>Guide pour l'utilisation du Système international d'unités (SI), by D. Armstrong Lowe (F)</td>
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<td>International Histological Classification of Tumours No. 2: Histological Typing of Breast Tumours, by R. W. Scarff &amp; H. Torloni in collaboration with 12 pathologists in 10 countries (excerpts only)</td>
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<td>Portuguese</td>
<td>Guidelines for the Laboratory Diagnosis of Cholera, prepared by the WHO Bacterial Diseases unit</td>
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<td>International Histological Classification of Tumours No. 7: Histological Typing of Salivary Gland Tumours, by A. C. Thackray &amp; L. H. Sobin (excerpts only)</td>
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1 Publications translated and issued by publishers to whom translation rights had been granted by WHO. The Organization does not accept responsibility for these translations or undertake their distribution.
SCIENTIFIC PUBLICATIONS SERIES

290 Guide for the Organization of Health Services in Rural Areas and the Utilization of Auxiliary Personnel (E)

294 Birth Weight, Maternal Age, and Birth Order: Three Important Determinants in Infant Mortality, by Ruth R. Puffer & Carlos V. Serrano (E, S)

295 VII Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control (E, S)

296 Seminario sobre Utilización de Auxiliares y Líderes Comunitarios en Programas de Salud en el Área Rural (S)

297 Impact of Malaria on Economic Development: A Case Study, by Gladys N. Conly (E)

298 Symposium on Research and Control of Onchocerciasis in the Western Hemisphere: Proceedings of an International Symposium (E)

299 Manual sobre la fiebre amarilla y su diagnóstico diferencial histopatológico, Alfonso J. Strano, John R. Dooley & Kamal G. Ishak (S)

300 Población y planificación de la familia: Resúmenes analíticos para educadores en servicio social y disciplinas afines, by Katherine Brownell Oettinger & Jeffrey D. Stansbury (S)

301 Simposio Centroamericano sobre el Sarampión y su Vacuna (S)

302 Discusiones Técnicas sobre “Estudios y estrategias necesarios para reducir la morbilidad y mortalidad por infecciones exógenas” (S)

303 Informe del Comité del Programa de Libros de Texto de la OPS/OMS para la Enseñanza de la Introducción a la Enfermería (S)

304 Proceedings of the III International Conference on the Mycoses (E)

305 A Fluorescent Antibody Technique for the Detection of Enterotoxin-producing Cells of Clostridium perfringens Type A, by Manuel J. Torres-Anjel, Hans P. Riemann & Che C. Tsai (E)

306 Epidemiology of Abortion and Practices of Fertility Regulation in Latin America (E)

307 Manual de procedimientos estándarizados para el diagnóstico de las micosis sistemáticas (S)

308 Reported Cases of Notifiable Diseases in the Americas, 1970-1972 (E, S)

309 Crecimiento de niños brasileños: Peso y altura en relación con la edad y el sexo y la influencia de factores socio-económicos, by Rubens Murillo Marques, Elza Berquó, João Yunes & Eduardo Marcondes (S)

310 Quimioterapia de la tuberculosis, by Wallace Fox (S)

311 Manual de reacciones para el diagnóstico de la sífilis (S)

312 Grupo de Trabajo sobre Diabetes mellitus (S)

313 Competency-based Curriculum in Veterinary Public Health (E)

314 Report of the Seventh Meeting of the Regional Advisory Committee on Health Statistics (E, S)

315 Reported Cases of Notifiable Diseases in the Americas, 1973 (E, S)

OFFICIAL DOCUMENTS SERIES

133 Final Report, XIX Pan American Sanitary Conference (E/S)

134 Proposed Program and Budget Estimates: Pan American Health Organization 1976; World Health Organization, Region of the Americas, 1976 (E, S)


136 Annual Report of the Director for 1974 (E, S)

136-A Project Activities, 1974, Annex to Annual Report of the Director (E, S)

137 Proceedings, XIX Pan American Sanitary Conference (E/S)

138 Proceedings, 73rd and 74th Meetings of the Executive Committee (E/S)

OTHER PUBLICATIONS

Veterinary Medical Education Series No. 2: Report of the Advisory Group on Teaching of Meat Hygiene in Schools of Veterinary Medicine in Latin America (E, S)

