The veterinary public health programme and the zoonoses control centres are supported in their activities by WHO collaborating centres. The Pan American Foot-and-Mouth Disease Center in Rio de Janeiro and the Pan American Zoonoses Center in Buenos Aires continued to cooperate with the national authorities and institutions of several countries in the Americas in planning new control and prevention programmes for zoonoses and exotic diseases. They conducted applied research on vaccines and diagnostic procedures and trained staff in various fields of veterinary public health and animal health. Several countries, with close technical cooperation from the Zoonoses Center, carried out control programmes for brucellosis, bovine tuberculosis, echinococcosis/hydatidosis, leptospirosis, and rabies.

The Mediterranean Zoonoses Centre (UNDP/WHO) extended its services to almost all the Mediterranean countries, particularly for rabies, echinococcosis/hydatidosis, and improvement of the hygiene of food products of animal origin. It organized or took part in meetings that provided practical guidelines on echinococcosis/hydatidosis control (Morocco, 1980), intersectoral and interprofessional cooperation (Portugal, 1981), and Rift Valley fever (Geneva, 1981) (see also paragraph 9.138).

The various WHO collaborating centres also hosted a world congress on foodborne infections and intoxication in Berlin (West) (1980), a seminar on milk hygiene (Hanover, Federal Republic of Germany, 1980), a seminar on environmental hygiene dealing with the hygienic aspects of animals in urban areas (Hanover, 1981), a symposium on the comparative aspects of leukaemias, lymphomas, and papillomas (Munich, 1980), and a symposium on the microbiology of prospective biological products for viral diseases (Munich, 1981).

In line with resolution WHA31.48, emphasis continued to be placed on the development of national, regional, and global strategies and methods for the surveillance, prevention, and control of zoonoses and foodborne diseases attributable to animal products. Guidelines on echinococcosis/hydatidosis control were issued\(^1\) and other guidelines were in preparation.

Rabies. WHO developed regional and global strategies specifically for the control of rabies in dogs in developing countries since, with the improvement of vaccines and immunoglobulins for the treatment in man, the elimination of the disease in its animal reservoirs is being neglected. Information was collected from all regions on successful dog rabies control projects and a model comprehensive national programme was developed and used in collaboration with Member States. WHO has become directly involved in national programme planning and execution, since rabies calls for the coordination of activities in adjacent countries.

Research was carried out on dog ecology in selected areas of the Americas, North Africa, and the Philippines. The recommendations of the WHO Expert Committee on Rabies\(^2\) were reviewed and amendments proposed at informal meetings in 1980 in Lyon, France (co-sponsored by the Pasteur Institute) and in 1981 in Nancy, France (organized jointly with the French National Rabies Research Centre). An international research programme on natural barriers to wildlife rabies was given guidance at a WHO

\(^1\) WHO document VPH/81.28 (1981).

meeting in 1981 in Vienna (co-sponsored by the Austrian Government). Specific aspects of modern cell culture vaccines for humans were discussed and vaccine schedules defined at a meeting held in 1980 in Essen, Federal Republic of Germany (co-sponsored by the University of Essen).

9.185 Echinococcosis/hydatidosis. Following a remarkable expansion of interest in this subject, programmes were launched successfully in Cyprus, the Falkland Islands (Malvinas), New Zealand, and Tasmania, representing island models, and in Argentina, Bulgaria, Chile, Peru, Uruguay, and parts of the USSR, representing continental models. Experience gained from these programmes highlighted the important steps in control and their sequence and clearly showed that a reduction in echinococcosis in all age groups of the human population as well as in food animals can be rapidly achieved by relatively simple control measures. However, traditions, habits, inadequate meat inspection, access of dogs and other animals to infected offal, inadequate intersectoral cooperation, and the absence of suitable programmes remain obstacles to successful control in many Member States.

9.186 In cooperation with FAO and UNEP, WHO in 1981 formulated research requirements for future decades and collaborated with an increasing number of Member States in planning, executing, and evaluating national programmes. Fresh knowledge has accrued on host-parasite relationships, sociocultural factors modifying them, strain differences, and the dynamics of transmission. Serological diagnosis in man can now be applied with a high degree of sensitivity in some areas and highly effective drugs are available for the large-scale treatment of dogs. Some drugs were identified as having larvicidal activity in animals and are being evaluated in man.

9.187 Salmonellosis. The WHO/World Association of Veterinary Food Hygienists Round Table Conference on the Present Status of the Salmonella Problem (Prevention and Control), held in the Netherlands in 1980, noted that salmonellosis from food of animal origin is the most common foodborne disease in the world and causes great morbidity and economic loss. Guidelines were prepared to assist public health and veterinary authorities and food and feed industries in taking practical measures to prevent and control salmonellosis.

9.188 Surveillance of foodborne diseases. An international surveillance programme to aid national programmes for control of foodborne diseases was established in the European Region, mainly by the FAO/WHO collaborating centre for research and training in food hygiene and zoonoses, Berlin (West). Fifteen European countries agreed to participate and in nine a contact point was designated to provide relevant information. A manual on surveillance of foodborne diseases is being prepared to advise countries on how to organize programmes at national level.

9.189 More than 250 requests for information on food virology were received from 40 Member countries. Two centres, one in the United States of America (Madison, Wisconsin), the other in Czechoslovakia (Brno), actively collaborated in the food virology programme.

9.190 Training. Two international courses on zoonoses management in which WHO closely collaborated were convened in 1980 and 1981 in the USSR. Rabies, brucellosis, leptospirosis, echinococcosis/hydatidosis, taeniasis/cysticercosis, and foodborne disease control were subjects in the courses, in which 45 students from five WHO regions participated.
A WHO workshop on veterinary public health was conducted by the FAO/WHO collaborating centre for research and training in food hygiene and zoonoses. The participants were senior public health and veterinary public health officers from the Eastern Mediterranean and South-East Asia.

Four international training centres in Europe coordinated international postgraduate courses in food microbiology for students from developing countries.

Microbiological criteria for food

An FAO/WHO working group on microbiological criteria for dried milk products and natural mineral water met in Washington (November 1980) and inter alia finalized general principles for the establishment and application of microbiological criteria for food. These were adopted at the fourteenth session of the FAO/WHO Codex Alimentarius Commission (Geneva, 1981).

Effective control over pathogenic microorganisms and their toxins in food must be exercised not only during the processing of the food but also during its distribution, wholesale and retail storage, and final consumption either in food service establishments or at home. The hazard analysis and critical control point system is an approach to these problems. This system, originally developed for use in food processing establishments in the United States of America, has the full support of WHO. The first meeting of experts in this field was convened in Geneva in 1980 to discuss further development of the system, including: assessment of the health and spoilage risks associated with processing and marketing a given food product; determination of critical control points in the manufacturing process; and the establishment of programmes for monitoring critical control points.

Meat hygiene. Work was carried out jointly with FAO on an international code of principles for ante-mortem and post-mortem judgement of slaughter animals and meat, and a code of hygienic practice for game. They were discussed by the Codex Committee on Meat Hygiene (London, 1981) and the Codex Alimentarius Commission itself (Geneva, 1981).

In developing countries slaughterhouses and meat-handling practices contribute greatly to poor health and the spread of animal diseases. Two guidelines—on the design and construction of simple slabs where modern facilities are lacking and on slaughter and meat-handling where there are few slaughter facilities—were the subject of an informal consultation with FAO in Geneva in April 1981.

Fish and shellfish hygiene. Work on fish hygiene was carried out jointly with FAO within the framework of the Codex Committee on Fish and Fishery Products. Several codes of hygienic practice for fish products were discussed at the meeting of the Committee in Bergen, Norway, in 1980, including microbiological specifications for frozen, cooked, and ready-to-eat shrimps and prawns, which are widely available in international trade. In view of the public health importance of intoxications caused by shellfish, particularly in tropical areas of the world, a guide on paralytic shellfish poisoning was begun.

Comparative medicine

Emphasis was laid on studies in cancer therapy from which results can be extrapolated to man. The classification of tumours in domestic animals by extent,
condition of lymph nodes, and presence or absence of distant metastases (TNM) was issued. It is as close an adaptation as possible to the TNM classification of malignant tumours in man, published by the International Union against Cancer and in international use. The purpose of the animal tumour classification is to provide an unambiguous method of reporting clinical observations and a guide to prognosis and therapy.

9.199 In international clinical trials carried out in conjunction with the WHO collaborating centre for comparative oncology, the Department of Clinical Veterinary Medicine, University of Cambridge (United Kingdom), the TNM classification was already being used. The trials covered the use of radiotherapy in spontaneous osteosarcoma in dogs, with and without a hypoxic cell sensitizer, and the immunotherapy of spontaneous canine mammary tumours. The results will be directly relevant to human cancer.

**Laboratory animal health**

9.200 Cooperation with Member States in laboratory animal health was expanded and WHO, together with the International Council for Laboratory Animal Science, drafted a medium-term programme covering: guidelines on husbandry, breeding methods and quality, rational use, experimental techniques, and transportation; education and training; and research. The programme was adopted at a meeting of the Council's Governing Board (Dusseldorf, Federal Republic of Germany, 1981).

---


**Vector biology and control**

9.201 Greater efforts were made to develop training facilities, particularly at the advanced level, and to collaborate with national professional staff in improving control of insect vectors, rodent reservoirs, and snail intermediate hosts of disease.

**Vector resistance**

9.202 Insecticide resistance in important vectors of disease continued to spread, appearing in additional species and in additional geographical areas. With the appearance of resistance to DDT in the sandfly *Phlebotomus papatasii* in Bihar State, India, the tsetse remains the only important vector group in which resistance has not been reported. The most serious challenge to a large-scale programme has been the development in the Ivory Coast of resistance to temephos in two species of the *Simulium damnosum* complex, *S. soubrense* and *S. sanctipauli*. First noted in the south in May 1980, resistance to this organophosphorus insecticide has since spread, so that the Onchocerciasis Control Programme has had to shift to alternative insecticides; in October 1981, cross-resistance was detected to one of these alternatives, chlorphoxim. The further spread of resistance to organophosphorus insecticides among important vectors of malaria has greatly increased the technical and financial problems these programmes face. Multiple resistance has been reported in nine additional species of anophelines, including *Anopheles sacharovi* in Turkey, *A. culicifacies* and *A. stephensi* in India, and *A. arabiensis* in Sudan. The appearance of resistance in populations of *Aedes aegypti* in the Americas may increase operational problems in the intensified programmes against this vector of yellow fever, dengue, and dengue haemorrhagic fever. Cross-resistance to synthetic pyrethroids in DDT-resistant *A. aegypti* is of great concern,
since this is the newest group of insecticides available for use against resistant vectors. All in all, by 1980, 54 different species of anopheline and 42 species of culicine mosquitoes had developed resistance to one or more insecticide compounds used in vector control programmes. This increases the urgency of the need to develop alternative pesticides and alternative methods of vector control that can be integrated with, or at least in part substituted for, the use of chemical pesticides and so reduce the selection pressure.

**Testing and evaluation of new insecticides**

9.203 To overcome vector resistance to insecticides, especially where alternative methods are difficult to implement or are not available, it is necessary to shift to insecticide compounds that involve no cross-resistance to existing groups. The industry was encouraged to provide such candidate compounds for field tests, and WHO organized or participated in collaborative trials in Colombia, Indonesia, Nigeria, and Venezuela of compounds against several different vector species, including mosquitoes and triatomid bugs. Unfortunately, the number of new compounds submitted to WHO for testing remains low. Testing has been intensified to expedite the screening of the new compounds made available and to ensure that they reach the essential large-scale field trial stage with the least delay. The industry also increased its collaboration by requesting WHO to comment on the protocols of its own trials. Representatives of the industry visited the WHO collaborating centres in the Ivory Coast, United Kingdom, and United States of America as well as the WHO field testing unit in Indonesia. The results of field trials have been rapidly disseminated to the Member States through unpublished documents issued by WHO.

**Pesticide production and safe use**

9.204 WHO carried out trials of new formulations of existing insecticides in Indonesia, the Ivory Coast, and Thailand and the information provided on them to manufacturers has resulted in marked improvements in the performance, stability, and packaging of formulations.

9.205 Some of the alternative compounds under trial are less safe for spraymen and inhabitants of treated houses than the insecticides they must replace. Safety protocols were developed in collaboration with national authorities, the manufacturer being invited to participate in field trials by providing the insecticide, analysis equipment, and technical staff, particularly toxicologists, to carry out safety assessment of the compound. Such a trial was carried out in Indonesia. Continued concern about the possible enhanced toxicity of malathion water-dispersible powders as a result of defective or prolonged storage led to frequent requests for assessment of the toxicity of suspect batches. A course on the safe use of pesticides adaptable to national needs was started in the Republic of Korea and Sudan, and Spanish and Portuguese texts for it are being prepared.

**Testing and evaluation of insecticide application equipment**

9.206 Laboratory and field tests were carried out with a new type of sprayer and it was then tried out in a national malaria programme in Saudi Arabia. The results of the tests were communicated to the manufacturer and weak points in the construction have been remedied. Draft specifications for mist blowers and aerosol generators were drawn up and are being tested at the WHO collaborating centre for equipment testing, Silwood Park, United Kingdom. Tests were
also carried out with an electrostatic sprayer at this centre and the initial results were encouraging, though the dispersal patterns must be improved.

**Biology and control of specific vectors**

9.207 **Malaria vectors.** Studies on the ecology of *Anopheles balabacensis* in Thailand and *A. sundaicus, A. aconitus,* and *A. sacharovi* in Turkey were carried out in collaboration with national malaria programmes. A seminar on the biology and control of *A. sinensis* was held in China in 1981. Field trials of new insecticides, new insecticide formulations, and new approaches were carried out by the WHO research unit, Semarang, Java. Large field tests of an organophosphate, a carbamate, and a pyrethroid were undertaken in a number of villages. Selective spraying of fenitrothion (OMS-43) on the lower portion of walls where most *A. aconitus* rest provided acceptable and much more economical control than total house coverage.

9.208 An interregional seminar in Adana (Turkey) reviewed environmental management methods and their application to malaria vector control. WHO collaborated with the Government of Burma in its vectorborne disease control programme, which was aimed primarily at control of malaria and its vectors.

9.209 **Vectors of filariasis.** Longitudinal studies on the biology, ecology, and distribution of vectors of Brugian and Bancroftian filariasis in Java and Sumatra (Indonesia) were completed and the vectorial capacity of the mosquito vectors was determined. Entomological, parasitological, and control studies were carried out in Sulawesi in collaboration with the Ministry of Health. Studies on the control of Bancroftian filariasis in Sri Lanka were carried out in collaboration with the Government. The efficacy of insect growth inhibitors and biological control agents against the main urban vector of filariasis, *Culex quinquefasciatus,* was examined by several different collaborating laboratories. The South-East Asia and the Western Pacific Regional Offices provided expertise, material for susceptibility tests, and insecticides for field trials against vectors of filariasis.

9.210 **Vectors of yellow fever and dengue.** With funds from the Government of the Netherlands, an intensive study was initiated on the biology and distribution of *Aedes aegypti* in Colombia. There are already indications that it has spread to parts of the country in which it was never found before. Because of a major outbreak of dengue and the first appearance of dengue haemorrhagic fever in Cuba, WHO collaborated with the Government in emergency vector control measures. Trials of vehicle-mounted insecticide application equipment against *A. aegypti* were carried out by a reference laboratory in Thailand. Following a yellow fever outbreak in Angola, a collaborative study was made of the distribution and population density of *A. aegypti* in Lunda; another was carried out in the United Republic of Cameroon. A grant was provided to a laboratory in Dakar for research on the vectors of yellow fever in Central and West Africa; these studies are providing more data on the transovarial transmission of yellow fever virus.

9.211 **Vectors of onchocerciasis.** Following the appearance of insecticide resistance in two *Simulium* species in the areas of the Onchocerciasis Control Programme in West Africa, efforts to develop and field-test chemical and biological pesticides as alternatives to temephos were intensified. WHO cooperated with Guinea, Guinea-Bissau, Mali, Senegal, and Sierra Leone in a feasibility study on onchocerciasis control. Through its research unit in Kaduna it cooperated with Nigeria in the preparation of a national

onchocerciasis control campaign. DANIDA funded an onchocerciasis pilot scheme in the United Republic of Tanzania with which WHO cooperated. WHO also participated in missions to evaluate onchocerciasis and its vectors in Guatemala and Mexico, and in planning in Ecuador in relation to the newly discovered onchocerciasis vectors there.

9.2.12 Vectors of trypanosomiasis. With the Special Programme for Research and Training in Tropical Diseases, research programmes were carried out on tsetse vectors of sleeping sickness (see paragraphs 9.2.43–9.2.48). Studies in the Ivory Coast and Kenya on the biology, ecology, and population dynamics of tsetse provided a basis for control activities. Improved trapping methods for sampling and controlling tsetse have been developed and give hope that simple traps and insecticide-impregnated screens can be used by villagers for their own protection in sleeping sickness endemic areas. WHO participated in meetings organized by FAO and OAU on the planning of tsetse control programmes. A long-term feasibility study on the genetic control of tsetse vectors of sleeping sickness in Upper Volta has been completed and the results are being assessed.

9.2.13 Rodent and flea control. Studies at the WHO rodent control demonstration unit in Rangoon were completed. A large-scale trial carried out by the Burmese Government and WHO staff using new rodenticides and application and evaluation systems demonstrated the practicality of a high level of cost-effective control of rodent populations. The establishment of laboratory facilities for work on agents of rodent-borne diseases will enable studies on plague and murine typhus to continue. Susceptibility tests on flea vectors of plague and murine typhus in Burma and Java showed high levels of DDT resistance, and field trials of insecticide compounds formulated as dusts demonstrated the availability of effective alternative chemicals for control. In Malaysia WHO assessed potential rodent reservoirs of plague and advised on control. A two-week interregional training course on rodent control was held in Rangoon.

9.2.14 Snail intermediate hosts and schistosomiasis control. In collaboration with GTZ, missions were undertaken to Congo, Malawi, and Mali to prepare collaborative support for schistosomiasis control programmes. A similar mission was carried out in Rwanda, and another, combined with a teaching course, in Gabon. In view of the worldwide shortage of persons trained in medical malacology, support was given to the development of regional centres for applied malacology. In association with the Special Programme for Research and Training in Tropical Diseases, assistance was given to many research projects in the prevention and control of major trematode diseases. Reviews, manuals, and practical field guides on such subjects as plant molluscicides, biological control, and snail host taxonomy by regions were prepared. The prospects for biological control of snail hosts at virtually no cost in integrated control schemes are now promising. A programme for the development of biocontrol agents, mainly competitor and/or predator snails, was begun in 1981, involving WHO collaborating centres in several Member States.

9.2.15 Cyclops and dracunculiasis control. In connexion with the International Drinking Water Supply and Sanitation Decade, WHO collaborated with the agencies involved in the reduction or elimination of guinea-worm infection, especially in West Africa, through the provision of safe drinking-water supplies.

Biological control

9.2.16 Research on the biological control of vectors, supported largely by the Special Programme for Research and Training in
Tropical Diseases, has reached the stage at which some agents, in particular some entomopathogenic spore-forming bacteria, can be put into operational use in the near future. This is shown by the successful field trial of *Bacillus thuringiensis* H-14 against blackfly in the Ivory Coast. Research is now under way to determine the optimum particle size spectrum and suspensibility characteristics of *B. thuringiensis* H-14 formulations for blackfly and mosquito control. All trials confirm that *B. thuringiensis* H-14 is a highly specific larvicide with virtually no effect on non-target fauna. Links were established with industry and several United Nations agencies to ensure the practical application of research information so as to strengthen vector control in tropical countries. Field trials against mosquito larvae have been carried out with strain 1593 of *B. sphaericus*, isolated from Indonesia. This organism sometimes persists and recycles, particularly in polluted water, a characteristic that makes it a promising agent for the control of *Culex quinquefasciatus*. Mammalian toxicity tests show no hazard to man, but considerable development work has still to be carried out.

9.217 To facilitate the evaluation of candidate biological agents in field trials in Member States, data sheets detailing all laboratory and field background on the most promising agents were prepared and disseminated. A WHO Expert Committee on Biological Control of Vectors of Disease (December 1981) reviewed available and potentially available agents and made recommendations to expedite their use in vector control programmes. An informal consultation on fish for mosquito control (October 1981) considered the potential of different larvivorous fish species for mosquito control and made recommendations for field trials and operational use of the fish alone or in combination with other methods.

---

### Environmental control

9.218 A joint WHO/FAO/UNEP panel of experts on environmental management for vector control was established and a meeting was held in Geneva in September 1981. The aim is to facilitate interagency collaboration, promote integrated development strategies with due consideration for the protection of human health, provide technical guidance, and recommend priorities for financial support to projects and activities within this field.

9.219 As a follow-up to the recommendations on the subject of the WHO Expert Committee on Vector Biology and Control, steps were taken to integrate appropriate, simple, inexpensive environmental management methodologies for vector control into large-scale vectorborne disease control programmes as well as into primary health care systems. In several programmes, including those in Sudan and Turkey, operational trials and staff training were started. The Blue Nile health project in Sudan, an example of integrated control strategy, utilizes environmental management as appropriate in the control of a group of water-related diseases, notably malaria, schistosomiasis, and diarrhoeal diseases. The project has made good progress and outside funding is forthcoming on an increased scale.

9.220 A seminar on integrated control of mosquito vectors (Adana, Turkey, November 1981) provided information on new methods and approaches. Participants from several professional disciplines had an opportunity for intersectoral exchanges of views.

### Vector control in international health

9.221 The risk of exotic vector species crossing international boundaries continues

---


to increase. Freon-based aerosols were recommended for use in disinsecting aircraft following experiments indicating that propane-based and isobutane-based aerosol formulations pose a greater potential fire hazard in aircraft. New and more effective methods of disinsecting, including residual contact insecticides, continue to be sought.

Training and dissemination of information

9.222 A special effort was made to organize and support a series of M.Sc. courses in medical entomology and vector control, in close collaboration with national authorities and the Special Programme for Research and Training in Tropical Diseases. Courses were established in Africa—in Nairobi, Jos (Nigeria), and Bouaké (Ivory Coast)—and support was given to universities in Bogor (Indonesia) and Bangkok. The Regional Office for South-East Asia collaborated in a national intersectoral seminar held in Burma on integrated vectorborne disease control in connexion with dam construction.

9.223 A short training course in vector biology and control funded by DANIDA was held in Ciloto, Indonesia, and a joint OAU/FAO/WHO seminar on trypanosomiasis and Glossina research and control was held in Arusha, United Republic of Tanzania. The Regional Office for the Western Pacific, in collaboration with the Government of China, organized a course on low-toxicity insecticides in Shanghai as well as several general national training courses. The Regional Office for South-East Asia held a workshop in September 1981 in Sri Lanka on manpower requirements in entomological aspects of malaria control programmes. Several courses were held in the Americas on the maintenance and use of insecticide application equipment and on emergency measures for the control of Aedes aegypti.

9.224 Detailed information on vector biology and control is lacking in many parts of the world. A number of issues in the WHO/VBC series of documents summarized new developments in control, the subjects covered including the vectors, reservoirs, and control of leishmaniasis; urban filariasis vectors in Africa; and the biology and control of human lice. In all 77 documents were issued in this series, among them a special report on the use of pesticides in public health, 1978–1979, and a forecast of the demand for 1980–1984 that includes data from 103 developing countries.

Special Programme for Research and Training in Tropical Diseases

9.225 From its inception in 1975 until 31 December 1981 the Special Programme supported 1368 projects; over 2300 scientists from 118 Member States participated in its planning, implementation, and evaluation; and more than $70 million were spent on direct support to national scientists and institutions. The percentage of funds for project support going to developing countries affected by the tropical diseases rose from 29% in 1977 to 63% in 1981.

9.226 Progress was made in: the drug treatment of malaria, schistosomiasis, and filariasis; biological control of the disease vectors of malaria and onchocerciasis; the development and testing of a possible vaccine against leprosy; the fundamental knowledge required to develop a vaccine against malaria; and simple and accurate diagnostic field test kits for malaria, leprosy, and African trypanosomiasis. Most of the results obtained in research and development were intermediate, in the sense that it will take time before the new information, valuable though it is, can be applied in the control of disease. Many years of systematic work are required for the development of a new agent, whether it is a
drug or a vaccine, and the need for long-
sustained effort is recognized.

9.227 Up to mid-1981 over 1100 scientific papers had been published describing the results of work supported by the Special Programme.

9.228 To achieve optimal effectiveness, the Special Programme remained in close touch with research sponsored by other agencies, including the pharmaceutical industry, and whenever appropriate it undertook a catalytic or coordinating role. Some promising activities initiated by other agencies before the Special Programme was established were also supported. For example, in collaboration with the Walter Reed Army Institute of Research, Washington, and the pharmaceutical industry, the Special Programme supported research on the potential antimalarial agent mefloquine, including studies on the bioavailability of different formulations and its clinical evaluation in endemic areas in three continents.

9.229 By funding work on standardization, safety testing, and field trials, the Special Programme contributed to the rapid development of *Bacillus thuringiensis* H-14 as a biological agent for the control of vectors. Although this agent was discovered before the start of the Special Programme, its potential usefulness was recognized and its development and evaluation were accelerated. The agent will be ready shortly for application in national disease control programmes.

9.230 The other objective of the Special Programme, the strengthening of the research capability of the developing countries, was also pursued vigorously, especially through the promotion of technical cooperation among those countries. For example, through institutional and research training grants and other forms of support, insti-
tutions in developing countries are now increasing their capability for research and for the training of scientists from their own and neighbouring countries. Over 250 individual training grants have been awarded and 26 institutions are being strengthened through long-term support, while 26 others have received shorter-term support.

9.231 The Special Programme continues to lay great emphasis on evaluation, from the level of individual projects up to the Special Programme as a whole. As recommended by its Scientific and Technical Advisory Committee, each component undergoes in-depth review and evaluation by a scientific and technical review committee at least once every four years.

**Research and development**

9.232 The planning, implementation, and evaluation of the Special Programme are carried out by collaborating national scientists. Thus research and development are carried out by scientists working in their own institutions, whose activities are coordinated by the steering committees of the Special Programme's scientific working groups. This network approach is proving productive and cost-effective and has overcome some of the constraints that in the past have limited research on tropical diseases. Basic scientists have been able to contribute their specialized skills in disciplines such as immunology, molecular biology, and biochemistry, and the scarce biological materials they require are provided by the networks of scientific working groups. For example, the Scientific Working Group on Immunology of Leprosy provided scientists throughout the world with leprosy bacilli, and other groups provided freeze-dried worms for schistosomiasis research and sera from patients and controls for research on Chagas' disease. The network has made it possible to tackle problems affect-
ing many countries, using standard protocols (e.g., for the epidemiology of leishmaniasis) and standard diagnostic kits (e.g., for in vitro testing of the sensitivity of malarial parasites to drugs) to conduct experiments and trials wherever the local ecological situation is most suitable. Thus natural onchocercal infection in cattle in Australia was discovered to be an excellent tertiary and definitive model for the human disease, which occurs only in tropical Africa and Central America.

9.233 Malaria. Up to 31 December 1981, 87 projects had been supported on chemotherapy and drug development, 68 on immunology, and 57 on field research. Work continued on the development of kits to perform the microtest for the sensitivity of malaria parasites to drugs, and prototype kits were evaluated in endemic countries. Research priorities for the development of tissue schizonticidal drugs were established and work continued on metabolic pathways in malaria parasites, with comparisons among strains that differ in their response to drugs.

9.234 Chemotherapeutic research and development received substantial support through the Special Programme. Phase I clinical trials of mefloquine, a highly active blood schizonticide, were completed in Brazil and Zambia, Phase II trials in Brazil and Thailand, and Phase III trials in Brazil, Thailand, and Zambia. Progress was made with the preclinical development of Qinghaosu (artemisinine) and its derivatives. Another blood schizonticidal candidate compound was selected for further development. Certain aminoacid derivatives of primaquine proved to be more active and better tolerated than the parent compound. The microtest system for in vitro assessment of the drug sensitivity of Plasmodium falciparum (to chloroquine, amodiaquine, quinine, and mefloquine) was further developed and large-scale validation studies were implemented in countries of all regions. A microtest for the assessment of sensitivity to pyrimethamine was developed in collaboration with the Centers for Disease Control, Atlanta, USA.

9.235 Immunological research received a major stimulus through the introduction of the cell fusion (hybridoma) technique for the production of monoclonal antibodies. Several of these antibodies proved to have parasite-inactivating or growth-inhibiting properties. A particularly promising monoclonal antibody inactivating sporozoites of P. berghei was found to interact with a sporozoite surface antigen and to confer complete resistance in mice to infection with P. berghei. The system is now being applied to P. falciparum in order to obtain inhibitory monoclonal antibodies and use them for isolating the relevant pure antigen, with a view eventually to reproducing and mass producing the protective antigen through modern methods of genetic engineering. As a result of these developments the concept of malaria vaccination has shifted from the use of crude whole-parasite vaccines to that of specific protective antigens, which are more acceptable from the aspect of vaccine safety. A solid-phase radioimmunoassay for the detection of low numbers of malaria parasites has been adapted from a rodent model to P. falciparum; it detects malaria infection at a level of 8 parasites per $10^6$ erythrocytes. Current work is aimed at adapting the test to an enzyme-linked immunosorbent assay (ELISA) system.

9.236 In basic biology, support of chemotherapeutic and immunological research continued. Progress was made with continuous in vitro cultivation of various primate plasmodia and with mass production techniques for P. falciparum. The availability of viable gametocytes of P. falciparum from in vitro culture now permits the production of great numbers of sporozoites, which are much needed in chemotherapeutic and immunological research. Other current studies
concern the structure and function of parasite and erythrocyte membranes in relation to parasite invasion, material and energy transport, and antigenic components.

9.237 In applied field research high priority was given to the implementation or further development of studies on drug resistance of malaria parasites, especially *P. falciparum*. These studies are carried out with the close cooperation of the malaria services of the countries concerned. Besides the establishment of baselines and the monitoring of drug sensitivity levels, which are essential prerequisites to the use of drugs in control measures, major efforts are being made to develop and strengthen methods for the containment of drug-resistant malaria. Other essential research is on the operational use of antimalarial drugs, community participation in antimalaria measures, vector control in areas with exophilic or insecticide-resistant anophelines, and the epidemiological basis for rational planning and evaluation of malaria control. Special efforts are being made in research training and in the improvement of the field research capabilities of national antimalaria services and scientific institutions in tropical malarious countries.

9.238 Schistosomiasis. One hundred and five projects were funded in applied field research, including vector biology and control, chemotherapy, and immunology. Integrated approaches to the control of schistosomiasis in manmade bodies of water were studied at Lake Volta, Ghana, and the findings will shortly be published. Studies were carried out on focal mollusciciding based on ecological conditions in Sudan and on the dynamics of snail transmission in different irrigation systems. Eleven physicians participated in a workshop on the population epidemiology of *Schistosoma japonicum* in the Philippines. Research was sponsored on the intermediate snail hosts of schistosomiasis, and a slow-release formulation of a molluscicide is being tested. Projects complementing the work of the pharmaceutical industry were supported on the chemotherapy of schistosomiasis, and basic biochemical studies were designed to elucidate the mode of action of schistosomicidal drugs as well as their pharmacological effects on man. Clinical trials on praziquantel, a drug developed by the pharmaceutical industry in collaboration with WHO, were supported.

9.239 A collaborative study of immunodiagnosis involving eight laboratories was recently completed. Immunology research was also promoted by the provision of parasite material to investigators, e.g., lyophilized adult worms and *S. mansoni* eggs. The immunological responses of the mammalian host to infection are being studied, including work on the mechanism of resistance to infection.

9.240 Filariasis. Priority continued to be given to onchocerciasis, and work on lymphatic filariasis was expanded. The aim is to improve the use of existing filaricides, find new ones, and seek means of reducing the inflammatory reactions that occur in the human host in response to the presence and death of filarial worms. Over 6000 compounds have been tested; those showing activity in primary screening were subjected to further evaluation and the promising ones were tested in Australian cattle infected with *Onchocerca gibsoni* and *O. gutturosa*. So far three compounds have shown high macrofilaricidal activity, and they are being developed further for eventual testing in man. New chemical compounds are also being screened for anti-filarial activity.

9.241 Microfilarial density was reduced by 88% in patients treated with mebendazole in combination with levamisole. Mebendazole alone or in combination with levamisole has a chemosterilizant effect, as shown
by nodules examined after treatment. Studies using radiolabelled diethylcarbamazine have provided new information on the metabolism of this drug in the human body.

9.242 Work continued on the identification and characterization of antigens for serodiagnosis. In addition, models were designed for the study of the pathogenesis of ocular lesions in onchocerciasis; progress was made with regard to the vectors of both lymphatic filariasis and onchocerciasis; and some epidemiological studies were funded. An onchocerciasis mathematical model for predictive simulations of control strategies was developed.

9.243 African trypanosomiasis. Recent results led to a greater understanding of the epidemiology of this disease. Several game animals were shown to harbour trypanosomes, some of which appear to be identical with the human stock of Trypanosoma b. gambiense. This complements the earlier finding of similar infection in pigs and dogs. Further confirmation was obtained of the finding that tsetse flies travel over much longer distances than had been assumed in the past. A second field trial of the ion-exchange minicolumns for parasitological diagnosis was carried out, this time in a T.b. rhodesiense endemic area. The direct card agglutination test for trypanosomiasis was improved to achieve better fixation of the antigen to the card, and comparison with three other tests is planned. A longitudinal study of trypanosomiasis was started in Zambia.

9.244 In drug development, work was carried out on compounds that can disrupt threonine metabolism and those which affect the parasite enzyme ornithine decarboxylase. Screening of potential trypanocides continues at two centres, one in Kenya, the other in the Federal Republic of Germany. Pharmacological studies continued on the drugs in current use, antrypol and organic arsenicals.

9.245 Although immune complexes are found in the sera of patients with and without cerebral complications, they were found in the cerebrospinal fluid only in the meningoencephalitic stage. Work continued on antigenic variation in the parasites.

9.246 American trypanosomiasis. Field research on the prevalence and distribution of Chagas' disease began in several endemic countries with standard protocols and diagnostic methods. A field evaluation of paint containing a slow-release insecticide showed promising results, with effective control of the insect vector for nine months. Work continued on the study of the mode of action of organophosphates on Triatoma infestans larvae.

9.247 A comparative serological study started in July 1980 with the collaboration of reference laboratories in three countries. In a project based in Brazil, reference sera from patients and uninfected controls were collected and are being made available to scientists for standardization of their tests. The mechanisms of pathogenesis of the lesions of Chagas' disease are being elucidated; of particular interest are the correlation of parasite strains with clinical manifestations and the role of antibodies in endocardial, vascular, muscular, and peripheral nerve lesions.

9.248 Work on antigenic analysis and purification is making good progress; specific antigenic components are being identified by the use of monoclonal antibodies. A successful animal model for chronic lesions of the disease has been developed in inbred rabbits.

9.249 Leishmanias. To increase knowledge of the geographical distribution and varieties of this group of diseases the existing literature was reviewed and is being summarized on a country-by-country basis.
Epidemiological surveys are in progress in 17 countries and the preliminary data are being analysed. The animal reservoirs of both the cutaneous and mucocutaneous and the visceral forms are being identified in different geographical locations.

9.250 Type collections of sandflies from many different parts of the world are being catalogued for taxonomic purposes and for the training of scientists. Blood meal identification is being widely used to pinpoint the local vectors and efforts continue to obtain a more exact typing of leishmanial strains. In addition to the standard serological, biochemical (enzymological), and biological characteristics, a new technique using radiorespirometry could prove valuable in the classification of reference material.

9.251 Clinical evaluation of promising drugs again confirmed that nifurtimox has some effect in mucocutaneous leishmaniasis but, when used alone, does not achieve a high cure rate. In combination with meglumine antimonate, it improved the results obtained by treatment with either drug alone. Allopurinol, which had shown in vitro activity, has so far proved disappointing in visceral leishmaniasis in clinical trials. The observation in experimental animals that entrapment in liposomes enhances the therapeutic activity of some antileishmanial drugs is being pursued in the hope of applying the finding in human disease, and biological screens for cutaneous and visceral disease are being evaluated. Standardized protocols for drug trials—including the selection of patients, identification of the parasites, treatment schedules, follow-up, and criteria of cure—were developed.

9.252 Work was supported on diagnosis with modern techniques of antigenic analysis and specific monoclonal antibodies. Mechanisms of immunity are being studied, the demonstration of cross-reacting antigens between Leishmania enriettii and L. tropica having opened up the possibility of using the former, a non-pathogenic species, as a potential vaccine.

9.253 Leprosy. Work on the development of a vaccine continued to make progress. Experiments in mice confirmed the protective effect of four different preparations of killed Mycobacterium leprae; the preferred procedure produces a high yield, with minimal damage to bacteria and minimal contamination. It is proposed to test the immunogenic potential of this preparation in human beings with and without BCG, as the first step in trials of the vaccine.

9.254 Immunodiagnostic tests were further developed. An ELISA test of sensitivity comparable with that of the radioimmunoassay test to M. leprae and a method for the early detection of systemic infection in armadillos were established. Monoclonal antibodies are being evaluated for their specificity for M. leprae.

9.255 Clinical trials of drug combinations continued. Detailed protocols for field trials of chemotherapy of lepromatous leprosy were drafted and two trials will start soon. In drug development, analogues of thalidomide and of rifampicin failed to yield promising leads but preliminary trials with analogues of ethionamide and prothionamide continued. Prolonged-release preparations of dapsone are under development and surveys are being carried out on the frequency of primary dapsone resistance in endemic countries.

9.256 Biomedical sciences. The Special Programme continued actively to stimulate the further application of basic biomedical sciences to the study of tropical parasitic and infectious diseases, with particular emphasis on innovative approaches. It supported projects on the use of recombinant DNA technology for the study of kinetoplast DNA in
Trypanosoma lewisi and of the variant antigen sequences of trypanosomatids. Work is progressing on the gene organization and function of parasitic protozoa. The role of factors under genetic control in relation to susceptibility to infection is being investigated with regard to G-6-PD deficiency and P. falciparum infection in man. Two studies in animal models are investigating genetic factors in relation to leishmanial infections. The metabolic pathways of parasites were studied, including purine metabolism in trypanosomes and the role of oxygen reduction products in the killing of parasites. The exchange of scientific information was encouraged through co-sponsorship of courses and workshops with national institutions.

9.257 Biological control of vectors. Collaboration continued with national scientists and industrial firms in the testing and development of biological agents for vector control. The tests for efficacy and safety of the agents followed the scheme developed by WHO expert committees.

9.258 Of the microbial agents, the highest priority has been assigned to Bacillus thuringiensis, serotype H-14, which has now reached the stage of large-scale testing for the control of mosquito and blackfly larvae. Tests have shown that it is a potent non-residual larvicide of these larvae, with a large safety margin in relation to man and other non-target organisms. The activity of the agent is not affected by salinity, a pH within reasonable limits, or water temperature, but it is less effective in polluted than in clear water. The delta endotoxin is stable under tropical conditions.

9.259 Work continued with another bacterial agent, B. sphaericus. Safety tests showed that this agent is innocuous for mammals under normal conditions of exposure, and environmental studies show no harmful effects on non-target organisms. The agent is pathogenic for larvae of Culex and certain species of Anopheles, but much less effective against certain species of Aedes, in particular A. aegypti.

9.260 Of the non-microbial agents, high priority was assigned to the fish Gambusia affinis. The use of this and other larvivorous fish was reviewed at a special consultation in October 1981. A variety of other agents are being systematically examined according to the standard scheme for investigating potential biological agents.

9.261 Epidemiology. A multidisciplinary longitudinal epidemiological study in Zambia is providing useful information about the health status of the population in rural areas. Analysis of the data has shown correlations suggesting interaction between malaria and schistosomiasis infection. A field study was started and about 1000 persons were examined during the initial survey. Collaboration continued in the strengthening of training courses at key institutions in developing countries.

9.262 In collaboration with the Regional Office for the Western Pacific, a regional workshop was held for teachers of epidemiology. The activities of the 26 participants will be followed up in 1982. Other activities in support of training in epidemiology include the preparation of a field manual.

9.263 Social and economic research. The Special Programme aims at increasing the effectiveness of disease control programmes through the incorporation of human behavioural factors into the design and management of programmes, behaviour being defined so as to include social, cultural, and economic factors. Most of the projects funded related to the intermediate objective of defining the relationship between those factors and the transmission and control of diseases and, as far as possible, they were developed in
association with ongoing epidemiological research or disease control programmes.

9.264 A preliminary report was made on knowledge, attitudes, and behaviour with regard to malaria, where the reasons were sought for the decline in the collaboration of the population in the indoor spraying of DDT in a programme of control. In another study the role of the school in the control of locally endemic diseases was examined through a questionnaire administered to primary school children.

**Strengthening of research capability**

9.265 The strategic plan for this area of the Special Programme, which was formulated and implemented in 1979, was reviewed in depth by a scientific and technical review committee. The development of a durable network of institutions in endemic countries, an objective of the plan, involves the shifting of resources to less developed institutions when those which initially received support no longer require it. In this context, the Government of Zambia assumed responsibility for the management of the Ndola Tropical Disease Research Centre, formerly a Special Programme activity, and a Zambian physician/scientist was appointed as the first director. The Centre continues to collaborate with the Special Programme on research in epidemiology and clinical pharmacology and is also playing an important role in the training of scientists from other developing countries.

9.266 Most promotion of technical cooperation among developing countries took place through training activities, which can lead to the forging of links among institutions in developing countries. Of the 53 scientists supported by research training grants and visiting scientist grants between 1 July 1980 and 30 June 1981, 21 received all or most of their training in developing countries other than their own. The host countries were Brazil, Ethiopia, the Ivory Coast, Kenya, Malaysia, Singapore, Thailand, Venezuela, and Zambia.

9.267 Interaction between scientists from developing countries also occurs through short-term workshops and seminars and long-term courses. All such group learning activities took place in developing countries and were planned and carried out by local scientists; and all included participants from other developing countries. Seven of the institutions receiving long-term support are engaged in group training activities involving nationals from other developing countries.

9.268 Activities were expanded to provide for collaboration among the institutions supported so as to build up a network of research and research training institutions in countries where tropical diseases are endemic. Accordingly, training workshops in research management were developed for scientists with a managerial role in institutional development programmes; the first was held at global level, but plans have been made to hold others at regional level. Plans were made for technical meetings of scientists working in developing countries, so that they can exchange information that has not yet been formally published and also exchange experiences in institutional development. Other promotional action includes the development of training programmes in endemic countries and the development of research manpower in institutions on the basis of nationally approved explicit long-term plans.

**Financing of the Special Programme**

9.269 By 31 December 1981, 25 governments (including those of 10 developing countries) and six other organizations,
together with UNDP, the World Bank, and WHO, had contributed over $95 million to the Special Programme. The Joint Coordinating Board (the Special Programme’s top management body) approved a maximum budget of $61.64 million for the 1982/1983 biennium, an amount that would permit the Special Programme to maintain its momentum but a decrease of 5.2% in real terms over the previous biennium. The Joint Coordinating Board urged governments and agencies to contribute to the Special Programme so that the very real opportunities which it presented could be realized.
Chapter 10

Noncommunicable Disease
Prevention and Control

10.1 DURING the biennium the concept of a comprehensive integrated programme for the prevention and control of chronic noncommunicable diseases was further developed, as opposed to the traditional specialty-oriented approach. As an outcome of a number of consultations and meetings (Geneva, June 1980; Zurich, October 1980; Kaunas (USSR), November 1981), an experimental programme was designed and a few target centres and countries, both developed and developing, were selected for the testing and implementation of the proposed programme.

Cancer

10.2 WHO's activities in the field of cancer were given a more pragmatic orientation in 1980–1981 so as to ensure: effective cooperation with Member countries in designing and implementing national cancer control programmes, in line with the Global Strategy for health for all by the year 2000; efficient coordination of cancer activities between headquarters, the regional offices, and IARC; and research on appropriate technologies for cancer prevention and control. The main targets of the programme are, by way of existing knowledge and parallel goal-directed research, (i) to prevent up to one-third of the cancers at present encountered, (ii) to cure up to one-third, and (iii) to spare incurable cancer patients unnecessary pain as widely as possible. Priority is given to those cancers that can be prevented.

10.3 The outlines of this programme were drawn up by the first meeting of the Subcommittee on Cancer of the global ACMR (September 1981), the Scientific Group on Prevention Strategies in Cancer (October 1981), and the Programme Committee of the Executive Board (November 1981) when it discussed a progress report by the Director-General on long-term planning of international cooperation in the field of cancer.

10.4 The Director-General's Coordinating Committee on Cancer, which includes representatives of WHO, IARC, and the International Union against Cancer (UICC), has held regular yearly meetings to discuss policy matters and coordination. One result has been a clearer division of work between WHO and IARC: WHO concentrates on cancer control, including prevention, early diagnosis, therapy, rehabilitation, and operational research, IARC on carcinogenesis, epidemiology, and laboratory and field research. During the biennium the Coordinating Committee promoted cooperation with countries in the formulation of national cancer policies and programmes as part of their health programming process. Three countries, Finland, Sri Lanka, and Sudan,
were selected for that purpose to provide experience for future policies.

10.5 The programme in Sri Lanka was based on a situation analysis by a team including representatives of WHO, IARC, and UICC. It was followed by a pilot study to determine whether primary health workers could be effectively used in a cancer control programme integrated with the general health care system. Oral cancer—one of the most frequent neoplasms in the country—was selected for the early detection study that started in 1981. In Sudan, where cancer is among the most important health problems, the formulation of priorities was begun with WHO cooperation: a national cancer control policy and programme was formulated at a meeting in December 1981. In view of the crucial lack of qualified specialists in all areas of cancer control and the paucity of economic resources, an approach emphasizing professional education was chosen as a first step. The situation is very different in Finland, which has well developed cancer control facilities. A report on the organization of the national cancer control programme in this country is available for the planning of national programmes in countries with a similar level of development.

Prevention, treatment, and after-care

10.6 The prevention component of the cancer programme includes an energetic antismoking programme in the Eastern Mediterranean Region, a campaign against tobacco-chewing in South-East Asia in collaboration with the Government of Sri Lanka, and a health education programme for the prevention of skin cancer in the African Region. The early detection aspect of the programme stresses community involvement and the use of primary health care workers. Realistic guidelines are being prepared for the early detection of cervical cancer in developing countries (Region of the Americas); for the detection of oral cancer using primary health care workers (South-East Asia Region); and for a project on self-examination for breast cancer detection (European and Eastern Mediterranean Regions). Experts from both developed and developing countries met in Geneva in October 1981 to formulate proper strategies for cancer prevention. They reviewed existing knowledge and analysed the approaches that might be adopted in individual countries.

10.7 A reappraisal of the present situation in the prevention and control of lung cancer, one of the most common tumours in many countries, was made at a “state of the art” meeting in November 1981. The participants were directors of medical services, whom the reappraisal will help in their policymaking, and generalists.

10.8 At a meeting held in 1981 in Japan to discuss prevention and cancer statistics for developing countries, the data from different countries were analysed. The United States National Institutes of Health generously agreed to provide, for selective distribution by WHO, the 50,000-60,000 abstracts of cancer literature appearing each year.

10.9 One goal of the programme is to develop simple, safe, inexpensive methods of therapy for common cancers that can be used in developing as well as in developed countries. For this purpose WHO collaborating groups for the assessment of the essential minimum of treatment for breast and lung cancer are being formed. A project has been started to identify and disseminate information on the relief of pain.

10.10 The work of the collaborating centres is being aligned with the aims of the newly oriented cancer programme. Accordingly, they are preparing succinct practical manuals on specific forms of cancer.
for use at the district hospital level. A WHO collaborating centre for biostatistics was established to provide quantitative expertise for WHO field projects in Member countries and develop methods of teaching cancer control suitable for developing countries.

Histological classification of tumours

10.11 The work on the International Histological Classification of Tumours, which had been coordinated by WHO for over 20 years, came to a close. The last two publications of the 25-volume series went to press during the biennium. In the future such highly technical standardizations of methodologies will be contracted out to the WHO collaborating centres.

International Agency for Research on Cancer

10.12 The 1980 and 1981 editions of the Directory of on-going research in cancer epidemiology were published, continuing the annual volumes that have been prepared jointly with the Cancer Research Centre, Heidelberg (Federal Republic of Germany), since 1976. The latest volume contains 1313 projects reported from 80 countries and includes an index of chemicals for which human exposure has been recorded and studied. In the preparation of Volume IV of Cancer incidence in five continents, cancer registry data for the quinquennium 1973-1977 were collected from 91 registries covering 116 ethnic groups.


10.13 In collaboration with WHO an analysis was carried out of differences in coding practices relating to some 50 diagnostic terms, which could affect the comparability of cancer registry data. A critical review of observed time-trends in cancer incidence was begun, taking into account the effect of changes in population age structure and other competing causes of death.

10.14 Following the observation that the incidence of malignant melanoma is increasing by about 5% per annum in many populations, an international collaborative study was started into all forms of malignant melanoma; 33 cancer registries will contribute to a retrospective study and 29 to a prospective study.