Catalog of Publications (E/S)

PUBLICATIONS OF THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER IN 1975

Annual Report, 1974 (E, F)

Annual Report, 1975 (E)


N-Nitroso Compounds in the Environment, edited by P. Bogovski & E. A. Walker (IARC Scientific Publications No. 9) (E)

Oncogenesis and Herpesviruses II. Parts 1 and 2, edited by G. de-Thé, M. A. Epstein & H. zur Hausen (IARC Scientific Publications No. 11) (E)
Annex 9

WHO LIBRARY STATISTICS, 1975

Acquisitions

Periodicals received ........................................ 3 265
  by subscription ........................................... 870
  by exchange with WHO publications ....................... 1 319
  by gift ..................................................... 1 076
Annual reports received ...................................... 1 463
Books and pamphlets ordered ................................. 892
Books and pamphlets received ............................... 1 918
Volumes bound ................................................ 652

Catalogue

Titles catalogued ............................................. 2 287
Cards filed .................................................... 31 331

Documents

Items catalogued or indexed ................................ 5 043
Cards filed ..................................................... 23 885

Loans

Lent to WHO secretariat ..................................... 7 730
Lent to other libraries ....................................... 3 140
 Borrowed from other libraries ............................ 2 540
Periodicals circulated to WHO secretariat ............... 71 350
Photocopying (number of exposures) ....................... 304 700
Items consulted in reading rooms ......................... 82 300

Medical literature supply

Orders placed for:
  Headquarters secretariat (number) ....................... 665
  (items) ................................................... 1 757
  Regional Offices (number) ............................... 2 237
  (items) ................................................... 13 715
Duplicates distributed to Regional Offices and to other
  libraries .................................................. 2 395

WHO MEDLINE Centre

Retrospective MEDLINE searches ............................ 3 513
Monthly current information searches ..................... 29

Annex 10

INTERGOVERNMENTAL ORGANIZATIONS WHICH HAVE ENTERED INTO FORMAL
AGREEMENTS WITH WHO APPROVED BY THE WORLD HEALTH ASSEMBLY

at 31 December 1975

African Development Bank
International Committee of Military Medicine and Pharmacy
International Office of Epizootics
League of Arab States
Organization of African Unity