Alcohol consumption and cancer

10.15 The association between the consumption of alcohol and cancers of the digestive and upper respiratory tract has now been demonstrated in a number of studies. Oesophageal cancer, in particular, is strongly associated with both drinking and tobacco consumption, and a detailed case-control study is being completed in Calvados and Orne (France), where the mortality rates exceed 30 per 100,000 inhabitants in both males and females. Concurrent experimental studies in which Wistar rats were given samples of apple brandy in their drinking-water failed to show any excess of tumours or precancerous lesions in the animals.

Oesophageal cancer

10.16 The prevalence of oesophagitis has been studied in a population at high risk of oesophageal cancer in Lin Xian, China, and for comparison in a low-risk population in Jiao Xian. Oesophagitis, identified by endoscopy, was seen approximately twice as
often in the high-risk population of Lin Xian, both male and female, as in Jiao Xian. These findings support the hypothesis that this lesion is a precursor of oesophageal cancer, a finding that should prove of considerable importance in epidemiological studies of the causation of the cancer. The study was carried out with the collaboration of the Beijing Cancer Institute, the Honan Medical College and Honan Cancer Institute, China, and the Regina Elena Institute, Rome.

**Cancer of the large bowel**

10.17 The international study of cancer of the large bowel has largely confirmed the hypothesis regarding the protective role of dietary fibre. The results so far suggest that the risk is determined by a complex interaction of dietary factors and it is postulated that dietary fat and protein promote cancer by increasing the output of bile acid. The action of dietary fibre appears to be to increase the faecal bulk and thus reduce the concentration of any carcinogen or cocarcinogen that may be present in the stool and in contact with the bowel mucosa. In a study of the distribution of various lesions of the colon and rectum in populations in Europe, it was shown that the prevalence of polypoid lesions was higher in areas of high incidence of cancer of the large bowel, and that the polyps also tended to be larger.

**Cancer of the liver**

10.18 In collaboration with FAO and UNEP, the Agency is assessing the effect of measures to decrease aflatoxin contamination of foodstuffs on the prevalence of liver cancer in Swaziland. At the Agency’s laboratory in Swaziland, more than 1000 specimens have so far been analysed for mycotoxins. In order to strengthen the data collected from the cancer registries, cases of liver cancer are being confirmed by α-fetoprotein determination, since no histopathological confirmation is available.

10.19 A cohort study to determine the risk of developing primary liver cancer among carriers of hepatitis B surface antigen is being carried out in the Chinese population of Singapore, in collaboration with the University and the Blood Bank. Of a total of 929 people in the cohort, 65 (7%) were positive for the surface antigen.

10.20 A study is in progress in the Philippines, in collaboration with the Department of Internal Medicine, Philippines General Hospital, to determine the rate of perinatal transmission of hepatitis B virus and subsequent development of a carrier state among children born to “carrier” mothers as compared with “non-carrier” mothers. Blood was taken from the children after the first month of life and they will be followed up until the age of one year.

**Hazards of man-made mineral fibres**

10.21 The follow-up study of the health risks associated with mineral fibre production has reached its final phase. The collection of data from 13 factories in seven countries is now complete, and the results of the environmental survey carried out by the Institute of Occupational Medicine, Edinburgh (United Kingdom), at each of the factories have been sent to the Agency, so that estimations of exposure to airborne fibres can be made for individual work stations. Cancer morbidity and mortality will be compared among groups of workers with differing degrees and lengths of exposure.

10.22 In the study of a localized high incidence of mesothelioma in central Turkey, zeolite fibres were found in higher concentration in some of the samples of air from the
village affected, but the overall fibre concentrations were too low for a definite assessment. A case-control approach is now being made to ascertain the frequency of zeolite deposits in the houses of cases as compared with those of controls. Rock samples are being analysed at the Medical Research Council Pneumoconiosis Unit, Penarth, United Kingdom.

**Long-term effects of pesticides on human health**

10.23 A cohort of 9000 workers in Colombia engaged in floriculture is being followed to determine the health hazards arising from long-term exposure to pesticides. In the first phase a prevalence survey was carried out of congenital malformations among children born to women engaged in floriculture or to women whose husbands were so engaged. A case-control study will follow in an effort to establish reproductive histories and details of occupational exposure.

**Chemical carcinogens**

10.24 During the biennium five international working groups met in Lyon to evaluate the published literature relating to 53 chemicals and 8 industrial processes. Their proceedings were included in the IARC monographs on the evaluation of the carcinogenic risk of chemicals to humans, of which the first four were published.\(^1\) The evaluation of risks associated with complex exposures, of which occupational exposures are typical examples, was a new departure in the series.

10.25 The ninth information bulletin in the survey of chemicals being tested for carcinogenicity included reports on 970 chemicals in 99 institutes in 18 countries.\(^2\)

10.26 Laboratory studies were devoted to methods of monitoring human exposure to environmental carcinogens and identifying individuals at higher risk. The preparation of monoclonal antibodies against carcinogen-DNA adducts has provided a method that may make it possible to determine an individual's exposure to a given carcinogen. Pilot studies were carried out on oesophageal tissues collected in Lin Xian, China, to identify adducts indicating exposure to carcinogenic nitrosamines.

10.27 The differences between individuals in levels of carcinogen-metabolizing enzymes may indicate differences in susceptibility to given carcinogens. For example, the differences in susceptibility to cigarette-smoking between individuals might be attributable to differences in the activity of the enzymes responsible for metabolizing benzo(\(a\))pyrene, one of the carcinogens present in cigarette smoke. Benzo(\(a\))pyrene metabolism was therefore studied in lung tissue and mucosal specimens from lung cancer patients, and compared with the metabolic levels observed in cancer-free individuals.

10.28 Methods have been developed in experimental animals to permit quantitative estimation of the *in vivo* formation of nitrosamines. The safety of the methods having been confirmed, they have been used

---


to determine the levels of \textit{in vivo} nitrosamine formation in humans. Techniques of chemical analysis of nitrosamines have also been applied to the measurement of these putative carcinogens in urine samples collected in areas of high and low risk of oesophageal cancer.

10.29 The development continued of short-term tests based on methods of measuring mutagenic activity and capable of indicating possible carcinogenic substances. Tests employing bacterial colonies, and others in which mammalian cell lines were used, were applied to screening for active substances and to the study of mechanisms of carcinogenic activity by the identification of active metabolites.

\textbf{Training}

10.30 Seven short courses were held. Two in the Agency were devoted to epidemiological aspects of occupational cancer and one to chemical carcinogenesis. A course on the utilization of primates in cancer research was held in Sukhumi (USSR), and three on epidemiology were organized in Bogotá, Limassol (Cyprus), and Ndola (Zambia). There were approximately 40 participants in each course.

10.31 Twenty-five fellowships were awarded during the biennium to postdoctoral scientists studying epidemiology or aspects of environmental carcinogenesis. Of these, seven were tenable at the Agency.

10.32 An international symposium on host factors in human carcinogenesis was organized with the support of the Commission of the European Communities and the Greek Government. A training component was included that enabled 12 promising young postdoctoral scientists to participate.

\textbf{Cardiovascular diseases}

10.33 Changes appear to be occurring in the incidence of cardiovascular diseases that may require the strengthening of \textit{WHO} activities in developing countries. For instance, the figures from Malaysia show that, while cardiovascular diseases rated fourth among all causes of mortality in 1965 and third in 1970, they were first in 1975 and accounted for 13\% of all deaths. There was a similar development in Mauritius, where in 1979, if cerebrovascular diseases are included, more than 30\% of all deaths were attributable to cardiovascular diseases. On the other hand, several countries that previously had rising death rates have shown a levelling off or even a decrease in the rates (e.g., Australia, Finland, New Zealand, and the United States of America). Planning for an international study to monitor the trends and determinants in cardiovascular diseases was therefore started in 1980. A protocol was prepared in 1981 and tested in a feasibility study in three centres in Europe—North Karelia (Finland), Kaunas (USSR), and Copenhagen. The first meeting of investigators in the multicentre study was held in October 1981. The study will start in 1982 and, over a 10-year period, will measure trends in cardiovascular disease mortality and coronary heart and cerebrovascular disease morbidity and assess the extent to which the trends in defined communities are related to changes in known risk factors, health care, or major socioeconomic features. This project might serve as a model for monitoring morbidity trends in other diseases and should lead to the development of a permanent system for the collection of data on morbidity from chronic disease.

\textbf{Primary prevention}

10.34 An Expert Committee on the Prevention of Coronary Heart Disease held in Geneva in November-December 1981
reviewed the available data, discussed alternative approaches to prevention, and made practical recommendations on strategies for population-based approaches to prevention in countries with a high as well as a low incidence of coronary heart disease. In the former the most effective approach is the mass approach aimed at reducing the levels of different risks; in the latter it is primordial prevention of the development of unfavourable lifestyles and risk factors.

10.35 The results of the follow-up study on primary prevention of ischaemic heart disease were published in the Lancet. In this trial a lipid-lowering substance, clofibrate, was administered in a double-blind trial to middle-aged male volunteers whose serum cholesterol levels were within the upper third of the distribution in their respective populations (Budapest, Edinburgh, Prague). After an average of 5.3 years of observation, the initial serum cholesterol level having been reduced by about 9%, the incidence of ischaemic heart disease had fallen by 20% in the intervention group as compared with the placebo group (which received olive oil), thus demonstrating the preventive value of lowering this plasma lipid. However, there was a significant increase in total mortality and in non-cardiovascular mortality in the group that received clofibrate, a trend that seems to be continuing, as evidenced by follow-up studies. The explanation for this trend is not clear, but several possible mechanisms are being considered, including the long-term toxic effect of clofibrate, the possible consequences of reducing body cholesterol pools in middle-aged men, and even chance. Close monitoring of all the volunteers in the centres that took part in the trial is being carried out and will continue for several years.

10.36 To stimulate research in the prevention of ischaemic heart disease in early life, WHO is coordinating pilot programmes on the study of risk factors in childhood and youth. After descriptive epidemiological investigations in Geneva and northern Italy had ended, intervention programmes in schoolchildren started in Finland, the German Democratic Republic, the Federal Republic of Germany, Israel, and Norway to assess the most appropriate health education methods for healthy low-risk ways of life. To study the origins of coronary heart disease, preparations were made for a morphological study to assess structure and structural changes in the coronary arteries of children.

10.37 Within the context of prevention, a new concept, primordial prevention, is receiving special attention. This is primary prevention in its purest sense—prevention of the development of risk factors in populations still free from most of the cardiovascular diseases. A project was started to see if, in selected developing countries, cardiovascular diseases can be prevented from reaching the epidemic proportions experienced in industrialized countries by removing risk factors. The design was further elaborated by a group of consultants in February 1981. Initially the main emphasis will be on the control of tobacco smoking and the development of healthy nutritional habits.

Community control

10.38 The WHO-coordinated study on comprehensive cardiovascular community control programmes, which started in 1974 and is carried out by centres in all parts of the world, was the subject of two meetings during the biennium, one in Prague in September 1980, the other in Nairobi in October 1981. Experience from this study is being used in developing the programme on integrated noncommunicable disease prevention and control (paragraph 10.1).

---

A WHO-coordinated 10-year study on the community control of hypertension ended in 1980. The preliminary results were discussed at the final meeting of investigators in December 1980 in Geneva. One of the most important outcomes of this cooperative project is the experience gained in organizing and operating hypertension control programmes in different social and health care settings. The preliminary report covered the setting up, management, and evaluation of a hypertension project; cooperation with and motivation of the health services; and the need to make hypertension control an integral part of basic health care. The conclusion was that pilot programmes for the community control of hypertension are feasible and effective and a useful tool for acquiring new knowledge of hypertension control methods in populations. However, when formulating plans for hypertension control in total populations, the sociopolitical environment in its widest sense should be taken fully into consideration. A report on the whole study will be prepared after analysis of the outstanding data.

Following a meeting of investigators held in New Delhi in November 1979, which marked the end of a long-term study on the community control of rheumatic fever and rheumatic heart disease, a report was issued emphasizing the feasibility and practicality of early prevention measures. Experience from the multicentre cooperative project showed that control projects as outlined in the WHO protocol are feasible in developing countries. Regular surveillance can be difficult, but the gains are considerable even with a follow-up rate of 50% and only half of those followed up on regular prophylaxis. Although it was not possible to measure the direct health benefits quantitatively, the benefits in terms of health care expenditure were such that the direct health benefits can be assumed to be great indeed. An essential requirement for success is for the programme to be part of the national health policy. Rheumatic fever control should be at national and local community level, with full cooperation between the cardiological, paediatric, and school health services within the framework of primary health care. The elaboration, publication, and dissemination of strategies for the community control of rheumatic fever and rheumatic heart disease are under way, with special reference to developing countries.

Research and information

A research project on the standardization of tests to assess abnormal tendencies to thrombosis began in centres in London, Prague, and Krakow (Poland). It will form the basis for prospective studies in which an assessment will be made of their predictive value in ischaemic heart disease events. As a first step a feasibility study was started (i) to demonstrate the feasibility of collecting large numbers of samples for haemostatic function tests in a fairly short time, and (ii) to see whether within each centre there are similar relationships with age, smoking, and other risk factors in the population samples studied.

The role of nutritionally induced trace element imbalance in the occurrence of myocardial infarction and hypertension has been studied for the past ten years in collaboration with IAEA and a network of collaborating pathology institutes and analytical laboratories. The project has now ended and the results are being evaluated.

Physical activity to prevent coronary heart disease is continuing to attract worldwide interest. After the publication of a
monograph in 1978,1 another on physical activity in disease prevention and treatment is in preparation.

Nomenclature and classification

10.44 WHO and the International Society and Federation of Cardiology (ISFC) continued to collaborate closely. Joint WHO/ISFC task forces prepare recommendations for the standardization of classification, nomenclature, and diagnostic criteria for different cardiovascular diseases. Task forces on nomenclature and classification of arrhythmias and on nomenclature of ischaemic heart diseases have published reports in previous years.2 The task force on definition and classification of cardiomyopathies published its report in 1980.3 A task force on haemodynamics is finalizing its recommendations. A task force on nomenclature in echocardiography has been organized. It is planned that WHO, ISFC, and CIOMS will eventually publish a compendium of all the recommendations of these task forces.

Training

10.45 Annual ISFC 10-day international teaching seminars on cardiovascular epidemiology and prevention, held in collaboration with WHO, were organized in Kaunas (USSR) in August 1980 and in Heidelberg (Federal Republic of Germany) in August 1981.

Smoking and health

10.46 A course in cardiovascular diseases epidemiology was held in Singapore in September 1980. It was organized by the Regional Office for the Western Pacific and was a follow-up of the course held in 1978 in Wellington.

10.47 An international clearing-house for information on smoking and health became operational in May 1981. Its purpose is to collect (i) statistics on national tobacco and cigarette production, per capita consumption, smoking prevalence by age, sex and race, etc.; and (ii) information on smoking control activities, including legislation, public information, educational approaches, health warning labels, statements of tar, nicotine, and carbon monoxide yield, advertising restrictions, and other action or voluntary agreements for the purpose of reducing smoking. These data are widely scattered in the literature and in reports, many of which are not easily available; they will be collated and issued by WHO in special reports. The clearing-house is partly funded by the United States Department of Health and Human Services.

10.48 A project on the analysis of tar, nicotine, and carbon monoxide yields of cigarettes collected in selected developing countries has begun. The analyses are being carried out at WHO collaborating centres.

10.49 An international conference on tobacco and youth was held in Venice in November 1981 with WHO co-sponsorship.

10.50 Tobacco report, a WHO newsletter, appeared twice in 1981 and is expected to be issued quarterly in 1982. Five thousand copies in English and three thousand in French of each issue were distributed worldwide and have been well received.

---

3 British Heart Journal, 44: 672-673 (1980).
The theme of World Health Day 1980, "Smoking or health—the choice is yours", aroused a great deal of interest and resulted in intensified anti-smoking campaigns in many countries.

The first of two workshops on smoking and health issues in developing countries, organized in collaboration with SIDA and national authorities, was held in Colombo in November 1981; a second will be held in 1982 in Swaziland.

Other chronic noncommunicable diseases

Diabetes mellitus

The WHO Expert Committee on Diabetes Mellitus, the second report of which was published in 1980, drew particular attention to the need to involve the community as well as the patient. The main health services for diabetics, it considered, should be at community level; preventive, promotive, curative, educational, and research activities should all have their basis in primary health care; and national diabetes programmes should be developed.

Following those recommendations, planning for a national diabetes programme in Malta was begun in 1980; it covered an epidemiological study, an educational programme for health personnel, patients, and the public at large, and the development of health services. A collaborative epidemiological study on diabetes as related to malnutrition was started in which a number of developing countries are participating.


During the biennium two national research centres were designated as WHO collaborating centres: the Institute for Diabetes, Endocrinology and Metabolic Diseases, Zagreb (Yugoslavia), as WHO collaborating centre for the development of appropriate technology in the control of diabetes mellitus; and The Royal Southern Memorial Hospital, Caulfield, Victoria (Australia) as WHO collaborating centre for the epidemiology of diabetes mellitus, to assist WHO in training and the organization of epidemiological studies on diabetes in the Western Pacific.

Cooperation with nongovernmental organizations such as the International Diabetes Federation was further developed. The training of health personnel and the dissemination of information to front-line health workers were promoted. WHO, along with the Federation and the national authorities, organized the first international seminar on clinical epidemiology and public health aspects of diabetes in Cambridge (United Kingdom) in July 1981.

The follow-up stage of the WHO multinational study of vascular disease in diabetics was continued. In this study 14 research centres from 13 countries are collaborating.

Chronic respiratory diseases

Stronger emphasis was placed on the involvement of the community in chronic respiratory disease prevention and control, and closer cooperation was developed with the scientific committee on respiratory diseases of the International Union Against Tuberculosis. A joint meeting (Geneva, February 1981) identified priorities for epidemiological and operational research within the framework of an overall WHO programme on respiratory diseases.
Chronic rheumatic diseases

10.59 Guidelines for the further development of a rheumatic diseases programme were drawn up at a joint meeting in Geneva (January 1981) with the International League against Rheumatism. The Philippines was selected as the target country for a community-oriented rheumatic diseases prevention and control programme, jointly coordinated by the national authorities, the International League, and WHO.

10.60 In the Americas collaborative studies are being carried out on the profile of patients with chronic rheumatic diseases who seek care in rheumatology and allergy clinics. Particular emphasis is placed on the degree of disability and dependency caused by these diseases, including their effect on functional and working capacity and, in allergic diseases, their relation with risk factors in the environment. The use of medical facilities for both groups of diseases is also being investigated.

Hereditary diseases and those where there is genetic predisposition

10.61 In human genetics the programme concentrated mainly on international collaboration in the management of some common genetic disorders and the application of genetic knowledge and further development of the genetic risk approach in the prevention and control of certain communicable and noncommunicable diseases.

10.62 Five research centres in four regions collaborated on the management of certain genetic disorders (hereditary anaemias and thalassaemias in particular, highly prevalent in the areas where malaria was formerly common). New data on the distribution and incidence of hereditary anaemias and related conditions were collected in Bali (Indonesia), Nigeria, and the USSR, and the molecular base of their heterogeneity was investigated. With WHO assistance a programme on community control of thalassaemias was carried out by the University of Ferrara, Italy, in which a sharp downward trend in the birth rate of affected children was observed. To review experience in other countries, assess recent advances, and gauge the possibilities of support for a worldwide attempt to control hereditary anaemias, an ad hoc WHO meeting was held in Cagliari (Italy) in June 1981 in association with an international symposium on thalassaemias. It considered that the preventive approach to hereditary anaemias could be integrated into the health care programmes of the communities where the diseases are common, and that WHO could be of assistance to the Member States concerned by providing guidance and establishing standards. To explore the subject further a working group on the community control of hereditary anaemias was held in Geneva (November 1981).

10.63 The Organization continued to support the development of international repositories for genetic disorders. The seventh and eighth listings in the Repository of chromosomal variants and anomalies in man have been produced.

10.64 Two international meetings were given support: the annual meeting of the European Society of Human Genetics held in Dubrovnik (Yugoslavia) in 1980 and the VII International Workshop on Human Gene Mapping held in Oslo in 1981. Eight WHO-assisted research centres concentrated their activities on the genetic approach in the

---

prevention and control of noncommunicable and infectious diseases. Genetically determined differences in susceptibility to infectious diseases were further studied in India, the USSR, and Zambia with a view to developing methods for the utilization of genetic markers in the prevention and treatment of communicable and parasitic diseases. In addition to the markers previously studied, a complex of genetic, anthropometric, and clinical characters were found to be correlated with non-specific lowered resistance to disease such as childhood pneumonia. A new project was also initiated on the genetic nature of differences in response to vaccination, and a WHO-assisted feasibility study is under way in Bulgaria. New data were collected on the distribution of HLA-DR antigens in normal populations of the USSR and on the association of some HLA antigens with diseases in Romania (ankylosing spondylitis, Behçet’s syndrome, and lupus erythematosus). Research on the genetic component of common chronic diseases and on genetic epidemiology was coordinated with the assistance of the WHO collaborating centre for the processing of human genetic data (University of Hawaii, USA).

10.65 A review of the programme on human genetics took place during the biennium and a WHO task group met in November 1981 to consider the action required. The working group on the community control of hereditary anaemias (paragraph 10.62) inter alia assessed their suitability as model genetic disorders in the development of WHO’s human genetics programme.

Preventable deafness

10.66 In the South-East Asia Region it was concluded, on the basis of preliminary data from rural areas, that preventable deafness attributable to otitis media was a health problem requiring attention. A consultant visited the countries of the Region, assessed the facilities for treatment available, and prepared a draft medium-term programme for the prevention and control of deafness.

Oral health

10.67 Emphasis was given to the development of standard methods for analysing the oral health situation and coordinating planning, and WHO published a guide for both developed and developing countries. The major activity in all regions continued to be technical cooperation in the integrated planning of oral health services. The concept of demonstration, training, and research centres for oral health is now well accepted. The first such centre was officially opened in Thailand and agreement has been reached with the Syrian Arab Republic for the development of a similar centre. Further centres are under consideration in China and in Africa. These centres will develop and strengthen technical cooperation between countries at different levels of development and provide a focus for the dissemination of standard methodology on integrated planning and for the improvement of teaching and technology. They will help in international collaborative research on, for example, the intake and metabolism of fluoride in different cultural and nutritional settings or the evaluation of alternative health care delivery systems. They will also provide field demonstrations of preventive measures and delivery systems.

10.68 To assist countries in the monitoring of their oral disease trends, WHO collaborated in studies of the epidemiology of oral diseases and continued to monitor the global oral health programme. A new standard methodology, the community peri-

---

Noncommunicable Disease Prevention and Control

The odontal treatment needs index, was developed for assessment of the periodontal status and treatment needs of populations and was tested in an international collaborative study involving 13 countries. This index, which will now be used as an international standard, provides a reliable method for the planning, monitoring, and evaluation of periodontal disease prevention and control programmes.

The first of a series of field demonstrations of preventive programmes and measures was completed in one country, and similar programmes are in progress in three other countries. These field demonstrations are supported by the Voluntary Fund for Health Promotion.

Annual coordination meetings continued, with the help of extrabudgetary funds, to coordinate essential research. In the international collaborative study on dental manpower systems, 13 sets of data from 11 countries are now being prepared for analysis.

Following reports of the development of new and more efficient preventive procedures, a system of review and assessment of preventive materials was instituted. The detailed information obtained will be used to advise administrators on the choice of such materials.

The trend towards decreased oral disease in highly industrialized countries, accompanied by a continuing high level of production of oral health personnel, has reached the stage at which dental manpower surpluses of considerable proportions are imminent in a number of countries. Consideration is being given by WHO to the possibility of deploying the surpluses to ease the worsening manpower situation in developing countries until their own oral health manpower training facilities are sufficiently developed to provide adequate numbers of trained personnel.

Workers' health

Resolution WHA33.31, endorsing the programme of action on workers' health for the years 1979–1984, urged Member States to pay special attention to the provision of health care to working populations, particularly "underserved" workers, and requested the Director-General to "support the developing countries in ensuring safe working conditions and effective protective measures for workers' health in agriculture, mining and industrial enterprises by using experience available in this field". This resolution was followed by intensified efforts (i) to identify the major occupational health problems of underserved working populations in developing countries, (ii) to initiate country projects in occupational health services and training, and (iii) to develop occupational health knowledge and technology in cooperation with WHO collaborating centres in various parts of the world.

Identification of problems

WHO collaborated with 15 Member States in field surveys to identify occupational health problems and develop practical methods for the detection, evaluation, and control of various occupational health risks. Cross-sectional studies of workers' health problems in agriculture and small industries were made in Burma, Egypt, the Philippines, Sudan, the United Republic of Tanzania, and several other countries. Miners' health problems, particularly pneumoconiosis, were investigated in Bahrain, Botswana, and the Republic of Korea. A research programme on the monitoring of occupational exposure and the effects on health of chemical and physical hazards was carried out in Brazil, Bulgaria, Czechoslovakia, Poland, Switzerland, and the USSR. An epidemiological study correlating various working conditions, workload, and health of
workers was undertaken in the German Democratic Republic. A review of the findings of investigators of occupational health problems in developing countries was made by the Permanent Commission and International Association on Occupational Health at a meeting in Colombo (April 1981)—co-sponsored by WHO.

10.75 In Thailand, a new feasibility study was initiated in June 1981 to introduce primary health care in workplaces, particularly in small-scale industries where no other health systems are available. One of the aims of the study is to produce guidelines on primary health care in workplaces for examination in regional workshops. A similar study started in Sri Lanka in November 1981.

Technical cooperation

10.76 The number of countries involved in technical cooperation with WHO increased to some 30, in all regions. Preliminary surveys to assess health problems and develop occupational health units and laboratories were assisted by WHO consultants in Bangladesh, Botswana, Burma, China, Greece, Jordan, Kenya, Macao, Mauritius, Mozambique, Qatar, Saudi Arabia, Somalia, Yemen, Zambia, and Zimbabwe. A main purpose was to assist the health authorities in developing workers' health programmes that are integrated or fully coordinated with the national health services. Some projects also included the training of personnel and the preparation of plans for the development of occupational health institutes. WHO assisted in the development of an industrial health service centre with occupational hygiene laboratories in a newly industrialized district in Burma.

10.77 In collaboration with UNEP, WHO assisted in the development of the national centre for occupational and environmental health near Cairo. The second phase of the ILO/WHO/UNDP project on central and regional occupational health laboratories in Indonesia included the development of primary health care for workers in rural areas and the introduction of modern control technology in large industrial establishments. WHO assisted the Ministry of Health in Malaysia in the development of an occupational health unit, which will become the national reference centre on occupational health matters. The aim of a WHO/UNDP project in Mauritius is to develop a unit for the training of occupational health and safety personnel, and of one in Singapore to set up a national institute of occupational health and safety.

10.78 Occupational health manpower is in short supply in most countries. The Joint ILO/WHO Committee on Occupational Health at its meeting in March 1981 developed guidelines on training and education in occupational health, safety, and ergonomics. WHO also organized or coordinated several regional or interregional courses and seminars on various occupational health subjects. The third interregional workshop on the organization of occupational health services took place in Sofia in June 1981 and was attended by 15 participants from 15 different countries. It emphasized the multidisciplinary approach to the control of occupational health hazards and recommended methods for their assessment and control and for the integration or coordination of occupational health with national health services.

10.79 In May 1981 WHO assisted the fourth international course in occupational and environmental toxicology in Belgrade, which was attended by 17 participants from developing countries—chemists, physicians, and other health personnel—and provided

instruction in basic knowledge and practical methods. It organized an international seminar on the risk assessment of chemicals, with 27 participants from Europe, in Łódź (Poland) in September 1980, and an international course on occupational health in agriculture, particularly emphasizing pesticide intoxications, in September and October 1980 at the same institute. The latter course was attended by 10 participants from different countries. An advanced course on biological monitoring of exposure to industrial chemicals was coordinated by the Regional Office for Europe at the Institute of Occupational Health, Helsinki, in August 1980. WHO and ILO co-sponsored an international symposium on occupational cancer in Helsinki in April 1981 and an international symposium on education and training policies in occupational safety and health and ergonomics in Sandefjord (Norway) in August 1981.

10.80 WHO initiated a study on the organization of occupational health services in Cuba, Egypt, Greece, Sudan, Thailand, the United States of America, and the USSR, and prepared a working document for a joint ILO/WHO project on institutional arrangements for occupational health at national level. The responsibilities of different government agencies and mechanisms will be identified to ensure coordination and cooperation among them.

Occupational health technology

10.81 In relation to occupational health technology, WHO organized a meeting in Copenhagen to prepare a manual on occupational health epidemiology that will become self-instruction reference material and also be used in training courses. This project is supported by the National Institute for Occupational Safety and Health (USA). A consultation was also held in April and May 1980 on a manual on occupational health in agriculture, as a first step towards guidelines for the detection and control of occupational hazards in agricultural work and for the health education of workers in agriculture. A meeting of the Joint ILO/WHO Committee on the Health of Seafarers took place in September 1981 to revise and update the International medical guide for ships, a joint WHO/ILO/IMCO guide for the diagnosis and treatment of emergencies and diseases affecting seafarers, published in 1967.

10.82 In the field of occupational hygiene, guidelines were produced on the evaluation of airborne particulates in the work environment. Two consultations helped with their preparation, the second meeting during the biennium (Alexandria, September 1981). These guidelines will provide occupational hygienists with simplified methods for the evaluation of the different airborne dusts. WHO also organized an interagency consultation on guidelines in occupational health for the establishment and operation of specific industries (June 1981), bringing together participants from UNDP, UNEP, ILO, the World Bank, IAEA, and WHO. Two main industries were selected as a priority: (i) iron and steel, and (ii) pesticides (manufacture, formulation, and use).

10.83 Two study groups were convened to recommend occupational exposure limits, one in June 1980 for the commonly used solvents carbon disulfide, toluene, trichloroethylene, and xylene,1 the other in June 1981 for the pesticides malathion, carbaryl, lindane, and dinitro-o-cresol.2

10.84 Guidelines on the early detection of health impairment in occupational exposure to vegetable dusts were finalized in 1980. In the same year a consultation was held

---

on the preparation of a manual whose aim will be to help occupational physicians with the early diagnosis of occupational diseases in periodic health examinations of workers.

10.85 In view of the importance of synergism in the health hazards of the work environment, WHO convened an expert committee on the subject in December 1980¹ to review research on combined exposure to multiple factors, physical, chemical, and biological, and their effects on health. It also reviewed existing knowledge on the influence of smoking, alcohol and drug consumption, malnutrition, and parasitic diseases on the health effects of occupational hazards. It identified gaps in knowledge and made recommendations on further research and the application of occupational hygiene standards in combined exposure.

New areas of concern

10.86 Consultations took place in the second half of 1981 to prepare a detailed programme of work on psychosocial factors and ergonomics. A new programme on injury prevention, assisted financially and technically by the National Institute for Occupational Safety and Health, USA, was initiated by a consultation in November 1981 dealing with human aspects in the control of occupational injuries.

Coordination with other organizations

10.87 Coordination with UNEP, UNIDO, ILO, and other agencies continued during the biennium. The Joint ILO/WHO Committee on Occupational Health (paragraph 10.78) also reviewed ILO and WHO work in occupational health with a view to joint programming and harmonization. An inter-agency meeting took place with ILO, UNEP, and other bodies in Rome (September 1980) for the preparation of a medium-term plan for occupational health and safety identifying the main areas of concern for each agency or body in the improvement of the working environment.

Immunology

10.88 During the biennium the network of WHO immunology research and training centres was expanded by the addition of a new centre in Beijing at the Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences. The centre organized a four-week course on immunology in 1981. The training programme of the centre at Lausanne/Geneva, supported largely by the Swiss Government, was enlarged by the granting of six-month fellowships to enable two students to stay on for further studies after the annual course in English. The number of students accepted for the course in French was increased from five to seven. A complementary programme was also established to help ex-students to set up their own research and training programme on their return to their home institutions. These extensions of the programme were made possible by an increased donation from Switzerland. The PAHO/WHO immunology research and training centre organized a course in 1980 in São Paulo, Brazil.

10.89 The WHO immunology research and training centre for advanced studies in Rehovot (Israel) organized a course on molecular and cellular aspects of antigenicity. The centre in Singapore organized a symposium on hybridoma technology. Assistance was provided for a symposium on clinical immunology in Caracas.

10.90 Under the programme for the production of immunological reagents, a course was organized in Bangkok and a collaborating centre was established in Birmingham (United Kingdom). The centre will provide the standard reagents needed for the production of good-quality immunological reagents in different countries, train technical personnel, and control the quality of the material produced. A regional centre for the production of immunological reagents was established in Islamabad and a request for the establishment of a similar centre in Bangkok is being considered.

10.91 Interregional collaboration for the development of a vaccine against dengue haemorrhagic fever is progressing according to schedule. Attenuated strains of all four serotypes were obtained.

10.92 A programme to assess the socio-economic importance of allergic diseases in developing countries started in Kuwait, Thailand, and Venezuela.

10.93 Together with the clinical immunology committee of the International Union of Immunological Societies, WHO conducted a critical review of some of the most frequently used tests in clinical immunology with the aim of reducing the cost of patient care. The results of the meeting were published\(^1\) and steps are being taken to bring this source of economy to the attention of ministries of health. With the same committee, WHO reviewed the effectiveness of gammaglobulin in preventing some infectious diseases and treating immunological disorders. In collaboration with the standardization committee of the International Union, a standard anti-human IgG labelled with horseradish peroxidase was produced and is being considered for acceptance as an international reference reagent. The work was made possible by a grant from the United States National Institutes of Health.

10.94 A meeting on the immunity of the mucous membrane reviewed the present state of knowledge and made recommendations for further research.

Chapter II

Promotion of Environmental Health

International Drinking Water Supply and Sanitation Decade

II.1 The International Drinking Water Supply and Sanitation Decade, 1981-1990, was launched by the United Nations General Assembly in November 1980, the aim being to provide all people with adequate supplies of safe water and sanitation by 1990, if possible. For the launching of the Decade, the Secretary-General of the United Nations prepared a comprehensive report on the drinking-water supply and sanitation situation. WHO had a principal role in the analysis, collation, and interpretation of the data and in the preparation of the report.

II.2 In May 1981 the Thirty-fourth World Health Assembly, in resolution WHA34.25, emphasized safe drinking-water and adequate sanitation as basic elements of primary health care and listed the principles through which the Decade will contribute to the improvement of health as part of the Global Strategy for health for all by the year 2000. The Health Assembly recommended that Member States propose relevant water supply and sanitation programmes and projects for external support with the objective of reaching underserved populations, fostering coordinating mechanisms, focusing on national health priority problems, associating the community with all stages of the programmes and projects, and strengthening national agencies. Multilateral and bilateral agencies were invited to support national plans.

II.3 The launching of the Decade stimulated wide interest in national planning to extend and improve water supply and sanitation services. Some 60 countries have formed national action committees, and national Decade plans are being prepared in a number of countries. Increasing attention is being given to projects that will benefit underserved rural and urban fringe populations. WHO helped more than 30 countries in four regions in Decade planning, using its own resources as well as resources from UNDP, GTZ, and SIDA. The World Bank/WHO cooperative programme played an important part in this work. WHO organized 15 national planning workshops, in the course of which national officials clarified the issues, agreed on urgent measures, and formulated a policy for Decade planning. In addition, a number of specialized workshops were held on the economic and financial, technology transfer, and data management aspects of Decade planning. The results of WHO’s experience were summed up in the document referred to in paragraph II.1. WHO also

published guidelines for the application of the principles of the Decade in the preparation of national plans.\(^1\) WHO strategy is to cooperate with the governments that have the will to give effect to the principles of the Decade and to help in the mobilization of resources; to cooperate in national efforts with other international organizations, particularly UNDP, UNICEF, and the World Bank; to advocate forcefully and consistently the orientation of the Decade towards the priority health problems of Member States; and to give precedence to technical cooperation at country level.

11.4 A review of the progress achieved in the provision of drinking-water supply and sanitation during the 1970s showed that the targets set for the 10 years prior to the Decade were not fully met. Only about two out of five persons had access to safe drinking-water and only one out of four had some kind of sanitary facility. A rough comparison between the situation in 1970 and in 1980 showed a modest improvement in water supply but practically no progress in sanitation. Since the United Nations Water Conference at Mar del Plata (Argentina) in 1977, however, changes have occurred; Member States are increasingly aware of the potential of the Decade as a means of improving people's health and the quality of life, and new programmes are being initiated. Big differences nevertheless occur from country to country in political commitment, in government planning mechanisms, and in the experience of government planners. Whereas in some countries the governments have clear ideas about the Decade and are taking strides towards the establishment of national plans, others have needed WHO help in planning and preparing projects. WHO's present concern is to ensure that the momentum created at the start of the Decade should not be lost and that WHO support for efforts in countries should be appropriate and consistent.

11.5 It is recognized that many of the water supply and sanitation systems built by governments at considerable expense have not achieved any lasting improvement of health. This is the result partly of inadequate planning but more often of neglect in the operation and maintenance of the systems. To help remedy this situation, WHO has given greater attention to the development of infrastructures and the strengthening of manpower at the community level. Throughout the biennium it supported national sector agencies, national action committees, and UNDP in identifying and formulating projects, solving institutional problems, and designing appropriate equipment. It devoted increasing resources to (i) the development, in cooperation with other organizations in the United Nations system and nongovernmental organizations, of methods and models for strengthening national, institutional, financial, and human resources; (ii) the creation of systems for the exchange of information on Decade technology, financial and technical resources, and projects in need of external support; and (iii) the devising of global and national evaluation mechanisms for assessing the impact of Decade efforts, especially on human health.

11.6 In its work with governments and with sister agencies, WHO has always recommended sanitary collection and disposal of household and community wastes as a necessary complement to the provision of clean water. The bulk of current investment projects only give better service to communities already served by public systems. WHO seeks to persuade governments and lending agencies that rational and comprehensive projects to ensure safe water supply and sanitation for underserved communities must be implemented on a very large scale during the next 10 years.

I.7 Contiguous communities or districts seldom recognize the economies of scale they might enjoy by cooperative water systems; hence they may resist centrally planned regional schemes. WHO has shown that such schemes can be made self-reliant and self-sustaining through careful on-site planning and implementation of projects calling for the maximum participation of the communities concerned, and has promoted this approach in all its field activities.

11.8 The choice of plant and equipment, at the production and especially at the consumer end of the system, and of institutional mechanisms for getting them properly installed and used is very large. Through the programme for the exchange and transfer of information on water supply and sanitation (POETRI) initiated by the Netherlands Government, WHO is bringing the choice to the attention of experts and decision-makers in national water supply and health agencies; in consulting firms, in international agencies, and in nongovernmental organizations. WHO also emphasizes health education and community action, activities that were included in a number of investment projects prepared through the World Bank/WHO cooperative programme.

11.9 During the biennium WHO considerably developed its collaborative work with the organizations in the United Nations system: with ILO and UNESCO in human resources development methodology; with FAO in the prevention of water-related diseases; and with the World Bank in the formulation of development projects with positive health benefits. The cooperative programme with the World Bank was continued, with increased emphasis on infrastructure development; in addition to activities at headquarters, 36 missions to countries were carried out during the biennium. The steering committee for cooperative action for the Decade, consisting of the United Nations agencies concerned with the Decade (the United Nations itself, UNDP, UNEP, the United Nations Centre for Human Settlements, UNICEF, ILO, FAO, WHO, UNESCO, and the World Bank) met five times in the period 1980–1981. The committee, which is chaired by the Deputy Administrator of UNDP (WHO providing secretariat services), promotes a coordinated approach to implementation of the Decade. Task forces have been set up to deal with public information, information exchange, project formulation, and human resources development. (For training activities, see also paragraphs 12.66 and 12.67.)

11.10 Under the sponsorship of the steering committee, a second consultative meeting involving donor governments, the United Nations and other international organizations, nongovernmental organizations, and representatives from countries was held at WHO headquarters in June 1980. It reviewed progress during the preparatory phase of the Decade, issues related to its launching and implementation, and ways of furthering cooperation with a view to increasing the flow of resources to the sector.

Progress in Member States

11.11 The information available indicates that, since the start of the Decade, most Member States have intensified their efforts to increase the provision of safe water supplies and sanitation facilities. WHO is helping them to overcome weaknesses in current practices. Coordination mechanisms have been established at national and international level, communication between supporting agencies and countries has been improved, allocations for water supply and sanitation have been increased at national and international level, and a public information campaign covering developed and developing countries is being implemented to promote the Decade and its objectives.
In the African Region substantial progress has been made in organizing Decade activities. Of the 45 countries in the Region, 22 have established some form of national action committee for intersectoral coordination in relation to water supply and sanitation. In 29 countries a technical support team has been organized, including staff from WHO and other international agencies. WHO is executing interregional cooperative projects supported by UNDP, GTZ, and SIDA in 17 countries, projects that are all concerned with national planning and programming for the Decade. WHO also participated in technical cooperation in three other countries for the development of a national plan, and in seven national workshops concerned with the development of intersectoral planning and programming for the Decade.

An intercountry TCDC project in basic sanitary measures has been implemented. Sanitary engineering posts have been established in each of the three subregions to ensure more direct support to countries in respect of the water supply and sanitation aspects of TCDC.

WHO helped in the Economic Commission for Africa meeting (Addis Ababa, August 1980) concerning national water supply and sanitation action related to the Decade. The World Bank/WHO cooperative programme also gave support to water supply and sanitation activities in a number of countries.

Institutional development was an important feature of programme activities in the Region of the Americas. The Organization collaborated with some 12 countries in organizing information systems for national and local institutions. The projects assisted included: the strengthening and development of water and sewerage agencies in Brazil; the establishment of a national water and sewerage authority in Barbados; the setting up of administrative, operation, and maintenance systems for water service in Haiti; the development of rural water supply programmes in Guatemala and Paraguay; and institutional development in Costa Rica. Institutional development was also supported by the inclusion of human resources development as a component in technical cooperation with countries, examples of which were the Caribbean area water management project to develop a self-sustaining training system, and projects for the development of drinking-water and sanitation institutions in the Andean subregion and in Central American countries. The Pan American network of national focal points for information and documentation on sanitary engineering and environmental sciences was further developed and a start was made in coordinating it with the international collaborating centre information programme. The Pan American Center for Sanitary Engineering and Environmental Sciences, Lima, carried out studies on waste-water stabilization ponds, biogas, and the development of a new type of chlorinator. The regional programme providing help with analysis to water and waste-water laboratories was continued.

The Organization collaborated with countries in support of their strategies for the Decade. This included work under the cooperative programme with the World Bank, and with the Inter-American Development Bank and GTZ. The work with GTZ focused on national planning and infrastructure development in Bolivia, Haiti, and Paraguay, and the establishment of a centre for training in the operation and maintenance of water and sanitation services for Central America and Panama. Cooperation also continued with several countries to assure water quality and continuity, UNDP, CIDA, and the Caribbean Development Bank providing support.
Most of the countries in the South-East Asia Region have given high priority to water and sanitation and have established mechanisms to coordinate policy and action for the Decade with UNDP resident representatives. Several activities in the countries of the Region are now mainly concerned with the preparation of a national plan and the implementation of projects during the Decade. WHO held two intercountry workshops on Decade planning and Decade support programmes, including information systems, health education, behavioural studies, operation and maintenance, manpower development, and water quality surveillance. National plans were completed for Bangladesh, Nepal, and Sri Lanka and will shortly be prepared for other countries in the Region.

In the European Region particular effort was directed towards accelerating activities in water supply and sanitation in Algeria, Morocco, and Turkey (paragraph 15.77), where WHO sanitary engineers have been stationed to provide technical support to the UNDP resident representative. While the programme under WHO’s regular budget focused on rural sanitation, large-scale action took place within the framework of the UNDP country programmes. In Algeria a large-scale project related to solid wastes collection and disposal for 60 medium-sized cities was begun. In Morocco a seminar on appropriate technology for rural sanitation was held in Rabat in December 1980 as a preparatory activity for a pilot project.

In the Eastern Mediterranean Region consultations or workshops bringing together representatives from departments and organizations concerned were conducted with WHO assistance in Egypt and Sudan (through a UNDP-funded interregional cooperation project), in Somalia (through a similar GTZ-funded project), and in Pakistan (with UNDP support). These meetings focused on technical cooperation with countries in their preparation of national sector plans for the Decade. A sector study in Yemen executed through the World Bank/WHO cooperative programme identified a number of projects requiring external resources. In Lebanon a WHO/UNDP national waste management project prepared a draft master plan and, despite some problems, is proceeding with the preliminary engineering and feasibility studies for four priority areas.

Training and human resources development were important aspects of water supply and sanitation activities in the Western Pacific Region. Two workshops considered the financial and economic aspects, another was held on regional strategies for the Decade, and a number of courses dealt with technical subjects such as surveillance of drinking-water quality. The Region administers more than 30 projects concerned with basic sanitary measures, largely supported from UNDP funds. A new UNDP/WHO project began in 1980 for the training of water supply and sewerage personnel for countries of the South Pacific area. Summary reports were completed by July 1981 for all countries and areas except Brunei, Democratic Kampuchea, and Macao. An assessment was prepared of the situation in the Region and of the strategies and approaches to be followed.

Control of environmental hazards

While the International Drinking Water Supply and Sanitation Decade is generally seen as directed mainly towards developing countries, many related problems remain unresolved in developed countries, such as the contamination of drinking-water by chemicals and the widespread pollution of rivers, lakes, and groundwater. In the past, too, serious toxic wastes were often disposed
of in an uncontrolled manner and have become a serious public health problem in a number of countries. In four WHO regions there are programmes on ways and means of dealing with those problems.

International programme on chemical safety

11.22 The international programme on chemical safety was put on a broader footing during the biennium. At the international level, ILO and UNEP have joined the programme as cooperating agencies. At the national level, 12 Member States have formally adhered to the programme by a memorandum of understanding. Twelve national institutions have been designated as lead institutions for specific programme areas. IARC is the lead institution for carcinogenesis. UNEP has established an international register for the collection, retrieval, and dissemination of information on potentially toxic chemicals. An interregional research unit was established at the National Institute of Environmental Health Sciences, North Carolina, USA. Another is being set up in the Environmental Protection Agency, Washington.

11.23 A programme advisory committee was set up to advise the Director-General and the executive heads of ILO and UNEP on the overall aspects of the international programme. The committee met twice during the biennium and established four priorities: evaluation of the effects of pesticides, food additives, household chemicals, and selected industrial chemicals; dissemination of information; training of toxicologists; and development of methodologies, especially for monitoring exposure from various sources and for validating tests for the detection of mutagenicity, carcinogenicity, and teratogenicity. It developed guidelines for designating lead institutions and for ensuring that the work they perform corresponds to the international character of the programme. It also dealt with the question of unpublished proprietary data and the participation of nongovernmental organizations in the programme. It reviewed the special needs of developing countries and made recommendations on the training of manpower, the dissemination of information, and the drafting of basic guidelines on the safe use of chemicals.

11.24 The Regional Office for Europe was active in the field of chemical safety (paragraph 15.78). It has developed plans for dealing with emergencies and accidents involving the release of toxic chemicals, plans that could be adapted for global application. It is also implementing a UNDP-supported project on European cooperation on environmental health aspects of the control of chemicals that aims at the strengthening of national capabilities in this area.

11.25 The preparation of environmental health criteria documents on chemicals constitutes an important part of the programme. Three documents were published in the biennium and a fourth is in press. Under the new arrangements in the programme the lead institutions take the responsibility for the preparation of the criteria documents under the guidance of the central unit. The drafts go to countries for review and comments and the revised draft is finally reviewed by a group of international experts. Twelve lead institutions have begun the preparation of 18 additional documents on 18 chemicals or groups of chemicals. In all, 31 criteria documents on chemicals are at various stages of preparation and 16 are already in print. Guidelines on the preparation of the criteria

---

documents have been prepared. Work has begun in relation to methodology on: principles and methods for evaluating the toxicity of chemicals; general principles in epidemiological methods for environmental health studies; assessment of the effects of chemicals on reproductive function; short-term tests to predict the mutagenic and carcinogenic potential of chemicals; integrated evaluation of acute and chronic prenatal toxicity of chemicals; and evaluation of neurobehavioural toxicity.

Environmental health planning

11.26 A guide on environmental health planning was finalized and distributed to a wide range of users at country level. An analysis was also published of a study conducted in 21 countries at various stages of development. It makes comparative information available for the first time on the different approaches adopted to deal with the complex issue of intersectoral coordination and health in environmental management. The Western Pacific Regional Centre for Promotion of Environmental Planning and Applied Studies and the Pan American Center for Sanitary Engineering and Environmental Sciences continued to give the highest priority to this subject. In the Eastern Mediterranean Region studies continued on the establishment of a similar regional centre for environmental health activities. The Regional Office for Africa organized a consultation on the establishment of a regional network of national environmental sciences institutes (Dakar, June-July 1981), attended by participants from 11 countries in the Region. The meeting agreed that, as a first step, a feasibility study should be begun on the establishment of a regional environmental health centre.


Monitoring and control of pollution

11.27 During the biennium WHO continued its UNEP-supported air and water quality monitoring projects, which aim at initiating or strengthening national monitoring programmes and at obtaining information on pollution levels on a regional and global scale. Some 80 countries now participate in the air quality monitoring programme. New approaches are being developed and tested so as to improve the information base for assessment of the impact of air pollution on human health. Pilot studies were initiated in Toronto (Canada) and Zagreb (Yugoslavia) in 1980, and arrangements were made to initiate similar studies in China and India. By the end of 1981 data under the water quality monitoring project were being collected and analysed routinely from more than 30 countries. The last two regional training courses in the initial series on water quality monitoring were held in Dakar and Nairobi in collaboration with UNESCO. A training course on the quality assurance aspects of water quality monitoring was organized in Nagpur, India, for participating countries in the South-East Asia and Eastern Mediterranean Regions.