NONGOVERNMENTAL ORGANIZATIONS IN OFFICIAL RELATIONS WITH WHO

at 31 December 1975

Biometric Society
Christian Medical Commission
Commonwealth Medical Association
Council for International Organizations of Medical Sciences
Inter-American Association of Sanitary Engineering
International Academy of Legal Medicine and of Social Medicine
International Agency for the Prevention of Blindness
International Air Transport Association
International Association for Accident and Traffic Medicine
International Association of Agricultural Medicine and Rural Health
International Association for Child Psychiatry and Allied Professions
International Association of Logopedics and Phoniatrics
International Association of Medical Laboratory Technologists
International Association of Microbiological Societies
International Association on Water Pollution Research
International Astronautical Federation
International Brain Research Organization
International College of Surgeons
International Commission on Radiation Units and Measurements
International Commission on Radiological Protection
International Committee of Catholic Nurses
International Committee on Laboratory Animals
International Committee of the Red Cross
International Confederation of Midwives
International Council on Alcohol and Addictions
International Council on Jewish Social and Welfare Services
International Council of Nurses
International Council of Scientific Unions
International Council on Social Welfare
International Council of Societies of Pathology
International Cystic Fibrosis (Mucoviscidosis) Association
International Dental Federation
International Diabetes Federation
International Electrotechnical Commission
International Epidemiological Association
International Ergonomics Association
International Federation of Clinical Chemistry
International Federation of Fertility Societies
International Federation of Gynecology and Obstetrics
International Federation of Medical Student Associations
International Federation of Multiple Sclerosis Societies
International Federation of Ophthalmological Societies
International Federation of Pharmaceutical Manufacturers Associations
International Federation of Physical Medicine and Rehabilitation
International Federation of Sports Medicine
International Federation of Surgical Colleges
International Hospital Federation
International Hydatidological Association
International League of Dermatological Societies
International League against Epilepsy
International League against Rheumatism
International Leprosy Association
International Organization for Standardization
International Organization against Trachoma
International Pediatric Association
International Pharmaceutical Federation
International Planned Parenthood Federation
International Political Science Association
International Psychogeriatric Association
International Psychiatric Association
International Psychosomatics Association
International Psychosocial Association
International Public Health Association
International Radiation Protection Association
International Society of Biometeorology
International Society of Blood Transfusion
International Society for Burn Injuries
International Society of Cardiology
International Society of Endocrinology
International Society of Hematology
International Society for Human and Animal Myology
International Society of Orthopaedic Surgery and Traumatology
International Society of Radiographers and Radiological Technicians
International Society of Radiology
International Society for Rehabilitation of the Disabled
International Sociological Association
International Solid Wastes and Public Cleansing Association
International Union of Architects
International Union of Biological Sciences
International Union against Cancer
International Union for Child Welfare
International Union for Conservation of Nature and Natural Resources
International Union for Health Education
International Union of Immunological Societies
International Union of Local Authorities
International Union of Nutritional Sciences
International Union of Pharmacology
International Union of Pure and Applied Chemistry
International Union of School and University Health and Medicine
International Union against Tuberculosis
International Union against the Venereal Diseases and the Treponematoses
International Water Supply Association
Joint Commission on International Aspects of Mental Retardation
League of Red Cross Societies
Medical Women's International Association
Permanent Commission and International Association on Occupational Health
Population Council
Transplantation Society
World Association of Societies of (Anatomic and Clinical) Pathology
World Confederation for Physical Therapy
World Council for the Welfare of the Blind
World Federation of the Deaf
World Federation of Hemophilia
World Federation for Medical Education
World Federation for Mental Health
World Federation of Neurology
World Federation of Neurosurgical Societies
World Federation of Nuclear Medicine and Biology
World Federation of Occupational Therapists
World Federation of Parasitologists
World Federation of Public Health Associations
World Federation of Societies of Anaesthesiologists
World Federation of United Nations Associations
World Medical Association
World Psychiatric Association
World Veterans Federation
World Veterinary Association
Annex 11

**REGULAR BUDGET FOR 1975**

<table>
<thead>
<tr>
<th>Appropriation section</th>
<th>Purpose of appropriation</th>
<th>Amount approved 1</th>
<th>Supplementary estimates 2</th>
<th>Increase (or decrease)</th>
<th>Revised appropriation</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>US $</td>
<td>US $</td>
<td>US $</td>
<td>US $</td>
</tr>
<tr>
<td>1. Policy organs</td>
<td></td>
<td>1,372,300</td>
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<td>339,100</td>
<td>1,711,400</td>
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<tr>
<td>2. General management and coordination</td>
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<td>4,904,290</td>
<td>129,190</td>
<td>1,157,258</td>
<td>200,000</td>
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<tr>
<td>3. Strengthening of health services</td>
<td></td>
<td>21,771,588</td>
<td>1,073,765</td>
<td>(1,897,138)</td>
<td>(1,294,000)</td>
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<tr>
<td>4. Health manpower development</td>
<td></td>
<td>16,398,543</td>
<td>579,400</td>
<td>(1,470,906)</td>
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<td>5. Disease prevention and control</td>
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<td>26,786,376</td>
<td>1,075,555</td>
<td>438,359</td>
<td>28,302,930</td>
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<td>6. Promotion of environmental health</td>
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<td>7,375,098</td>
<td>245,720</td>
<td>(728,113)</td>
<td>6,892,705</td>
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<td>7. Health information and literature</td>
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<td>10,737,742</td>
<td>372,970</td>
<td>717,551</td>
<td>410,000</td>
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<td>8. General service and support programmes</td>
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<td>13,898,291</td>
<td>191,920</td>
<td>661,151</td>
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<td>9. Support to regional programmes</td>
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<td>11,995,772</td>
<td>399,480</td>
<td>782,738</td>
<td>13,177,990</td>
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**EFFECTIVE WORKING BUDGET**

115,240,000  4,070,000  —  —  119,310,000

---

1 See resolution WHA27.56.
2 Approved by the Twenty-eighth World Health Assembly in resolution WHA28.8.
3 Subject to such additional transfers as may be necessary in conjunction with the closure and audit of the final accounts for 1975.
4 See resolution EB56.10.
### Annex 12