11.28 A relatively simple method has been developed and tested over the past few years for the identification and assessment of air, water, and land pollution sources in a given city, region, or even country. Its application will yield an industrial waste profile and indicate the most urgent control problems and the problems that may be emerging.

11.29 The revision and merging of International standards for drinking-water and European standards for drinking-water proceeded well in 1981, with a view to their

publication as \textit{WHO guidelines for drinking-water quality}. During the biennium a number of working groups were convened by WHO to prepare sections of the guidelines dealing with the contamination of drinking-water by biological organisms and chemical and physical constituents and to set forth recommended limits. This project is supported financially by DANIDA and by a number of WHO collaborating centres and focal points for the environmental health criteria programme.

11.30 For the UNEP industry and environment programme, WHO participated in a review of the environmental aspects of non-ferrous metal industries by providing information on the known health effects. Also, as a follow-up to UNEP’s review of the environmental problems caused by motor vehicles, WHO together with UNEP sponsored two workshops on motor vehicle emissions, the first at the Western Pacific Regional Centre for Promotion of Environmental Planning and Applied Studies in 1980 with the participation of representatives from countries in the Western Pacific and South-East Asia Regions, the second in Moscow in 1981 with the participation of representatives from countries in the African, European, and Eastern Mediterranean Regions. The Regional Office for Europe initiated a project on the assessment of toxicological problems associated with specific industries, and a planning meeting was held in 1981.

11.31 Ever-increasing demands for energy have made it necessary to evaluate and compare the health risks of different \textit{sources of energy} (wood, coal, oil, nuclear power, etc.). Approaches to a comparative assessment of detriment to health from energy production were considered at a WHO meeting organized jointly with the Federal Republic of Germany. The problem was further discussed at a WHO/UNEP/IAEA symposium on health impacts of different sources of energy held in Nashville, USA, in 1981. The symposium placed special emphasis on methods of quantification, comparison, and analysis of health risks; the development of epidemiological parameters for the evaluation of the health impact; and cost/benefit analysis. The health impact of various components of nuclear fuel cycles and the environmental health implications of the disposal of high-level radioactive waste were reviewed by a working group organized by the Regional Office for Europe in cooperation with the Belgian Government.

11.32 During the biennium a pilot project on the assessment of human exposure to pollutants through biological monitoring for \textit{selected metals} and for \textit{organochlorine compounds} was carried out with the participation of some 15 countries and the support of UNEP. The measurement of concentrations in human tissues and fluids is an excellent means of estimating the uptake and deposit of these substances in the body. This type of monitoring is technically difficult, and most of 1980–1981 was devoted to strengthening the analytical capabilities of participating laboratories and instituting a vigorous analytical quality assurance programme. By the end of 1981 most of the participating laboratories had either begun or made plans to begin monitoring selected populations. Under this pilot study, lead and cadmium are being measured in the blood, cadmium in the kidney cortex, and organochlorine compounds such as DDT, DDE, and polychlorinated biphenyls in breast milk.

11.33 Monitoring of \textit{environmental radiation} was continued through the WHO collaborating centre at the Service central de Protection contre les Rayonnements ionisants, Le Vésinet, France. Under this programme some 30 national laboratories in 21 Member States and four WHO collaborating centres participate by providing information on radiation levels in air, water, milk, and bone.
11.34 Technical cooperation activities were undertaken through the regional offices. Countries in the Eastern Mediterranean actively participated with the Regional Office in the planning and implementation of marine pollution control programmes as part of both the Mediterranean and the Kuwait action plans. In the South-East Asia Region technical cooperation activities in air and/or water quality management were carried out in India, Indonesia, and Thailand. The Regional Office for the Americas supported a series of projects in countries concerned with the development of environmental control programmes, research, and the collection and exchange of information. The European Region was involved in the promotion of assessments of environmental impact, the improvement of systems for the collection and disposal of solid wastes, and the development of environmental pollution control programmes. In the Western Pacific Region cooperation continued with the Republic of Korea in the development of air and water pollution control measures. In China UNDP-supported projects were initiated on the monitoring and control of pollution. In the African Region a pilot project on the development of a control programme for air and water pollution was carried out in Abidjan. The results of this study will serve as a model for use in conjunction with the guidelines on environmental pollution assessment (paragraph 11.28).

11.35 WHO continued to participate in the work of UNEP’s coordinated regional seas programme by providing specific information on the human health aspects. Work was continued in the Mediterranean, Caribbean, and other regional seas. In addition, WHO coordinated the development of training material for a projected series of workshops on assessment of the environmental impact of coastal area development. This work was carried out with the participation of the United Nations, the United Nations Centre for Human Settlements, FAO, UNESCO, IMCO, and UNIDO, and resulted in 1981 in an instructor manual, a student manual, and an illustrative case studies manual.

11.36 The health risks associated with exposure to non-ionizing radiation and other physical factors are undergoing evaluation; during the biennium environmental health criteria documents were issued on noise and on radiofrequency and microwaves. Additional criteria documents are in preparation on lasers, ultrasound and extremely low frequency, and power line electromagnetic fields. The Regional Office for Europe is completing preparation of a manual on protection from non-ionizing radiation.

11.37 A number of guidelines on various aspects of radiation protection have been developed or updated to assist Member States in the management of national services. Among these, mention should be made of Basic safety standards for radiation protection, which was revised jointly by IAEA, ILO, WHO, and the OECD Nuclear Energy Agency on the basis of the recommendations of the International Commission on Radiological Protection (ICRP), and the IAEA/WHO code of practice on basic requirements for personnel monitoring. The application of radiation protection standards was the


subject of a joint WHO/IAEA/OECD-NEA/ICRP symposium held in Madrid on
the application of the dose limitation system
in nuclear fuel cycle facilities and other
radiation practices. A joint IAEA/WHO
booklet on low-level radiation was issued\(^1\) to
provide information to the general public.

11.38 To improve the preparedness of
public health authorities for possible radi-
ation accidents, in addition to the system for
mutual assistance in radiation accidents
devised by IAEA, WHO, FAO, ILO,
UNDRO, and the International Radiation
Protection Association,\(^2\) two WHO collabor-
ating centres for radiation emergency medical
assistance were designated in Paris and Oak
Ridge (USA) to assist all the regions in the
handling of radiation accidents and the treat-
ment of radiation injuries. The rationale for
public health action in case of possible radiation accidents was considered at a WHO
meeting organized in cooperation with the
Belgian authorities. Regional training semi-
nars on general procedures for the manage-
ment of persons receiving whole-body or
part-body radiation were jointly organized by
the Regional Office for the Americas and the
Brazilian Atomic Energy Commission.

Promotion of food safety\(^3\)

Food additives and contaminants

11.39 In 1980 and 1981 the Joint Meeting
of the FAO Panel of Experts on Pesticide
Residues and the Environment and the WHO
Expert Group on Pesticide Residues pro-
vided toxicological evaluations, in terms of
acceptable daily intakes and maximum resi-
due limits in foods, of pesticides used exten-
sively in agriculture and public health. At its
1980 meeting\(^4\) it included items of a general
nature such as general principles for establish-
ing acceptable daily intakes, the quality and
validation of toxicological data, and prop-
osals for maximum residue limits for food
groups. Among the specific problems dis-
cussed were delayed neurotoxicity as a hazard
posed by some organophosphorus insecti-
cides, impurities in technical pesticides, and
pesticide residues in stored products.

11.40 Two meetings of the Joint
FAO/WHO Expert Committee on Food
Additives were held in 1980\(^5\) and 1981.\(^6\) The
report of the 1980 meeting dealt with the
approach followed by the Expert Committee
in evaluating food additives claimed to be free
from cariogenic activity; the need, under
certain circumstances, for impurities or trans-
formation products of food additives to be
tested separately; the special problems posed
by toxicological evaluation of modified food
ingredients; and the nutritional significance
of reactions between additives and normal
food components. Particular attention was
given to the implications of temporary ac-
ceptance of food additives: the time limits
proposed for the completion of further
investigations on some food additives would,
in the Committee's view, create no public
health hazards.

11.41 The 1981 meeting examined a
number of colouring agents, carrier and
extraction solvents, flavouring agents,
enzyme preparations, sweeteners, and mis-
cellaneous food additives. Special attention
was given to: the use of hormones in stock-
raising and the problems posed by their

\(^1\) Facts about low-level radiation. Vienna, International

\(^2\) Mutual emergency assistance for radiation accidents.
(IAEA-TECDOC-237).

\(^3\) For food safety in relation to veterinary public health,
see paras 9.182-9.197.

\(^4\) FAO Plant Production and Protection Paper No. 26,
1981.


residues in food; the safety aspects of plastic materials in food packaging; antibiotics as direct food additives; and enzymes used in food processing. The Committee also examined its current approach to the evaluation of natural and nature-identical food additives. It reviewed the work it had carried out for 25 years and the benefits developing countries could derive from it.

11.42 A Joint FAO/IAEA/WHO Expert Committee on the Wholesomeness of Irradiated Food was convened in 1980.1 It considered that the irradiation of food commodities up to an overall average dose of 10 kGy presents no toxicological hazard, that toxicological testing of foods so treated is no longer required, and that such irradiation introduces no special nutritional or microbiological problems; but it emphasized that attention should be given to the significance of any changes in relation to each particular irradiated food and its role in the diet.

Food standards programme

11.43 The primary objective of the joint FAO/WHO food standards programme under the aegis of the Codex Alimentarius Commission, which now has a membership of 121 countries, is to protect consumers from the health hazards related to food and from fraudulent practices. It attempts to do so by establishing international or regional standards and drawing up codes of practice for the safe handling of food. During the biennium 17 commodity and general subject committees were convened, and meetings were held of the coordinating committees for Africa, Europe, and Latin America.

11.44 The fourteenth session of the Codex Alimentarius Commission took place in Geneva in 1981, when the Commission reviewed and assessed the results of its work. One of the important issues dealt with was that of nutrition. Many draft and existing Codex standards either contain specific nutrition provisions or help to protect the nutritional quality of the food supply by controlling the composition and distribution of foods passing into trade. The Commission concluded that nutritional considerations had not been neglected in its work, either past or present, which had considerable nutritional impact.

11.45 Following recommendations of its committee on general principles, the Commission adopted revised procedures for the elaboration of worldwide and regional Codex standards aimed at simplifying and speeding up the mechanism for acceptance by Member States.

Technical cooperation with Member States

11.46 Technical cooperation in market and food sanitation was provided in the African Region as part of the general sanitation programme. Preparatory work began in connexion with a proposed regional expert committee on the development of food safety policy. The FAO/WHO/IARC/UNEP project on control of fungal contamination of food and human health, initiated in Swaziland, has been extended until the end of 1982.

11.47 In the Americas technical cooperation was undertaken with a number of countries. In 1980 the ministers responsible for health in the Caribbean countries began planning and developing strategies for a subregional food protection (food safety) programme. The Andean countries have also voiced interest in the development of a subregional food safety programme. Training continued under the regional education programmes for food protection based in

---

PROMOTION OF ENVIRONMENTAL HEALTH

Colombia. At the thirty-third session of the Regional Committee (September 1981) the subject of the Technical Discussions—the sanitary control of food—resulted in an action plan that will guide future regional activities.

11.48 In South-East Asia country projects on a range of food safety topics were undertaken in India, Indonesia, Sri Lanka, and Thailand. The need for the systematic development of national food safety programmes in the Region is being increasingly recognized.

11.49 The Regional Office for Europe published Food safety services, the result of a survey of national food safety services in the countries of the Region; it is intended to be used as background material for working groups, e.g., on food inspection principles, sampling programmes, the training of food inspectors, and selected coordination problems. Preparatory work relating to food safety in mass catering continued, with the collection of material for proposed studies and working groups. A working group on health examination of food-handling personnel met in 1980. A surveillance programme for foodborne infections and intoxications in Europe became operational.

11.50 Basic sanitary measures, with special emphasis on the improvement of food safety and hygiene, are recognized as vital in the socioeconomic and climatic conditions of the Eastern Mediterranean Region. Collaboration continued with governments and with international organizations such as FAO, as well as with the Arab Organization for Standardization and Metrology, on improving food control and hygiene activities. A six-week programme for training food inspectors was organized in Amman in October 1981.

11.51 In the Western Pacific Region country projects included the initiation of a project on food safety in China, with UNDP support. National seminars were held in Fiji and the Republic of Korea to develop national food control systems. A working group on the public health aspects of marine food poisoning was convened in cooperation with the South Pacific Commission.

Information and monitoring

11.52 WHO is further emphasizing its food safety activities by providing information and health education programmes for schoolchildren, food-handling personnel, and the general public.

11.53 The UNEP-supported joint FAO/WHO food contamination monitoring programme aims at providing information on environmental pollutants in food (organochlorine pesticides, polychlorinated biphenyls, cadmium, lead, and aflatoxins) in order to assess the health risks to man from exposure to such pollutants and to determine priorities for developing pollution control strategies at the national, regional, or global level. Under this programme FAO/WHO collaborating centres in 21 countries contribute monitoring data on contaminants in foods and in total diet. These data are being evaluated to determine trends and potential health hazards and a summary of data received up to July 1980 was prepared. In almost all cases the estimated dietary intakes of the organochlorine pesticides are low and reflect the decreased utilization of these pesticides in certain countries. Cadmium dietary intakes indicate that this contaminant should be monitored closely. An analytical quality control programme was implemented. The second session of the technical advisory committee of the joint FAO/WHO programme was convened in April 1981 to review progress and problems and to advise on the future operational phase of the programme.

Chapter 12

Health Manpower Development

12.1 A REVIEW of present health manpower systems reveals a number of problems arising from the absence or inadequacy of national health manpower policies. The neglect of coordinated training and utilization of health personnel results, among other things, in a shortage of such personnel; an uneconomic utilization of the health team; an imbalance between different categories of staff; inequities in geographical distribution, aggravated by the migration of qualified personnel; and in many cases the absence of a clear definition both of functions and of required competencies for the various categories of health worker. There is often no well-conceived manpower system operating as an integral part of the health system. The most frequent problem is the lack of coordination of the three main elements of the health manpower development process—planning, production (i.e., training), and management. A related problem is the lack of coordination between the health manpower development process and other sectors, e.g., general education, social security, labour, and agriculture.

12.2 The first element in the health manpower development process is planning. In many countries there are no health manpower plans at all, or if they do exist they are often exclusively quantitative in character. Where there is no proper planning of health teams, the result is an undue emphasis on the training of certain conventional categories of health personnel—particularly physicians and nurses—at the expense of other categories.

12.3 In health manpower production the main problem is the shortage of facilities for training the required type and number of health personnel needed by the national health services. This includes a shortage of teachers of health sciences, especially of teachers competent to plan, implement, and evaluate the teaching/learning process, using a systems approach and ensuring that what students learn is relevant to the demands that will be made upon them on completion of their training. Only too frequently there are wide divergencies between academic training goals and the requirements of the health services. Curricula, methods, and systems of evaluation are often unsuitable for training health workers to meet the real health needs of the community and to work in teams. Moreover the absence of collaboration between those responsible for training staff and those responsible for health care delivery is liable to result in educational programmes that develop in isolation from the changing needs of health care.

12.4 Problems in health manpower management include unattractive working conditions, e.g., insecurity of tenure, limited
promote prospects, and inadequate financial or other incentives. Very often there is no provision for continuing education and this in itself is a severe limitation on maintaining and improving the level of competence and performance of health workers.

Medium-term programme

12.5 During the biennium, the basis of work was the medium-term programme for 1978–1983, endorsed by the Thirty-first World Health Assembly (resolution WHA31.36). A partial revision of this programme was undertaken to ensure that it remained relevant to the changing health priorities of Member States and was in line with the principles adopted at the Alma-Ata Conference and the Global Strategy for health for all.

12.6 In 1980–1981 an attempt was made to assess progress after three years' experience of implementing the medium-term programme. It was found that many of the problems inherent in a first effort had been solved in the course of implementation; but, as with any programme extending over a long period, it was necessary to revise, add, or discontinue activities because national health priorities had changed. In general however the targets set in 1977 remain essentially the same. A final assessment will be made in 1983 to determine to what extent targets have been met by the end of the six-year period. The progress made can be seen from the following pages.

Programme planning and general activities

Information service

12.7 The WHO Chronicle was hitherto the vehicle for publishing a newsletter, “Health Manpower News”, that provided information on health manpower plans, programmes, and processes; teaching/learning materials; processes and tools for programme evaluation; and training institutions and other learning facilities. Nine newsletters in all appeared up to January 1981. Since that date, owing to the reduction in periodicity of the Chronicle (paragraph 13.30), the newsletter has been discontinued although information on health manpower development is still carried by the Chronicle.

Research

12.8 During the biennium, an analysis was made of health manpower development policy in WHO from its inception (1948) up to 1980. The intention was to document the relationship between expressed policy, implementation by way of programme, and final outcome. The study set out to identify the main policies and objectives of the programme and the factors (political, social, economic, cultural, health, etc.) that shaped them; to determine to what extent policy was implemented; to find out which factors influenced the successes or failures of the programme; and to ascertain what changes, if any, in WHO's Member States could be attributed to the influence of WHO's health manpower development programme.

12.9 The methods used to carry out the study included an analysis of United Nations and WHO official documents; a statistical analysis; the canvassing of expert opinion; case studies in six countries (Barbados, Costa Rica, Ethiopia, Gabon, Indonesia, and

---

Malaysia) to assess the relationship between WHO's programme and the status of health manpower development in the country; and an analysis of the literature on WHO's work in health manpower development.

12.10 In the conclusions of the study, guidelines for the future are discernible.\(^1\) It is clear that further progress in health manpower development depends on the political will at national level to seek and apply proper solutions to manpower problems that have been properly diagnosed in relation to the need for health services based on the primary health care approach. Moreover it emerges clearly from the study that it is WHO's role to act as an agent of change, to stimulate the right political response without which even the best technical solution may end in failure, and to promote the political will that alone can ensure an effective development process.

12.11 To produce "effective" health manpower, i.e., appropriately trained manpower that is able and willing to care for the entire population of a country, requires active research on all aspects of the manpower development process: policy formulation, planning, production, and management. During the biennium WHO launched several activities to promote research of this kind.

12.12 In the South-East Asia, European, and Eastern Mediterranean Regions, several meetings were held on research in manpower development. In the South-East Asia Region, a consultant visited five countries (Bangladesh, Burma, Indonesia, Sri Lanka, and Thailand) to determine research needs. A consultative group on the organization and scope of research in education for the health professions (Prague, 1981) met to decide what action should be taken to promote research in the European Region that would enable Member States to develop plans and activities to attain health for all.

12.13 Eight WHO collaborating centres in seven countries are collecting epidemiological information on the nursing care needs of elderly and elective surgical patients, data being drawn from 30 health care institutions in 13 countries. Participating nursing personnel attend in-service training programmes on the process required (assessment of health needs, planning and implementation of nursing care, and evaluation of its effectiveness). A meeting (Switzerland, 1980) discussed the importance of records in carrying out this process.

12.14 In collaboration with the International Council of Nurses and the World Federation for Medical Education, a study was made on the concept and practice of a competency-based curriculum that could be used to promote a shift from the subject-centred or discipline-oriented curriculum to a problem-solving approach. Part of this study consists in examining the experience of educational programmes that have defined and used learning objectives.

12.15 In the Region of the Americas, the Latin American Center for Educational Technology in Health (Rio de Janeiro) is developing research projects on a curriculum and didactic planning model based on the health needs of primary health care programmes, including communication with the supervisory level.

12.16 Procedures for assessing the performance of health workers and students were worked out by investigators in six countries: Bahrain, Kenya, Mozambique, Poland, Sri Lanka, and the United Republic of Cameroon. The theoretical basis for this research and its practical aspects were published in the form of guidelines.\(^2\)

\(^{1}\)WHO Chronicle, 36: 3-6 (1982).

12.17 The important matter of how to select suitable applicants for training as health workers was studied with the support of UNFPA. A working group met in Geneva (1980) and in Maputo (1981) to provide alternatives to the most commonly used practices, such as the almost universal reliance on scholastic achievement as a criterion for selection. The procedures recommended by the working group will be disseminated in the form of guidelines.

12.18 A flowchart for decision-making in patient management, for use especially in primary health care but also as a training device, was tested in a number of countries. The flowchart project was extended to other areas of health care, e.g., mental health, where a problem-oriented method was developed to determine the appropriate management of mental illness in cross-cultural primary care settings. The method is designed for use by intermediate-level health workers in developing countries and was tested by psychiatric field workers in Colombia, India, and Lesotho. In preliminary reports from Lesotho the diagnosis made on the basis of the flowchart showed a 76% agreement with the consultant psychiatrist’s diagnosis in 60 cases. Reports from India showed agreement in 28 out of 30 cases. The method is currently being evaluated in Colombia and Egypt. WHO also sponsored the preparation and field testing of a manual to teach instructors and learners how to adapt and use the flowchart method. It outlines the basic clinical skills that must be acquired before the method can be used. The manual is being adapted for use by village health workers.

12.19 The failure to assess health manpower requirements in terms of health needs is an obstacle to realistic planning. An approach was devised for eliciting information from health workers, health administrators, and the community (see paragraph 12.36). It was found that what they perceived to be the main health problems usually coincided with the results of epidemiological surveys. Such an approach could prove even more useful in the national managerial process, of which manpower planning is an element.

12.20 Although there is still some opposition to the utilization of traditional birth attendants in the health services, those countries that do use them commend their contribution to the extension of coverage and are continually seeking ways to increase it. Research has begun in Thailand to determine what additional role the traditional birth attendant can play in primary health care. A study has also begun in Burma to determine the ability of the traditional birth attendant to function as a first-level health worker in maternal and child health care and to detect women and newborn infants at special risk; its outcome will serve as a basis for guidelines on the training of teachers of traditional birth attendants in such screening. In Sierra Leone, where 70% of deliveries are attended by traditional birth attendants, a training programme was initiated as early as 1974 to improve their skills and practices. A countrywide study began in 1981 to assess the impact of their work on health care services. It includes the development and testing of evaluation tools and of a methodology for assessing the effectiveness of training programmes.

12.21 Research is an integral part of all health manpower development activities and further examples will be found throughout this chapter.

Health manpower planning and management

Coordination between health services and manpower development institutions

12.22 To improve the planning of health manpower, the proper deployment of health...
workers, and the relevance of training programmes to community health needs, WHO continued to promote the integrated development of health services and of manpower. Virtually all regions promoted discussion and organized meetings on the subject, and the concept was adopted by an increasing number of Member States.

12.23 In the European Region, a working group on communication and collaboration between and within the health and educational systems reviewed the promotional work of WHO and Member States in that connexion. Case studies were presented from different systems of health care—in Poland, Sweden, and Switzerland. At the request of the health authorities of Montenegro, Yugoslavia, a visit was made to the area in 1981 to discuss the organization of health services and health manpower training.

12.24 The recognition that health development requires both an intersectoral approach and community participation has led to the establishment of national health councils and health development networks that include a health manpower component. This is occurring in Burma, Colombia, Democratic Yemen, Ethiopia, Papua New Guinea, and Sudan.

Planning of health manpower

12.25 Cooperative activities to strengthen the health manpower planning capability of Member States as part of the managerial process for national health development continued. Guidelines for health manpower planning were field-tested in country and intercountry workshops and were published with the financial aid of UNFPA.1 These guidelines can be used as a basis for one-week workshops; they indicate the steps to be followed in formulating manpower plans, as should routinely be done after the workshop to reinforce learning by doing.

12.26 In the Americas, regional courses to train personnel in project planning were conducted in Colombia and Peru. An intercountry workshop was held (Lima, November 1981) to promote manpower planning in the countries represented, test the procedural steps outlined in the guidelines, and adapt them for a Spanish version.

12.27 In the South-East Asia Region, Bangladesh, Burma, Nepal, and Thailand held national workshops on the guidelines, followed by the formulation of manpower plans. In 1980 Bangladesh formed a steering committee and a working group for a health manpower study that was undertaken in 1981. Indonesia is carrying out health manpower planning as part of its national health planning.

12.28 In recent years the countries of the South-East Asia Region have shown increasing interest in health manpower planning, an interest stimulated in great part by the Regional Office. The Technical Discussions at the thirty-third session of the Regional Committee (Maldives, 1980) were on the subject of health manpower planning and community participation for primary health care.

12.29 An intercountry workshop on the methodology of health manpower planning (Colombo, December 1980/January 1981) brought together senior administrators and educators from the South-East Asia and Eastern Mediterranean Regions with a view to their guiding health manpower planning in their countries and training other health workers. Sri Lanka’s approach to manpower planning was more specific in that limited

---

studies directly related to the expressed needs of the decision-makers were conducted, e.g., a study on norms and standards for the staffing of health institutions.

12.30 In the European Region an inter-country workshop on health manpower planning (Copenhagen, October 1981) was faced with a situation peculiar to that Region—the oversupply and overspecialization of physicians. The workshop did not provide ready-made solutions but attempted to show possible alternatives based on the exchange of information and experience.

12.31 A study on nursing services and education was made in nine countries of the Region. The resulting information, compiled at the end of 1981, will be of use to all European countries in developing policies and plans. It will also be a useful contribution to international statistics on nursing personnel.

12.32 Member States in the Eastern Mediterranean Region gave particular attention to the forecasting of health manpower requirements. The guidelines for health manpower planning (paragraph 12.25) were adapted to the conditions of countries in the Region and will be translated into local languages. A workshop on their use was held in Democratic Yemen (December 1981) and will be followed by the formulation of a national manpower plan.

12.33 Most countries in the Western Pacific Region have national health plans and a number of them carried out initial studies of health manpower, using the guidelines. In the Republic of Korea a review was made of requirements in the categories of health manpower trained in junior health colleges, and of their utilization. In Guam, a review was made of nursing manpower and nursing education. In Vanuatu an analysis of the health manpower situation was made to help in planning the development of the health services.

12.34 WHO has produced a number of learning modules—for example, on setting of health priorities—which are currently being field-tested.

12.35 In keeping with the recommendations of the Global Strategy for health for all,1 work began on an interregional project to stimulate the establishing of national manpower projections for the year 2000, especially for the categories of health worker that will be directly involved in primary health care. A preparatory meeting was organized to decide on national plans of action; participants came from Bangladesh, Democratic Yemen, Dominica, Gambia, Hungary, the Philippines, the United Kingdom, Vanuatu, and Zimbabwe. In addition, Burma and Indonesia are participating in the project.

12.36 A simple way of obtaining information for such manpower projections is to ask selected health workers, administrators, and community representatives what they consider to be the health needs of the community and its manpower requirements. This approach, which has been field-tested in Colombia, obviates the need for large-scale surveys over a long period of time. The results are promising but need to be tried out in other countries; further testing is being undertaken in the Philippines in relation to the role and functions of primary health workers.

12.37 The need for updated inventories of health workers, particularly primary health care workers, and for the development of country-specific indicators of health man-

---

power development is gradually gaining acceptance in Member States. In the Region of the Americas, the Organization cooperated with several countries on information systems to determine the availability of personnel and the training needed to meet future demands.

**Women as providers of health care**

12.38 WHO has initiated a multinational study on women as providers of health care, funded by UNFPA. Its purpose is to stimulate action on the part of all individuals and groups who are (or should be) concerned to facilitate and enhance the work of women in health development; it aims at providing information and guidance for the formulation of policies and the implementation of practical action within the next few years. The outcome of the study will have implications for governments, international agencies (governmental and nongovernmental), women’s organizations, and organizations of health professionals.

12.39 More specifically the project will describe in statistical terms the situation of women as providers of health care; analyse statistical and other information to show how that situation is related to economic, political, social, or cultural variables; and propose intervention strategies to improve it. The study, to be completed in 1982, will include contributions from Brazil, Colombia, Egypt, Ethiopia, France, Hungary, India, Indonesia, Jamaica, Mali, Nigeria, the Philippines, Poland, and Thailand.

**Training in health management**

12.40 The Executive Board’s organizational study on the role of WHO in training in public health and health programme management\(^1\) was submitted to the Thirty-fourth World Health Assembly (May 1981). The Assembly adopted resolution WHA34.14, which recognized the importance of management training in reorienting health systems towards the attainment of health for all, and endorsed the recommendations of the study.

12.41 The study concluded that management training should form part of national strategies for health for all. It should be clearly oriented towards the managerial process for health development and be capable of responding to the evolving health needs of the community. It should form an integral part of basic, postbasic, and continuing education programmes; be available to personnel at all levels; be team-oriented and promote community participation; and rely on the learning-by-doing approach, with particular emphasis on problem-solving and the use of locally available resources. WHO’s role in helping to develop coordinating mechanisms in the form of national health development networks that include management training resources was underlined. The establishment of such networks—whose aim is self-reliance in management training—would require WHO to collaborate in mobilizing extrabudgetary resources, provide fellowships and equipment, and cooperate on request in the formation of the national group that would assume overall responsibility for management training. The strategy recommended in the study includes the promotion of career mobility and of incentives to those prepared to invest in continuing education and management development.

12.42 Member States showed a growing interest in management training of national staff responsible for the health services. A consultation on health management training and work studies in June 1981 brought together representatives from a number of national projects currently under way (Benin, Burma, Costa Rica, India, Sri Lanka, Thailand, and the United Republic of Tanzania).

\(^1\) WHO document EB67/1981/REC/1, Annex 5.
These projects promote the basic training and the continuing education needed for managing health services, especially in primary health care. The meeting assessed the progress made, noted the constraints, and agreed on ways of expanding the projects in line with the recommendations of resolution WHA34.14. It also discussed the basic elements for an interregional network of health management training projects; the role of work studies in health manpower management, training for management, and educational and manpower planning; methods of carrying out such studies; and ways of obtaining extrabudgetary support.

12.43 A growing number of countries in the African Region have asked WHO to collaborate in health planning and in developing health information systems for management. Workshops were held in five countries (Gambia, Liberia, Nigeria, Upper Volta, and Zambia).

12.44 A meeting in Arusha, United Republic of Tanzania (July 1980), with participants from 15 countries, discussed the functions of a training network, teaching methods, and the role of health development centres. On its recommendation, 13 selected teaching establishments will each organize a workshop on how to integrate management training into the curriculum.

12.45 In the Region of the Americas, a programme for advanced training in health administration for Latin America and the Caribbean area has been under way since 1979 with the support of the W.K. Kellogg Foundation. The network of training programmes is being continuously expanded and at present numbers 49.

12.46 During the biennium regional workshops were held on (i) education in organizational behaviour, (ii) education in health economics, finance, and costs control, and (iii) health planning. Their reports are being prepared for issue, in addition to two bibliographies on health administration.

12.47 A programme of training for supervision and consultation in local health service units is being supported by the Organization in Bolivia, Brazil, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and Peru. A meeting coordinated by the Latin American Center for Educational Technology in Health (Rio de Janeiro) was held in Lima to organize the work in Bolivia, Brazil, and Peru. Similarly, a community health training programme coordinated the work of the countries of Central America and Panama in implementing a process for training in supervision at country level. An evaluation of programme activities was carried out in the countries that had been participating for two years (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) and was presented to a meeting in Guatemala City, which agreed that WHO’s continued support was essential to the future of the programme.

12.48 In the European Region, collaboration continued with several teaching institutions, including the Central Institute for Advanced Medical Studies, Moscow; the latter runs annual international courses for public health administrators for which WHO provides lecturers and fellowships. At the fifth scientific session of the 1980 course (Budapest, June 1980) the theme was primary health care and the role of outpatient departments in increasing the effectiveness of such care. A third meeting of the joint committee to evaluate the courses was also held.

12.49 The Regional Office for the Eastern Mediterranean sponsored a series of workshops on training in management (Somalia, 1980, and Israel, 1981) and is continuing its efforts to promote similar meetings in other countries of the Region.
Continuing education

12.50 Continuing education is an essential element in good health manpower management. It is of particular importance in retaining primary health personnel where their services are most needed and in reducing the migration of trained personnel.

12.51 A programme on continuing education in the Region of the Americas has been jointly supported since 1978 by PAHO/WHO and CIDA in seven countries—Bolivia, Colombia, Cuba, the Dominican Republic, Ecuador, Guatemala, and Honduras—joined in 1980 by Nicaragua. The community health training programme for Central America and Panama has been designated as reference centre for the programme. An evaluation carried out in April 1981 (San José, Costa Rica) showed that each country had adapted the programme to its own needs. The programme’s main aim is the continuing education of auxiliary and middle-level technical health personnel but it would be desirable for it to cover the entire health team; a proposal for its expansion has therefore been made to CIDA.

12.52 A set of standards for primary health care services, which can also be used in the continuing education of health service administrators, is being developed in the Region.

12.53 In the European Region a consultative meeting to review recent developments in continuing education (Copenhagen, May 1980) stressed the importance of teacher training. It prepared the programme outline for a seminar on the continuing education of health workers in primary health care (San Remo, Italy, 1981), which brought together administrators responsible for planning such programmes and representatives of national health services and health training institutions. The discussion centred on (i) how health services and professional associations can promote a systematic programme of continuing education that will reorient and reinforce primary health care services in line with the regional strategy, and (ii) what are the best methods and mechanisms to implement that strategy at country level, particularly as regards the promotion of lifestyles conducive to health, the provision of adequate and accessible health care services, the contribution of the various levels of management, and the relationship of those levels in a system of continuing education.

Fellowships

12.54 Fellowships continue to play an important part in WHO’s manpower development programme. The emphasis is on training fellows in an environment and with a study programme similar to that of their home country. During the biennium WHO awarded 7021 fellowships (see Table 12.1). It also provided travel and subsistence allowances to enable some 7570 participants to attend educational meetings or national courses organized by WHO.

12.55 In the African Region, the exchange of instructors between countries of the Region continued. In 1980 four students from Liberia and the United Republic of Tanzania studied in Nigeria and Kenya, and in 1981 two Tanzanian students took courses in Nigeria.

12.56 The administration of fellowships is being decentralized in the Region of the Americas, the process beginning with Colombia and countries of the Caribbean area. Seminars were held in Brasilia, Lima, and Mexico City, to plan further decentralization. To facilitate this planning, a new administrative manual and a directory of training programmes were prepared.
### Table 12.1 Distribution of fellowships, by subject of study and by region, 1980–1981

<table>
<thead>
<tr>
<th>Subject of study</th>
<th>African Region</th>
<th>Region of the Americas</th>
<th>South-East Asia Region</th>
<th>European Region</th>
<th>Eastern Mediterranean Region</th>
<th>Western Pacific Region</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health administration</td>
<td>513</td>
<td>141</td>
<td>265</td>
<td>26</td>
<td>67</td>
<td>117</td>
<td>1129</td>
</tr>
<tr>
<td>Hospital and medical care administration</td>
<td>11</td>
<td>27</td>
<td>32</td>
<td>6</td>
<td>28</td>
<td>16</td>
<td>120</td>
</tr>
<tr>
<td>Construction of health institutions</td>
<td>3</td>
<td>4</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>8</td>
</tr>
<tr>
<td>Medical librarianship</td>
<td>—</td>
<td>9</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>527</td>
<td>181</td>
<td>301</td>
<td>33</td>
<td>102</td>
<td>137</td>
<td>1281</td>
</tr>
<tr>
<td>Environmental sanitation</td>
<td>101</td>
<td>54</td>
<td>204</td>
<td>162</td>
<td>49</td>
<td>77</td>
<td>347</td>
</tr>
<tr>
<td>Food control</td>
<td>4</td>
<td>22</td>
<td>20</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>78</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>105</td>
<td>76</td>
<td>224</td>
<td>170</td>
<td>59</td>
<td>91</td>
<td>475</td>
</tr>
<tr>
<td>Nursing and midwifery</td>
<td>79</td>
<td>57</td>
<td>42</td>
<td>12</td>
<td>31</td>
<td>53</td>
<td>274</td>
</tr>
<tr>
<td>Public health nursing</td>
<td>55</td>
<td>25</td>
<td>16</td>
<td>—</td>
<td>6</td>
<td>6</td>
<td>121</td>
</tr>
<tr>
<td>Medical social work</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>134</td>
<td>83</td>
<td>58</td>
<td>12</td>
<td>38</td>
<td>76</td>
<td>401</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>31</td>
<td>120</td>
<td>97</td>
<td>106</td>
<td>62</td>
<td>78</td>
<td>494</td>
</tr>
<tr>
<td>Paediatrics and obstetrics</td>
<td>27</td>
<td>26</td>
<td>26</td>
<td>10</td>
<td>31</td>
<td>14</td>
<td>134</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>58</td>
<td>146</td>
<td>123</td>
<td>116</td>
<td>93</td>
<td>92</td>
<td>629</td>
</tr>
<tr>
<td>Mental health</td>
<td>13</td>
<td>53</td>
<td>39</td>
<td>35</td>
<td>24</td>
<td>17</td>
<td>181</td>
</tr>
<tr>
<td>Health education</td>
<td>82</td>
<td>14</td>
<td>115</td>
<td>3</td>
<td>11</td>
<td>21</td>
<td>246</td>
</tr>
<tr>
<td>Occupational health</td>
<td>5</td>
<td>9</td>
<td>37</td>
<td>17</td>
<td>22</td>
<td>15</td>
<td>103</td>
</tr>
<tr>
<td>Nutrition</td>
<td>20</td>
<td>14</td>
<td>31</td>
<td>7</td>
<td>10</td>
<td>14</td>
<td>91</td>
</tr>
<tr>
<td>Health statistics</td>
<td>6</td>
<td>60</td>
<td>58</td>
<td>21</td>
<td>18</td>
<td>16</td>
<td>179</td>
</tr>
<tr>
<td>Oral health</td>
<td>18</td>
<td>30</td>
<td>34</td>
<td>5</td>
<td>19</td>
<td>24</td>
<td>130</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>21</td>
<td>15</td>
<td>14</td>
<td>7</td>
<td>30</td>
<td>7</td>
<td>94</td>
</tr>
<tr>
<td>Control of pharmaceutical and biological preparations</td>
<td>6</td>
<td>20</td>
<td>31</td>
<td>16</td>
<td>22</td>
<td>27</td>
<td>122</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>169</td>
<td>215</td>
<td>359</td>
<td>106</td>
<td>156</td>
<td>141</td>
<td>1146</td>
</tr>
<tr>
<td><strong>Total — HEALTH ORGANIZATION AND SERVICES</strong></td>
<td>993</td>
<td>701</td>
<td>1065</td>
<td>437</td>
<td>448</td>
<td>537</td>
<td>4181</td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td>71%</td>
<td>62%</td>
<td>56%</td>
<td>72%</td>
<td>44%</td>
<td>56%</td>
<td>60%</td>
</tr>
<tr>
<td>Malaria</td>
<td>26</td>
<td>38</td>
<td>85</td>
<td>3</td>
<td>61</td>
<td>77</td>
<td>290</td>
</tr>
<tr>
<td>Sexually transmitted diseases</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>11</td>
<td>17</td>
<td>41</td>
<td>3</td>
<td>22</td>
<td>18</td>
<td>112</td>
</tr>
<tr>
<td>Other communicable diseases</td>
<td>87</td>
<td>103</td>
<td>115</td>
<td>8</td>
<td>61</td>
<td>41</td>
<td>415</td>
</tr>
<tr>
<td>Laboratory services</td>
<td>41</td>
<td>72</td>
<td>171</td>
<td>23</td>
<td>76</td>
<td>55</td>
<td>438</td>
</tr>
<tr>
<td>Chemotherapy, antibiotics</td>
<td>—</td>
<td>2</td>
<td>3</td>
<td>20</td>
<td>4</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total — COMMUNICABLE DISEASES</strong></td>
<td>174</td>
<td>241</td>
<td>423</td>
<td>65</td>
<td>232</td>
<td>199</td>
<td>1334</td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td>13%</td>
<td>21%</td>
<td>22%</td>
<td>11%</td>
<td>23%</td>
<td>20%</td>
<td>19%</td>
</tr>
<tr>
<td>Surgery and medicine</td>
<td>11</td>
<td>4</td>
<td>37</td>
<td>28</td>
<td>34</td>
<td>6</td>
<td>120</td>
</tr>
<tr>
<td>Anaesthesiology</td>
<td>4</td>
<td>—</td>
<td>3</td>
<td>2</td>
<td>27</td>
<td>11</td>
<td>47</td>
</tr>
<tr>
<td>Radiology</td>
<td>85</td>
<td>9</td>
<td>28</td>
<td>5</td>
<td>91</td>
<td>27</td>
<td>245</td>
</tr>
<tr>
<td>Haematology</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>12</td>
<td>4</td>
<td>43</td>
</tr>
<tr>
<td>Other medical and surgical specialties</td>
<td>27</td>
<td>36</td>
<td>89</td>
<td>35</td>
<td>59</td>
<td>40</td>
<td>266</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>132</td>
<td>55</td>
<td>165</td>
<td>78</td>
<td>223</td>
<td>88</td>
<td>741</td>
</tr>
<tr>
<td>Basic medical sciences</td>
<td>43</td>
<td>19</td>
<td>57</td>
<td>13</td>
<td>47</td>
<td>53</td>
<td>232</td>
</tr>
<tr>
<td>Medical and allied education</td>
<td>6</td>
<td>119</td>
<td>203</td>
<td>13</td>
<td>51</td>
<td>62</td>
<td>454</td>
</tr>
<tr>
<td>Undergraduate medical studies</td>
<td>43</td>
<td>—</td>
<td>3</td>
<td>—</td>
<td>7</td>
<td>26</td>
<td>79</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>92</td>
<td>138</td>
<td>263</td>
<td>26</td>
<td>105</td>
<td>141</td>
<td>765</td>
</tr>
<tr>
<td><strong>Total — CLINICAL MEDICINE, BASIC MEDICAL SCIENCES, AND MEDICAL AND ALLIED EDUCATION</strong></td>
<td>224</td>
<td>193</td>
<td>428</td>
<td>104</td>
<td>328</td>
<td>229</td>
<td>1506</td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td>15%</td>
<td>17%</td>
<td>22%</td>
<td>17%</td>
<td>33%</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>1391</td>
<td>1135</td>
<td>1916</td>
<td>606</td>
<td>1008</td>
<td>965</td>
<td>7021*</td>
</tr>
</tbody>
</table>

* Of which 3 504 during 1980 and 3 517 during 1981
12.57 Fellowships in the South-East Asia Region accounted for more than 22% of the regional budget for 1980–1981. The trend towards placing fellows in their own region has continued: of the 1005 fellowships awarded in 1980, 57% were for study within the Region as compared with 27% of the 1546 fellowships in the previous biennium. Procedures for evaluating the knowledge and experience gained by fellows are being improved.

12.58 In the European Region the subjects studied by WHO fellows reflect the health problems of their countries of origin and the emphasis placed by WHO on certain of those problems. The third meeting of European national fellowships officers (Bratislava, Czechoslovakia, August 1980) discussed the purpose of WHO fellowships, the use made of them by Member States, the way in which fellows were utilized on their return, and how administrative procedures could be improved. The meeting was partly financed by voluntary contributions from Austria and Czechoslovakia. The Regional Office continues to promote the organization of international courses for the benefit of fellows. There were four such courses in 1980, three concerned with health services and one with teacher training.

12.59 In the Eastern Mediterranean Region the trend towards a reduction in the total number of fellowships continued—497 were awarded in 1980 as against 510 in 1979 and 562 in 1978. One reason for this is the tendency to support training in other ways: for example, during the biennium all the WHO-sponsored training of community health workers for primary health care, and that of their teachers, took place within the countries concerned. At other levels—even that of teacher training for medical schools—increasing use is being made of workshops, courses, seminars, etc., at country level, where WHO’s contribution is indirect and does not require the granting of fellowships.

12.60 A selective study on the utilization of ex-fellows was presented to the Regional Committee for the Western Pacific in September 1981. Almost all countries and areas of the Region benefit from the fellowships programme, China now being one of the major beneficiaries. Study tours to that country are also being increasingly organized; in addition to the established courses in acupuncture, China provides short courses and workshops in primary health care.

12.61 Increasing cooperation at regional level and greater recourse to TCDC is particularly evident in the case of fellowships. The policy of placing fellows either within their own region or in countries with comparable socioeconomic conditions has been made even more imperative by the recent sharp increase in the costs of training in certain European and other industrialized countries.

12.62 In response to requests made at the Thirty-third World Health Assembly, a report was prepared for the Executive Board,1 which at its sixty-ninth session (January 1982) was to review the use of WHO fellowships. The report describes the objectives of the fellowships scheme as set by the Health Assembly and traces its operation from 1947 up to the present day. It examines the administration of fellowships in the different regions, the responsibility of Member States for nominating fellows, and the contribution of the host country and its institutions. The evidence gathered confirms that fellowships have made an important contribution to WHO’s work. More than 70,000 fellowships were awarded from 1947 to 1980, almost all the fellows were able to utilize the new skills acquired, and Member States expressed their

---

satisfaction at the contribution made by fellowships to the development of health manpower. Among a number of suggestions for action by Member States and WHO, one recommendation stresses the need for countries to have a manpower plan, in line with the national policy for health development, which would inter alia be the principal point of reference for the nomination, selection, and evaluation of fellows. To carry out national strategies for achieving health for all, more fellowships should be awarded to those who will be directly involved in primary health care programmes.

**Development of career structures**

12.63 The absence of appropriate career structures for health workers is frequently a cause of lack of motivation. But career structure policy often spans the whole civil service and is thus difficult to change in the health sector alone. In the South-East Asia Region, studies on the conditions of employment of sanitarians and auxiliary sanitarians were carried out in both Indonesia and Thailand. The reports prepared by the national investigators are being discussed with ILO before recommendations are made to Member States on the training and management of environmental health staff at primary health care level.

**Migration of health manpower**

12.64 The findings of the WHO multinational study on physician and nurse migration\(^1\) were widely circulated and aroused considerable interest. They were presented at a seminar on the brain drain in Arab countries, organized by ECWA (Beirut, 1980).\(^2\) A study of the case of the United States of America, sponsored by the Sandoz Foundation, was prepared by WHO on the basis of the overall study.\(^3\) Details of the case of Latin America, also prepared by WHO, were included in a study supported by the Fogarty International Center (USA).\(^4\)

12.65 Several Member States have shown interest in adopting measures to control undesirable migration of health manpower in line with the conclusions of the report. Colombia, Jamaica, the United States of America, and several countries in the Eastern Mediterranean Region have begun to study the problem on a national basis and to take the necessary steps.

**International Drinking Water Supply and Sanitation Decade**

12.66 The development of human resources is a prominent component of the activities related to the International Drinking Water Supply and Sanitation Decade (1981-1990). WHO proposed a two-phase strategy for international action. During the first three years the international agencies would support the efforts of some 50 countries to assess and meet their most pressing needs for manpower in the water and sanitation sector; they would then support 12 of those countries in testing and utilizing various methods of planning, producing, and managing human resources.\(^5\)


\(^5\) The text continues with other references not fully transcribed here.
managing the human resources required for the Decade. In the second phase the approaches that had proved most fruitful would be applied on a broader scale within those 12 countries and also extended to others.

12.67 Several WHO regions are devising strategies and action for developing human resources for the Decade, and the South-East Asia Region is at an advanced stage in its plans.

Promotion of training

12.68 During 1980–1981 activities were geared to developing and promoting a variety of training strategies for all categories of health staff. Close collaboration was maintained with Member States in their efforts to train the health teams required for primary health care (in particular auxiliary and intermediate-level personnel working at the periphery) and traditional birth attendants.

Educational programmes for primary health care

12.69 Work was carried out with the International Council of Nurses (ICN) to implement the recommendations made at the 1979 ICN/WHO workshop on the role of nursing in primary health care. Information was gathered on how national nursing associations are supporting primary health care and how they will collaborate in developing and implementing their countries’ strategies for achieving health for all. The ICN congress in 1981, attended by 6000 nurses, promoted awareness of this concept. Its theme was “Health care for all—Challenge for nursing”.

12.70 An informal working group, representing national personnel, WHO collaborating centres, and nongovernmental organizations, was sponsored by WHO. Its aim was to evolve strategies that would increase the contribution of nursing/midwifery personnel to national plans of action and emphasize the reorientation towards primary health care of nursing education, nursing services, and continuing education. It outlined the technical support that would be required at national, regional, and global level and from WHO collaborating centres and nongovernmental organizations.

12.71 WHO also collaborated with countries in revising basic nursing education programmes in order to produce graduates who could work effectively in primary care. Guidelines were developed and field-tested in 1981 showing how curricula should be revised so that the focus of nursing education became care of health rather than care of sickness. The guidelines were initially tried out at the School of Nursing of Chulalongkorn University, Bangkok, and proved helpful to teachers in all aspects of curriculum development. The trial was repeated in other countries: Colombia, Israel, Jamaica, Malaysia, Nigeria, the Philippines, the Republic of Korea, Spain, Switzerland, Thailand, and Zimbabwe. National and regional workshops were organized to facilitate the reorientation of basic nursing education programmes towards primary health care.