**NUMBERS AND DISTRIBUTION OF THE STAFF**

**at 30 November 1974 and 30 November 1975**

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Staff at 30 November 1974</th>
<th></th>
<th></th>
<th>IARC</th>
<th>Staff at 30 November 1975</th>
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<th>IARC</th>
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<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Regular Budget</td>
<td>Voluntary Funds</td>
<td>Other sources</td>
<td></td>
<td>Total</td>
<td>Regular Budget</td>
<td>Voluntary Funds</td>
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<td></td>
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<td>69</td>
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<tr>
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<td>1 242</td>
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<td>35</td>
<td>69</td>
<td></td>
<td>1 286</td>
<td>1 193</td>
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<td>Regional offices</td>
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<tr>
<td>Eastern Mediterranean</td>
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<tr>
<td>Western Pacific</td>
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<tr>
<td>Internationally recruited</td>
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<td>43</td>
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</tr>
<tr>
<td>Locally recruited</td>
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<td>116</td>
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<td>5</td>
<td></td>
<td></td>
<td>159</td>
<td>154</td>
<td>5</td>
</tr>
</tbody>
</table>

1 Excluding short-term consultants.

2 Including liaison offices.
Annex 12 (continued)

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Staff at 30 November 1974</th>
<th>Staff at 30 November 1975</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Regular Budget</td>
</tr>
<tr>
<td>WHO representatives' and zone offices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>139</td>
<td></td>
</tr>
<tr>
<td></td>
<td>187</td>
<td>187</td>
</tr>
<tr>
<td>Field staff in countries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>957</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>175</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 132</td>
<td>773</td>
</tr>
<tr>
<td>International Agency for Research on Cancer</td>
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<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td></td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>Interregional and other activities</td>
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<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>151</td>
<td>96</td>
</tr>
<tr>
<td>Staff on loan to WHO, or on leave without pay</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Staff seconded to other organizations</td>
<td>4</td>
<td></td>
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<tr>
<td>WHO GRAND TOTAL</td>
<td>3 980</td>
<td></td>
</tr>
<tr>
<td>PAHO GRAND TOTAL</td>
<td>1 252</td>
<td></td>
</tr>
</tbody>
</table>

1 Including 61 staff members (17 internationally recruited and 44 locally recruited) assigned to the onchocerciasis control programme in the Volta River basin area on fixed-term contracts of a duration of a year or more.

2 Including 330 staff members (40 internationally recruited and 290 locally recruited) assigned to the onchocerciasis control programme in the Volta River basin area on fixed-term contracts of a duration of a year or more.
## Annex 13

### COMPOSITION OF THE STAFF BY NATIONALITY

at 30 November 1975

<table>
<thead>
<tr>
<th>Country</th>
<th>WHO</th>
<th>PAHO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>4</td>
<td>—</td>
<td>4</td>
</tr>
<tr>
<td>Argentina</td>
<td>22</td>
<td>38</td>
<td>60</td>
</tr>
<tr>
<td>Australia</td>
<td>31</td>
<td>—</td>
<td>31</td>
</tr>
<tr>
<td>Austria</td>
<td>13</td>
<td>—</td>
<td>13</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>8</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Barbados</td>
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<td>—</td>
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</tr>
<tr>
<td>Belgium</td>
<td>5</td>
<td>37</td>
<td>42</td>
</tr>
<tr>
<td>Benin</td>
<td>16</td>
<td>—</td>
<td>16</td>
</tr>
<tr>
<td>Bolivia</td>
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<td>21</td>
</tr>
<tr>
<td>Brazil</td>
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<td>17</td>
<td>30</td>
</tr>
<tr>
<td>Bulgaria</td>
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<tr>
<td>Burma</td>
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<td>—</td>
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</tr>
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<td>Burundi</td>
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<td>Canada</td>
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<tr>
<td>Cyprus</td>
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**GRAND TOTAL** 4 338 1 239 5 577
THE WORK OF WHO, 1975

ANNUAL REPORT OF THE DIRECTOR-GENERAL

TO THE

WORLD HEALTH ASSEMBLY AND TO THE UNITED NATIONS

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GENEVA

1976
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