12.72 In the European Region, Member States showed increasing interest in the nursing/midwifery programme (see also paragraph 12.81), which is designed to ensure the participation of nationals through a network of collaborating and participating centres in 18 countries. Eight nursing research centres are now collaborating directly with the WHO nursing programme, in Belgium, Denmark, Finland, France, Poland, Switzerland, and the United Kingdom (England and Scotland). The centres take part in multinational studies using standardized research instruments and report the results achieved by following the
methodology outlined in WHO's medium-term programme.

12.73 In the Western Pacific Region several countries and territories—the Cook Islands, Fiji, Guam, Papua New Guinea, and Vanuatu—have with WHO collaboration undertaken the revision of their basic nursing education programmes to bring them into line with the primary health care approach. WHO is collaborating with Samoa and Vanuatu in preparing nurses to assume greater responsibilities in the primary health care services of rural areas; the training will cover community assessment, diagnosis and treatment of disease, midwifery, health promotion and disease prevention, environmental health, and management of rural health facilities.

12.74 Training of physicians in the African Region was carried out in 48 institutions in 1980; several of them have been organized as university centres of health sciences and their first physicians are now graduating. In Burundi, the Faculty of Medicine of Bujumbura introduced the second phase of its medical curriculum—clinical studies. During the biennium 32 country and 13 intercountry projects were supported in the Region, the training whenever possible being carried out by nationals.

12.75 A regional seminar on the teaching and delivery of health care in Africa (December 1980) brought together 41 deans and directors of medical schools or university centres of health sciences from 26 countries. The seminar reiterated the need for training the health team, promoting the teaching of management and educational methodology, and establishing coordination between the health and education sectors and other development sectors.

12.76 The explosive growth in the number of medical schools in the Region of the Americas in recent years prompted the Organization's collaboration with the Pan American Federation of Medical School Associations in setting minimum requirements for the establishment of new schools. Regional meetings were held in Brazil and Venezuela to define basic principles for such requirements and in 1980 work was carried out with national medical school associations. A guide to the assessment of existing schools was prepared for use at a first national meeting, in Lima. Meetings were subsequently held in Colombia and Mexico.

12.77 In the Eastern Mediterranean Region, continued support was given to the medical schools in Bahrain and Yemen, still in their planning stage, and to those in Gezira and Juba (Sudan), only recently established, to ensure that training programmes are relevant to the health needs of the communities where graduates will serve and that the methods used are educationally sound.

12.78 In the Western Pacific Region, WHO cooperated with Fiji in training medical graduates and with faculties of medicine in the Lao People's Democratic Republic, Malaysia, and Singapore. Viet Nam, whose health system was totally disrupted, is now regularly receiving supplies and equipment for its faculties of medicine.

12.79 The International Conference on Primary Health Care (1978) drew attention to the need to review the training and clarify the functions of community health workers, emphasizing the importance of exchange of experience on their training, utilization, and deployment. In response, WHO and UNICEF undertook an interregional study to collect information on such experience and to define the critical issues, e.g., selection, functions, tasks, and remuneration. Workshops for the analysis of experience were held in Kingston (February 1980) and in Dakar (February 1981). The reports on the findings
should help decision-makers and health workers to improve the training and use of community health workers as part of the primary health care approach. Follow-up activities are being carried out at country level and will be reviewed at an interregional workshop.

12.80 In the Region of the Americas the advisory committee to the community health training programme for Central America and Panama, at its meeting in 1980, approved a plan of action covering nine subprogrammes. It included the production of new models for extension of primary health care coverage and for in-service training, and the development of educational technology. The main emphasis in the Region has been on intermediate-level and auxiliary personnel, in line with the priorities of primary health care.

12.81 Support continued to be given to Member States of the European Region in developing a nursing/midwifery subsystem of the overall health staffing system that will enable them to plan for, train, and efficiently utilize this type of personnel. Two workshops for nurse managers at national, regional, and local level were followed by a working group (1980) to study the training and use of auxiliary nursing/midwifery personnel. The group considered that the proliferation of categories of auxiliary personnel would inhibit the development of efficient and cost-effective nursing services. It recommended that all categories of nursing staff should receive appropriate training before entering the health services; that the content of programmes for the training of nursing auxiliaries should be better defined; that the minimum level of general education required before nursing education could be undertaken should be raised to correspond to any rise in a country's general level of education; and that the definition of different categories of auxiliary nursing personnel throughout the Region should be standardized.

12.82 A considerable effort has been made in the Eastern Mediterranean Region to reorient the education of health personnel towards the primary health care concept, with particular emphasis on the training of middle-level and rural health workers. WHO support focused on teacher training, the development of task-based, community-oriented curricula, and the preparation of learning materials. There has been growing cooperation between countries of the Region and an increasing number of institutions are now able to provide training for nationals of other countries. The regional directory of education and training programmes for health personnel (paragraph 12.86) facilitates such cooperation.

12.83 In the Western Pacific Region WHO has worked with countries to establish their requirements in various types of middle-level health worker. The training of medical assistants is being promoted in a number of countries. Tonga, where a training programme is being implemented, has developed an infrastructure that facilitates inter alia the training and use of such staff. WHO has collaborated with Fiji in revising training curricula.

12.84 An important member of the health team is the medical technician, whose responsibilities include the maintenance and repair of medical equipment. In the African Region, the training centre at Freetown has been operating at full capacity since April 1980 for students from English-speaking countries, while the centre in Lomé receives students from French-speaking countries. (See also paragraph 13.102.)

Information on training institutions

12.85 WHO regularly publishes directories of medical schools and schools of public health. A French version of the fifth
edition of the *World directory of medical schools*\(^1\) was published in 1980. Information on the training of primary health workers is being collected at the request of Member States in order to maintain a source of up-to-date basic data for the promotion of training programmes and the planning of facilities.

12.86 In the Region of the Americas a directory of training programmes in Latin America and the Caribbean area was prepared in 1980. In the Eastern Mediterranean Region the next issue is being prepared of the biennial directory of education and training programmes for health personnel, which contains information on programmes for all levels of health worker. The fifth edition of the registry of training courses available for health personnel in the Western Pacific Region was completed.

*Traditional birth attendants*

12.87 A number of countries in the South-East Asia and Western Pacific Regions (Bangladesh, India, Indonesia, Malaysia, Maldives, the Philippines, and Thailand) are developing strategies to train traditional birth attendants and utilize them in their maternal and child health care/family planning services. There are programmes in 52 countries to train such staff but few to ensure their supervision and evaluate their work. A study has begun in Sierra Leone to develop and test methods for assessing the extent to which trained traditional birth attendants contribute to an improvement in community health.

12.88 The atmosphere in which traditional birth attendants are able to work has improved, but there are still impediments to their training—chiefly the absence of methods and teaching material based on local traditions, customs, and resources and in keeping with the background of the trainees, who for the most part are illiterate or semi-literate. A manual has therefore been prepared for instructors of traditional birth attendants; it consists of a practical description of training strategies, an indication of simplified technologies that can be used in maternal and child health care and family planning, and a guide to the production of low-cost teaching/learning materials.\(^2\) After wider field testing, these manuals will be distributed to all countries that ask for them.

12.89 A joint effort is being made with UNESCO to integrate literacy skills into the training of traditional birth attendants. Both India and Thailand have expressed interest in this activity which, if it is successful, should make the traditional birth attendant a more effective member of the community as well as a better health worker and educator. Work in the training of traditional birth attendants was supported by UNFPA.

*Postgraduate and postbasic education*

12.90 In 1981, the ninth interregional meeting of directors and representatives of schools and departments of public health was held in Cotonou, attended by participants from 33 countries in the African, South-East Asia, Eastern Mediterranean, and Western Pacific Regions. The meeting defined the role of schools of public health and of centres or national networks for health development in carrying out priority programmes for achieving health for all by the year 2000. Emphasis was given to the integrated training of the health team, collaboration among all levels of the health delivery system, self-sufficiency in health development, and teaching methods and research in health development and health management.

---


For over a decade surveys of postbasic nursing education programmes have pointed to the shortage of qualified nurse educators and nurse administrators—the key personnel not only in training nurses and other health personnel but also in reorienting basic nursing education. In preparation for an expert committee in 1983, a global survey was made of postbasic nursing education programmes; its purpose was to clarify the nature, characteristics, and progress of changes in training programmes, determine the extent to which those changes are oriented towards primary health care, and examine the factors impeding their realization. Questionnaires were sent to 182 schools (in all regions) offering postbasic programmes for the preparation of nurse teachers and managers. Analysis of the data began in late 1981. This type of curriculum reform is part of the response to Health Assembly resolution WHA30.48, which calls for nursing/midwifery staff to be given the opportunity to develop the skills required for effective participation in the planning, management, and execution of primary health care programmes.

In the African Region a working group on postgraduate education discussed the training of specialists and recommended the establishment of a regional network of specialized training centres. The sixth meeting of deans and directors of health sciences faculties, schools, and university centres (Brazzaville, 1980) reviewed the recommendation and approved the establishment of 13 sub-networks, each specializing in the teaching of one priority discipline.

The regional postbasic nursing education centre at Dakar introduced the teaching of primary health care in 1981, and the centre at Yaoundé is to follow suit. The centre in Luanda has based its programme on the principles of primary health care. At a workshop on teaching methodology for nurse educators from French-speaking countries (Lomé) discussion centred on the teaching of primary health care and the tasks to be carried out by nurses and midwives, indicating the duties that could be performed by auxiliaries. A similar workshop was held at Banjul for nurses working in the hospitals and health centres of three English-speaking countries (Gambia, Liberia, and Sierra Leone).

As part of technical cooperation among developing countries, Cuttington University College, Liberia, introduced a postbasic nursing education course attended by students from Gambia and Sierra Leone as well as from Liberia.

In the Region of the Americas the emphasis in collaboration with schools of public health was on the decentralization of programmes by means of regional basic courses that include in-service training. The Latin American Association of Public Health Schools, which is responsible for graduate programmes in public health and social medicine, continued to receive support from WHO; at the eleventh regional meeting of the Association, in 1981, the main topic discussed was public health training on a regional basis. Postbasic training courses were organized at national and regional level in nursing, dentistry, mental health, and veterinary medicine.

A group of experts in the South-East Asia Region (October 1980) examined the possibility of a network of national public health training institutes that would share their facilities and expertise. A regional meeting at the All India Institute of Hygiene and Public Health, Calcutta (1981) discussed what activities such a network could undertake.

In the European Region, WHO continued to support four university pro-
grammes in nursing education—in Belgium, Iceland, Italy, and Berlin (West). The projects in Belgium and Italy came to an end and were evaluated; the others are continuing, visiting professors being provided to teach in those areas of clinical medicine for which national teachers are being trained abroad.

12.98 In the Eastern Mediterranean Region, the resources of the WHO-supported medical education projects in Pakistan and Sudan were mainly used for postgraduate and continuing education. Over the past two years WHO has been closely associated with the development and activities of the Arab Board for Medical Specialization.

12.99 Support was given to a regional course in anaesthesiology to serve the need of developing countries in the Western Pacific Region. In the Philippines, WHO collaborated with the Institute of Public Health, Manila, to upgrade the training of the managers and administrators required for health care systems based on primary health care.

Development of the health team

12.100 Work continued on promotion of the health team approach, with special emphasis on the team leader. A study begun in 1980 on the role and tasks of leaders of primary health care teams will be used as a basis for a review of training, beginning with training programmes for physicians. Three nongovernmental organizations were associated with the study—the International College of Surgeons, the International Federation for Hygiene, Preventive Medicine and Social Medicine, and the World Medical Association—and their national chapters undertook surveys at country level. The findings were analysed, reviewed, and used in preparing two case studies on the role of team leader at project level, one related to Liberia and the other to the Netherlands. Methodologies will be proposed for the design of curricula and learning materials to prepare physicians and other health personnel for a leadership and supervisory role in primary health care. Further case studies will be published to guide Member States in developing training programmes suited to local conditions. Continuing education programmes intended for physicians already in practice will also be examined.

12.101 The regional health development centre in Cotonou, which since June 1980 has had a national director, has trained 85 students from French-speaking countries of the African and other regions. During the biennium 40 of the students came from 17 countries of the African Region, including for the first time two Portuguese-speaking countries. The training covered most members of the health team—physicians, nurses, midwives, social assistants, health, medical, and sanitary technicians, sanitary engineers, dental surgeons, pharmacists, nutritionists, administrators, and sociologists. The centre offers a diploma, a master’s degree, and a doctorate in public health.

12.102 In the South-East Asia Region, a group of experts met in 1980 to clarify the concept of teamwork as it applies to the Region, define its essential components, and develop guidelines for training. A subsequent consultative meeting, with participants from Bangladesh, India, Indonesia, Maldives, Mongolia, Nepal, Sri Lanka, and Thailand, was in general agreement with the recommendations made; it also agreed on the design of case studies in those countries to determine what primary health care teams are already in action and what are the factors facilitating or impeding their functioning. A training programme for health teams will be based on the findings of the study.
Teaching/learning materials for primary health care

12.103 The preparation of teaching/learning materials for primary health care workers continued to receive high priority. A revised edition of *The primary health worker*, with new chapters on record-keeping, reporting, and participating in community development, together with new illustrations, was published during the biennium. This publication has been in constant demand and has also been translated into the local language, after adaptation where necessary to local conditions, in about 20 countries.

12.104 Experience shows that the success of health auxiliaries and village health workers depends on the support and supervision they receive. To meet the need for teaching/learning materials for middle-level managers in primary health care—public health nurses, midwives, sanitarians, and in some instances physicians—a guide has been published entitled *On being in charge*. It is intended to help health workers who have to organize, supervise, administer, and provide technical or administrative support to primary health care programmes at intermediate level. The publication is being widely promoted.

12.105 The scarcity of educational resources in both printed and non-printed form, especially those designed to permit self-instruction, is a serious constraint on the preparation of personnel for primary health care.

12.106 In the European Region, a teaching/learning package, to consist of seven interrelated modules, is being developed for training nursing staff in the WHO network of collaborating and participating centres; so far one module, on the nursing process, has been prepared. Studies were carried out on (i) communication and collaboration between health professionals, (ii) legislation on nursing services and training, and (iii) legislation on midwifery services and training. Nine basic documents and workbooks were completed and distributed throughout the network, some of them prepared on the basis of these three studies, others as part of various activities in the nursing/midwifery programme.

12.107 In the Western Pacific a regional module bank went into operation in 1981 to meet the need of nursing/midwifery schools for learning modules that have already been tested. Modules are also being developed on primary health care, both for instructors and for health workers. Reports on the use of the modular approach to learning in Papua New Guinea and the Philippines indicate that it is successful in fostering the student’s own responsibility for learning and his or her active participation in the learning process.

12.108 Books and other teaching materials to promote self-instruction are being supplied to schools of nursing/midwifery in the South Pacific.

Educational development and support

Educational planning

12.109 Among the activities to ensure that training programmes adopt the primary health care approach is the promotion of a network of community-oriented educational institutions for health sciences. This network is now two years old and operates as an independent entity, WHO continuing to lend support on request. It provides participating
institutions with an opportunity for mutual assistance in developing problem-based training programmes. One of the task groups established by the network has examined the organizational requirements for a community-oriented educational programme. Among the reasons for the success of the network are a capable secretariat (University of Limburg, the Netherlands) and the enthusiasm of its member institutions.

12.110 WHO is collaborating with several Member States in producing detailed job specifications for different categories of staff, especially primary health care workers. Methods are being worked out for determining easily and economically the tasks to be carried out by the members of the health team. A world survey of task-centred (competency-based) curricula is being jointly undertaken in nursing and medical schools by WHO, the International Council of Nurses, and the World Federation for Medical Education. Data collected so far indicate that, in spite of their proven qualities, methodologies for the preparation of task-centred curricula are not widely accepted by teaching staff. It is hoped that the information produced by the survey will encourage the planning of more effective educational programmes, based on actual professional tasks and responding to the real needs of the community.

12.111 In the African Region, the planning of training programmes for all categories of health personnel, particularly those directly concerned with primary health care, is an important part of WHO's work with Member States. In Mozambique, for example, the Organization helped to develop an overall plan for training the manpower needed in that country.

12.112 In the Region of the Americas, collaboration was channelled through the Latin American Center for Educational Technology in Health, Rio de Janeiro, which provides a wide range of courses and advisory services, e.g., in Central America and Panama, where it has collaborated with the community health training programme. It is expected that in the future this programme will be able to coordinate all educational activities in the subregion.

12.113 In the European Region, a workshop on educational planning was organized (Copenhagen, 1980) to develop skills in formulating objectives, identifying determinants of planning, and evaluating competence. Participants stated the goals they wished to achieve during the 12 months following the workshop and prepared plans of action as a basis for self-evaluation at the end of that period. The Regional Office took part in a seminar on curriculum development for health professionals (1980) held at the Institute for Research in Education and Evaluation, Berne.

12.114 In the Eastern Mediterranean Region, the 26 participants in the tenth regional workshop on educational planning (Amman, 1980) came from Jordan, Somalia, and Sudan. All were professional educators in key posts, for whom this was the first experience of modern techniques of planning and evaluation. A workshop on educational planning and evaluation at the High Institute of Public Health, Alexandria (1980) brought together 18 faculty members, also without previous experience of such work, and prepared them to carry out the overall evaluation of an institutional programme.

12.115 In the Western Pacific Region a workshop on medical education was conducted in 1980 for deans and senior faculty members of the institutions participating in the regional teacher-training centre, Sydney, Australia. Senior nurse educators from the South Pacific attended a workshop on learner-centred curricula (Suva, 1980) and discussed current trends in educational meth-
odology. Schools are being encouraged to introduce learner-centred activities and to develop teaching materials appropriate to the health needs of the South Pacific.

Teacher training

12.116 During the biennium activities focused on preparing teachers of primary health care workers and others to plan curricula relevant to national strategies for achieving health for all. In Papua New Guinea, Sudan, and the United Republic of Cameroon, courses on primary health care in rural areas for supervisors and teachers were carried out in those rural areas where primary health care was being organized.

12.117 To help teachers to recognize their own strengths and weaknesses, a guide was prepared and widely circulated for comment, with a view to its revision for publication. In the same context, the widely distributed educational handbook for health personnel was thoroughly revised after continuous field testing and use at teacher-training workshops. The revision is available in English, French, Italian, and Spanish.

12.118 In the African Region, the regional training centres at Lagos and Lomé continued to strengthen health systems in the countries of western and central Africa. The courses offered by the centres are planned in cooperation with the countries and are especially geared to the training or retraining of teachers who will go on to organize education and training programmes in their own countries. The Lagos centre has trained 245 students from 18 countries, and the Lomé centre 581 (including 176 laboratory technicians).


12.119 The Latin American Center for Educational Technology in Health offered several courses in teacher training during the biennium. They covered the use of audiovisual aids in nursing education; group dynamics in education; didactics as applied to health sciences; and use of computer programming techniques in education. The Center continued to take part in the master's degree programme in educational technology offered by the Federal University, Rio de Janeiro.

12.120 The two regional teacher-training centres in South-East Asia, at Peradeniya (Sri Lanka) and Bangkok, continued to support improvements in educational planning and methodology. The centres have organized a wide range of short courses on such subjects as design of self-learning packages, professional attitudes and their measurement, clinical evaluation techniques, and the concept of the health team. India established a second national teacher-training centre at the postgraduate Institute of Medical Education and Research, Chandigarh, and Indonesia now has a network of five such centres.

12.121 In the Eastern Mediterranean Region teacher-training activities are entirely carried out by nationals, mainly trained at the regional centre, Shiraz (Iran).

12.122 In the Western Pacific a number of activities were carried out with the support of the WHO regional teacher-training centre, Sydney (Australia). In Hong Kong, a curriculum was developed for occupational therapists; medical education workshops were organized in China; faculty development was undertaken at the Institute of Health Sciences, Tacloban (Philippines); an integrated curriculum was developed at the universities in Kuala Lumpur and Penang.
HEALTH MANPOWER DEVELOPMENT

(Malaysia); a review was made of the multiple-choice questions used in instruction; and a medical education unit was established at the University of Singapore.

12.125 In Malaysia a national teacher-training centre has been set up at the Public Health Institute, Kuala Lumpur, the faculty being given WHO fellowships for their training, most of it at the regional teacher-training centre, Sydney. In the Philippines WHO helped to establish a programme for a master's degree in education of health personnel at the national teacher-training centre in Manila. In the Solomon Islands a project is under way to develop a cadre of nurse teachers by contract with Armidale College, Australia: faculty members from the College visit Honiara periodically and assignments are set for students to complete before the next visit; the students also spend some time in Armidale for training and teaching practice.

12.124 Work began during the biennium on guidelines to assist administrators of training programmes in selecting trainees. These guidelines are being tested in a number of countries to ensure that the procedures really meet the requirements, namely the selection of the candidates most likely to benefit from training for primary health care.

12.125 As a guide to teachers on how to make students more effective members of the instructional team, two documents were prepared. The first, Students learning from students,1 is currently being tested in a number of training institutions in developing countries. The other, Students helping in the teaching/learning process,2 is a review of peer-learning experience and includes a bibliography.

1 WHO document HMD/80.3 (1980).

Learning materials

12.126 The aim of WHO's interregional programme in this area, which is complemented by two regional programmes, is to promote national self-reliance in the production of teaching and learning materials that are relevant to health services and community needs. Such materials are urgently required for all categories of health personnel at all stages of their careers—as students, practitioners, or teachers—and for their continuing education. This UNDP-supported programme provides an excellent opportunity for technical cooperation among countries by the sharing of their expertise in the production, adaptation, and distribution of learning materials. Six countries are participating: Kenya, Morocco, Nepal, Peru, the Philippines, and Sudan. A meeting to determine strategies and define the role of the interregional network (Geneva, 1981) was attended by representatives of organizations that have practical experience of producing learning materials in or for countries of the Third World.

12.127 In the African Region, attempts are being made to establish a network of national centres for the production and distribution of learning materials. A preliminary survey was carried out in five countries (Ghana, Mozambique, Nigeria, Senegal, and the United Republic of Cameroon) and was followed up at the sixth meeting of deans and directors of health sciences faculties, schools, and university centres (Brazzaville, 1980). A regional programme to complement the interregional work is based on a network of country projects linking the health science centres in Benin, Mozambique, Nigeria, and Rwanda.

12.128 A workshop on the production and use of audiovisual material (1981) brought together teachers from the centres for higher education in nursing (Dakar,
Luanda, and Yaoundé) and from national schools of nursing and midwifery. Its aim was that participants should be able to produce their own material for use in teaching primary health care.

12.129 In the Region of the Americas, the textbooks and instructional materials programme was expanded to provide high-quality material for health personnel at all levels, with emphasis on primary health care workers. A meeting of the community health training programme for Central America and Panama, with the participation of ministries of health, defined priorities and requested WHO support for the preparation of instructional manuals for auxiliary personnel. One such manual prepared as a result of this meeting deals with maternal and child health.

12.130 With the support of the Rockefeller Foundation, instructional material on epidemiological principles was prepared for the use of professional personnel in the health services and in other training programmes. Manuals on clinical laboratory work and on the training of primary health workers in eye care are under way. WHO has sponsored the preparation of a set of instructional modules for training health workers in communicable disease and immunization strategies and procedures.

12.131 The Latin American Center for Educational Technology in Health cooperated with the Expanded Programme on Immunization in producing educational material for regional and national training programmes. The Center offers two types of programme: faculty development workshops, and special courses in education. More than 500 professors of health sciences have participated in these programmes through fellowships offered by PAHO/WHO and the Center.

12.132 The preparation, production, and distribution of learning materials have received full support in the Eastern Mediterranean Region. A number of training manuals were translated into Arabic, relating inter alia to management of obstetric emergencies in health centres, basic techniques for health laboratories, prevention and emergency care of common oral diseases, and a guide for teachers of health staff.

12.133 Following a meeting in Alexandria (April 1980) it was decided to develop a library for the medical assistant (or equivalent) during training and service. Production of learning materials at country level was further accelerated by a regional programme (complementary, as in the African Region, to the interregional programme) involving projects in Democratic Yemen, Somalia, the Syrian Arab Republic, and Yemen.

12.134 WHO continued to collaborate with training institutions of the Region in field-testing various teaching/learning materials for relevance and suitability. Primary health care manuals were prepared and reproduced for local adaptation (even more than most learning materials, such manuals need to be country-specific). Plans are under way to collaborate with Member States in training nationals to prepare educationally sound and relevant teaching/learning materials, with particular emphasis on teacher-training material.

12.135 The educational communication project that has been in operation in Sudan since 1978 was terminated at the end of 1981. It developed a methodology by which health workers can enlist the participation of the community in solving its own health problems, making use of available resources and local methods of communication. The methods and learning materials developed in the course of the project are now being utilized in Sudan’s primary health care programme.
Evaluation processes

12.136 Programme evaluation as a means of improving the quality of health manpower programmes has received increasing attention from Member States, for example in the Eastern Mediterranean Region. The approaches used range from evaluation of national programmes to assessment of programmes of key institutions, such as was carried out at the Centre for Educational Technology in the Health Sciences, Cairo, in 1981. The Centre had for many years received WHO support and the assessment was intended to determine the extent to which it had attained its objectives and suggest possible modifications in its work.

12.137 WHO collaborated with Bahrain and Egypt in setting up a unit in the ministry of health to evaluate health manpower development on a continuing basis and to plan, implement, and monitor programmes in relation to the health services. The staff charged with this task in the two countries were given initial training in Geneva and will continue to receive support in carrying out the evaluation, which includes a review of organization, structure, and mechanisms. To reinforce this work, health manpower development indicators are being formulated and will be tested in different Member States.

12.138 Evaluation of the efficiency, effectiveness, and impact of educational programmes by those responsible for them continues to be promoted. WHO's guidelines are now being utilized in a number of institutions. Two workshops on programme evaluation were organized by the King Faisal University Faculty of Medicine, Dammam, Saudi Arabia—one at the Health Training Institute in Mogadishu, for sanitarians and laboratory technicians, the other for the staff of the Faculty of Medicine and Surgery, Somali National University, Mogadishu.

12.139 These activities are a continuation and extension of the regional teacher-training programme. Over the last 10 years training institutions for health personnel have been established in a number of countries, and they are now in a position to examine their educational programmes critically and revise their curricula to make them more relevant to the needs of the population.

12.140 During the biennium an evaluation was made of the quality of nursing care in hospitals, using methodology and criteria field-tested in Kuwait, Sudan, and Yemen. The results were examined at a working group organized with WHO support in Khartoum (1981). Similar evaluation exercises but on a larger scale will be carried out elsewhere in the Region.

12.141 With the support of WHO and the Association of Schools of Public Health in the European Region, the Academy of Public Health, Düsseldorf (Federal Republic of Germany), organized a workshop on the evaluation of educational programmes for public health personnel. This was in relation to the establishment of a network of collaborating institutions for training in modern aspects of public health.

12.142 Assessment of performance. In view of the importance of assessment in guiding the work of students and supervising the performance of health workers, WHO has published a manual on the subject. A catalogue has been widely distributed listing the methodologies for performance assessment compiled at headquarters.


3 WHO document HMD/81.6 (1981).
A working group in the European Region (Varna, Bulgaria, 1980) considered trends in the assessment of the competence of students of the health professions, discussed the issues arising at all stages of training, and established principles for the selection and implementation of assessment procedures.

Examples of health manpower activities in other programmes

Training of manpower for specific tasks

Regional workshops or meetings of national task forces were used during the biennium to train researchers and health administrators in the concept, methodology, and application of the risk approach in maternal and child care and family planning (see paragraph 6.28). Interregional workshops to prepare the participants for research or intervention strategies were held in Bogotá, Geneva, Manila, Nairobi, and Nottingham (United Kingdom); they contributed to the production of a workbook on the risk approach that can be used as a training tool. National task forces in Cuba, the Republic of Korea, and Turkey further advanced training in the risk approach.

WHO collaborated with the Ministry of Public Health, China, in organizing interregional study tours on maternal and child health and family planning. These study tours, financially supported by UNFPA, included training programmes in French and English for health personnel and other community workers.

Three interregional courses on family health and family planning took place in 1980: (i) a course for health and social workers organized jointly with the International Children’s Centre, Paris; (ii) a course for instructors in nursing and midwifery given in collaboration with the National Research Institute for Mother and Child, Warsaw; and (iii) a postgraduate course for instructors from developing countries. Interregional courses on fertility management and maternal and child health were also organized.

In the European Region, modern methods of learning requiring the active participation of students and group work were the main features of a seminar on the planning and organization of maternal and child health (Bulgaria, 1981).

In the African Region, the regional health education centre at the University of Ibadan, Nigeria, continued to provide training in health education for three categories of health worker: (i) an advanced course, leading to a diploma, for people already engaged in health education work in departments of health; (ii) a course leading to a degree of master of public health with specialization in health education; and (iii) a new programme for a doctor's degree in public health with specialization in health education. In 1981 there were 40 students from 16 countries following these courses. Health education was also part of the training of health workers at the regional health development and training centre, Cotonou.

The first All Africa Conference on Health Education was organized in 1981 by the Federal Ministry of Health, Nigeria, with the collaboration of WHO and the International Union for Health Education. In addition to the health educationalists a number of other health professionals participated, including practitioners of traditional medicine. The Conference constituted in-service training in health education for a number of the participants.

In the South-East Asia Region, an intercountry workshop on health education
was organized in 1980 as part of the strategy for achieving health for all. Members of the faculties of six institutions attended: the Central Health Education Bureau, New Delhi; the All India Institute of Hygiene and Public Health, Calcutta; the Gandhigram Institute of Rural Health and Family Welfare, Madurai (India); the National Institute of Preventive and Social Medicine, Dacca; the Faculty of Public Health, University of Indonesia, Jakarta; and the Faculty of Public Health, Mahidol University, Bangkok. The discussions centred on the changes, modifications, and improvements that are required to meet the new challenges of primary health care.

12.151 India and Sri Lanka have introduced health education into the basic training of their medical, nursing, and midwifery students. In Mongolia, health education has become part of the curriculum in secondary schools and teachers’ colleges; a manual on sex and family life education was prepared as part of the instructional material.

12.152 The training of health education specialists was strengthened in the Western Pacific Region, where WHO collaborated with Malaysia in reviewing the curriculum of postgraduate courses in health education at the Public Health Institute, Kuala Lumpur. Special attention was given to developing health education models for use in hospitals and for education of patients. In Papua New Guinea, the diploma course in health education at the College of Allied Health Sciences was improved by linking up classroom teaching with field practice. In the Philippines, an intensive three-month course was organized for the in-service training of provincial health educators who have had little formal training in health education.

12.153 Work in mental health included the revision of curricula in psychiatric nursing in Argentina, Barbados, Colombia, and the Dominican Republic; the Organization subsequently collaborated in running the courses. In 10 countries of the Americas short courses for general practitioners were conducted in psychiatry, behaviour therapy, child psychiatry, management of alcoholism and drug dependence, and neurology. In the Dominican Republic and Ecuador, the Organization took part in the introduction of new programmes for resident training in psychiatry.

12.154 In the European Region, an evaluation was carried out of the seven courses in mental health organized by the Regional Office from 1971 to 1978, the results of which were highly positive. A UNDP-supported project on rehabilitation of the handicapped in Romania began during the biennium with a training course in Bucharest and Iasi. Fellowships were given for participation in the continuing programme of education and training in rehabilitation in the United Kingdom.

12.155 In the Western Pacific, collaborative activities with China included training in mental health. WHO took part in workshops on the epidemiology of mental disorders and on recent advances in the teaching of psychiatry in medical schools. Training courses covered psychopharmacology, control of nervous diseases, and control and management of cerebrovascular disorders.

12.156 As part of the training programme in neurology, a series of courses on clinical and basic neurology was organized in Beijing, Durango (Mexico), Marseilles (France), and San Miniato (Italy).

12.157 WHO and the National Institute of Neurological and Communicative Disorders and Stroke (USA) both continued to award fellowships. Candidates from China, Nigeria, and the Philippines received training in neurology.
12.158 As part of the training work in radiology, WHO and IAEA jointly organized a workshop and training seminar on quality assurance in nuclear medicine (for Latin American countries) and an interregional training course and study tour on the application of nuclear methods in medicine. In collaboration with the Federal Republic of Germany, workshops on quality assurance in diagnostic radiology and nuclear medicine were held whose reports will serve as guidelines for programme implementation.

12.159 The programme for medical physicists from developing countries continues to provide training on a biennial basis. A course on the dosimetry of radiotherapy, jointly organized with IAEA, was held in 1981. WHO is currently indicating medical facilities that can provide practical training for radiotherapists and medical physicists from developing countries.

12.160 Training in epidemiology is most effective when carried out in the framework of a career development scheme and this type of training, utilizing an in-service, learning-by-doing approach, was emphasized at both regional and national level. The approach has been adopted in Thailand and is being developed in Indonesia.

12.161 The interregional epidemiology courses have continued to the extent that they are needed to reinforce regional activities. They were given in English in Prague, Moscow, and the United Republic of Cameroon; and in French in Paris, Abidjan, and Bobo Dioulasso (Upper Volta). In Ivory Coast, the United Republic of Cameroon, and Upper Volta, field training is linked to communicable disease control programmes. In the Americas, in addition to the regional course in Venezuela, assistance was given to the strengthening of epidemiological courses in national schools of medicine and public health throughout the Region.

12.162 Where not enough physicians are available for training in epidemiology, auxiliary staff require adequate instruction and experience. The Government of Fiji, in collaboration with WHO and the Centers for Disease Control (USA), has conducted courses in epidemiological surveillance for such health personnel in the South Pacific.

12.163 The malaria action programme is accelerating the development of manpower for malaria control work and increasing national expertise by acquainting health workers with different ecological situations or specific techniques by way of fellowships tailored to the needs of the individual or to local requirements. This programme was slow to begin owing to difficulties in finding suitable candidates, but it is now progressing satisfactorily.

12.164 In the South-East Asia and Western Pacific Regions, WHO is setting up a secretariat to coordinate training programmes in malaria control as part of a cooperative effort involving WHO, national training centres, and possibly bilateral agencies. WHO’s responsibility will relate to design of curricula, provision of consultant teachers, supply of teaching aids, and organization of teacher-training courses. The Government of Malaysia has agreed to provide accommodation for the coordinating secretariat.

12.165 A seminar on the planning and execution of field-applied malaria research (Shanghai, 1980), with participants from malaria control services and scientific institutions, was followed by a workshop on malaria epidemiology and mathematical modelling. An international course on continuous in vitro cultivation and its application in malaria research was held in Moscow (1980).

210
In view of the increasing problem of drug-resistant *Plasmodium falciparum* in large parts of eastern Asia and South America, and the serious threat it poses to other malarious areas of the world, training in standard techniques for testing drug sensitivity was continued. Four regional workshops were held—in Cotonou, Geneva, Kuala Lumpur, and Sennar (Sudan)—and also several subregional or national courses in the Americas, Europe, South-East Asia, and the Western Pacific. Most of these activities were supported by the Special Programme for Research and Training in Tropical Diseases.

Training in the epidemiology and control of *tuberculosis* was given to health personnel from different regions at an annual course in Tokyo, sponsored by WHO and the Government of Japan. A subregional course for South Pacific countries was organized in the Solomon Islands. International courses on the management of tuberculosis programmes were sponsored in Argentina, Brazil, Chile, Cuba, and Mexico; a course in bacteriology is held annually in Argentina. With support from DANIDA, training in the production and quality control of BCG vaccine was given at the State Serum Institute, Copenhagen.

A workshop on *veterinary public health* was organized by the FAO/WHO collaborating centre for research and training in food hygiene and zoonoses, Berlin (West), for senior public health and veterinary public health officers from the South-East Asia and Eastern Mediterranean Regions.

WHO collaborated closely in organizing two international courses on zoonoses management in the USSR. Twenty-two students from five WHO regions took part in the courses, which covered rabies, brucellosis, leptospirosis, echinococcosis/hydatidosis, taeniasis/cysticercosis, and foodborne diseases.

Four training centres—two in France, one in the Netherlands, and one in the United Kingdom—are running postgraduate courses in food microbiology for students from developing countries.

The *cancer* programme in the South-East Asia Region included training sessions on the recognition of cancerous and precancerous lesions of the oral cavity in adults and a workshop on the standardization of histological criteria for diagnosis of liver disease (Karachi). A seminar on the histopathological diagnosis of tumours took place in the Western Pacific.

Courses in *immunology* continued at the WHO immunology research and training centres in Brazil, China, Egypt, and Switzerland. A course on hybridoma technology was given in Singapore and a course on molecular and cellular aspects of antigenicity in Israel.

The teaching of *environmental health* to sanitary engineers and other health workers was continued in the African Region through five national and three intercountry projects. An agreement between the Federal Polytechnic School, Lausanne (Switzerland), and the Ecole inter-Etats d'Ingénieurs de l'Equipement rural, Ouagadougou, made it possible to offer a one-year programme in sanitary engineering. WHO cooperated with UNDP in establishing a training programme in sanitary engineering at the Faculty of Technology, University of Addis Ababa. Postgraduate programmes in environmental health were established at the University of Ife (Nigeria) and at the University of Nairobi; and the objectives of a training programme in sanitary engineering were defined for the Higher Institute of Technical Training and Research, Nairobi.

As part of work in relation to the **International Drinking Water Supply and**
Sanitation Decade, an investigation has been in progress since 1978 of institutions offering training in the water and sanitation sector in countries of western Africa—Gambia, Ghana, Ivory Coast, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo, the United Republic of Cameroon, and Upper Volta. This investigation should assist the planned development of health manpower at national and regional level.

12.175 In the Americas, the Regional Library of Medicine (BIREME) ran courses for the training of librarians to enable them to provide the information needed for health care.

**Teacher training**

12.176 Training in health statistics and related subjects continued with a series of workshops in various regions for teachers of health statistics, epidemiology, and health records systems. Several handbooks were prepared, e.g., a guide for teachers\(^1\) that provides a systematic approach to the teaching of health statistics to medical undergraduates. As recommended by the interregional conference on teaching of statistics to medical undergraduates (Karachi, 1978), a standard teaching programme was worked out covering the essential minimum of subjects. A similar programme for the teaching of statistics to postgraduate medical students was initiated.

---


**Teaching/learning materials**

12.177 To strengthen national information systems and provide guidance for health workers, particularly at primary health care level, WHO has prepared a series of booklets on the practical aspects of community surveys: how to gather, process, and present information, and how to use it in routine work as well as in the management of health care.

12.178 Different types of instructional material on infant and young child feeding were prepared, including a handbook on the organization of workshops, an audiovisual presentation for training health administrators, and a brochure on breast-feeding for middle-level health workers and educators.

12.179 In the Region of the Americas, an informal working group discussed the current status of teaching materials in Latin America and designed a textbook on psychiatry on the basis of material prepared by Latin American specialists.

12.180 Further teaching/learning materials in diagnostic radiology were produced for the basic radiological services programme (see paragraphs 8.52–8.54). The operator’s manual on patient positioning was revised, a chapter being added on patient care, first aid, and hygiene. A general practitioner’s manual on the interpretation of radiographs was drafted and should be ready for field testing in early 1982.
Chapter 13

Health Information

Health statistics

13.1 NATIONAL authorities in the developing countries realize that, if the goal of health for all is to be attained by the year 2000, their health programmes must be based on statistical information that faithfully reflects the country's health problems and the needs of its population. In particular, the new strategy has highlighted the serious lack of statistical support at the primary health care level. Even in developed countries the statistical services may not be flexible enough to cope with evolving requirements, and health planners and administrators may lack the skill to exploit fully those statistics that are available.

13.2 1980–1981 was the period in which a conceptual frame was evolved for information support in monitoring progress towards health for all. Preparatory work was undertaken in collaboration with national experts, in particular with a view to establishing indicators suitable for regional and global monitoring (see paragraph 1.17). Technical cooperation with Member States to strengthen their health information systems and services was reoriented in the light of the new developments. Priority was given to training of staff; data generation at the periphery; data processing, flow, and analysis; and utilization of the information produced. Emphasis was on better communication between those who provide the information and those who use it.

Development of health statistical services

13.3 As work on the Global Strategy for health for all progressed, the information support that it required was clarified. Intercountry and interregional workshops or consultations were held to define concepts and principles and to develop action programmes. They included a working group on the counting of births and deaths and a consultation on potential uses of statistics in health management (both held in Rijeka, Yugoslavia, September 1981), and a workshop on health records and health statistics practice at family, community, and primary health care level (Papua New Guinea and the Philippines, October-November 1981), followed by a consultation in Sri Lanka to prepare guiding principles on the same subject. All these meetings centred on the generation of a least a minimum of essential statistical data and their utilization at community and primary health care level.

13.4 Work in relation to national health information systems focused on improving national capabilities for monitoring and utilizing vital and health statistics and health records. WHO cooperated with a number of countries in this respect. Several workshops
were held to exchange experience and to identify the technical problems encountered in devising information systems to support the planning, management, and evaluation of health development programmes. Most of them were concerned with primary health care programmes.

13.5 Since any improvement in national systems for health information depends on better communication between the producers of information and its users, WHO continued to promote broadly-based national committees on vital and health statistics as forums for such communication. A document was issued reviewing the activities of national committees over the last 30 years and emphasizing the importance of their role, whatever the stage of development of the country.¹

13.6 The preparation of several methodological guidelines was undertaken—on health situation analysis, health surveys, health expenditure statistics, measurement of outcome of health action, health manpower statistics, hospital statistics, and vital statistics. Guidelines were also completed on the keeping of medical records—a subject on which a joint programme was instituted with the International Federation of Health Records Organizations. (For training of teachers in health statistics, see paragraph 12.176).

*International Classification of Diseases and related classifications*

13.7 Among the basic tools for the recording, processing and analysing of health information are the internationally adopted classifications of health problems. Member States were given support in introducing the Ninth Revision of the International Classification of Diseases, Injuries, and Causes of Death (ICD),² the International Classification of Procedures in Medicine,³ and the International Classification of Impairments, Disabilities, and Handicaps.⁴ Developmental work was carried out on classifications that have hitherto been neglected, priority being given to health problems in primary health care and lay reporting. The above work was financed in part by contributions to the Voluntary Fund for Health Promotion. Meetings were organized for countries of the South-East Asia Region (New Delhi, October 1980) and of the African Region (Nairobi, September 1981), with the aim of initiating or promoting the use of lay reporting systems in obtaining information for the planning, monitoring and evaluation of community and primary health care services.

13.8 Work started on the next (tenth) revision of ICD, which, as recommended by a meeting of experts, will be based upon a thorough evaluation of the Ninth Revision as utilized in Member States. To permit that evaluation, the Director-General sought the opinion of Member States as to the desirability of postponing the Tenth Revision for five years, i.e., submitting it to the Health Assembly in 1990 instead of in 1985 as a decennial revision would require. Almost all Member States were in favour of deferment. The preparatory work is being organized accordingly.


HEALTH INFORMATION

London, Moscow, Paris, São Paulo, and Washington) in training staff to use the Ninth Revision of ICD, assisting Member States with coding problems, updating computer software, and adapting ICD and the related classifications into national languages. A new centre was established in 1981 in Beijing.

Dissemination of statistical information

13.10 Following adoption of the Global Strategy for health for all in 1981, the Secretariat began assembling data on global indicators for the monitoring of health progress from available national reports. Plans were made for updating the information in the headquarters data bank. The regional offices initiated similar action with respect to regional and national indicators. At the Regional Office for the Americas a new computerized data base was designed and new methods of data collection were devised. The Regional Office for the Western Pacific plans to establish a data bank on indicators for all countries in the Region.

13.11 Studies were undertaken to improve the general information base and to generate new data. A number of projects for improving the data base at national level were planned as a complement to the projects of the regional offices.

13.12 The Sixth report on the world health situation, covering the years 1973–1977, was published in 1980 in two parts. The first describes global health problems and the measures taken to solve them, indicating the success or failure of such measures at national, regional, and international level. The second part reviews the situation country by country. This report was the first attempt to provide Member States with baseline information for use in the assessment of progress towards health for all by the year 2000.

13.13 The World Health Statistics Annual, the main WHO statistical publication, was for many years published in three volumes; for reasons of economy it was reduced during the biennium to two. The volume dealing with vital statistics and causes of death will continue to appear annually, but the second volume will in one year contain statistics on cases of infectious diseases and in the alternate year statistics on health personnel and hospital establishments. To improve the appearance of the Annual, it was decided to go over to photocomposition for its production.

13.14 The World Health Statistics Quarterly continued to emphasize analytical studies on special subjects of public health interest. During 1980–1981 it carried articles on cancer mortality (projections and socioeconomic implications); health manpower; primary health care; prevalence of low birth weight; infant, child, and maternal mortality in relation to fertility patterns; and physical and mental disabilities.

13.15 Five ad hoc surveys on infant and early childhood mortality in relation to fertility patterns were made in the 1970s, the report on Afghanistan being published in 1978. Detailed tabulations for the latter were issued during the biennium, as were the reports on the surveys in Algeria, Sierra Leone, and Sudan in cooperation with the respective governments (the report on Trinidad and Tobago should be issued in 1982). Data collected in a special cohort study of infant mortality in Mauritius were analysed with a view to publication. Three volumes on maternal and child health statistics were in preparation: a study of maternal mortality, a symposium on adolescent reproductive health, and a study of infant mortality in the socialist countries of Eastern Europe. The English editions of the manual of mortality

analysis and the life table and its application were revised and were adapted for translation into French. A manual of fertility analysis was also in preparation.

13.16 The Regional Office for the Western Pacific completed country health information profiles, based on 1979-1980 data, for all but two countries of the Region. The Regional Office for the Eastern Mediterranean issued a directory of selected institutions actively engaged in biomedical research. The European Regional Office published a manual on standard definitions and methods of measurement for use in health statistics. Among the PAHO publications were *Hospitals in the Americas* and *Health conditions in the Americas, 1977-1980*.

13.17 In addition, the regional offices carried out or were associated with a number of new studies. In South-East Asia these covered perinatal mortality in five countries, the impact of improved water supply in India, and hospital distribution and utilization in Burma. The Regional Office for the Western Pacific introduced a statistical type of reporting that can form the basis for projections of health trends when planning future requirements. In the European Region 13 Member States are taking part in establishing similar projections; 15 Member States are collaborating in a study of demographic trends in Europe and their implications for health.

13.18 A special health demography programme financed by UNFPA was expanded with interagency collaboration. Two meetings were convened (Geneva and Manila, 1980). The Geneva meeting—sponsored by WHO, the United Nations, and the Committee for International Coordination of National Research in Demography (CICRED)—dealt with socioeconomic differential mortality in industrial societies. The meeting in Manila—sponsored by WHO and ESCAP—focused on mortality in Asia. Meetings on data bases (Bangkok, 1981) and on sex differentials in mortality (Canberra, 1981) were sponsored by the United Nations and WHO as part of joint United Nations/WHO mortality studies. There were also meetings on family life cycles (Wiesbaden, Federal Republic of Germany, July 1981) and on cancer statistics in developing countries (Nagoya, Japan, August 1981), the latter the fourth of its kind.

13.19 A project for monitoring the requirements of countries as regards mental health statistics was completed during the biennium.

**Health statistical methodology**

13.20 The work of the health statistics programme in providing statistical support for other WHO programmes was reoriented to ensure integration with the Seventh General Programme of Work, 1984-1989, and to serve the particular needs of the strategies for attaining health for all by the year 2000. Such support covers the statistical or methodological basis for the planning and execution of projects; the analysis and evaluation of field data; operational research and systems analysis as applied to epidemiological investigations or the improvement of health delivery systems; and the use of computer facilities or other aspects of medical informatics.

13.21 Much of the basic statistical processing was transferred to country level. WHO was however increasingly involved in general planning, coordination, and promotion of statistical operations in countries that have
the necessary professionally qualified staff. The consequent increase in interpretative and evaluative work was particularly evident in multicountry projects, where countries often felt the need for independent planning, review, and appraisal of comparative findings—a role to which WHO is particularly suited. In addition, statistical support was provided for specific programmes (health delivery systems, parasitic disease control, projection of health trends, etc.), emphasis being given to innovative methods of data collection and methodologies for primary health care.

13.22 Close contact was maintained with several intergovernmental and nongovernmental organizations working in the general field of medical informatics and medical computing. General systems methodology was also promoted through continued and close liaison with the International Institute of Applied Systems Analysis, Vienna.

Health and biomedical information

Health literature services

13.23 During the biennium WHO took various initiatives in the health literature programme, providing advice at regional and country level and placing increased emphasis on the strengthening of health libraries, information services, and documentation centres. Direct technical cooperation focused on the establishment of a national health literature project in Egypt and a biomedical information centre and network in China; strategies were formulated and UNDP-financed activities began.

13.24 The Regional Office for Africa sponsored a first meeting of African medical librarians, which prepared the ground for a consortium of health libraries in Africa. WHO cooperated in the production of a consolidated list of the periodicals held by health sciences libraries in Africa that should develop into a major resource-sharing tool. The Regional Office for South-East Asia sponsored regional and national meetings for the establishment of national focal points, cooperative national health library networks, and a regional network of health literature, library, and information services. In the Eastern Mediterranean the Regional Office carried out a second survey of health libraries and issued a revision of the “List of sources for a basic medical faculty library”. In the Western Pacific a survey was made of the health literature situation and plans were drawn up for a regional library network.

13.25 The agreement between WHO and the United States National Library of Medicine for the provision of MEDLARS searches and related photocopy services was renewed up to the end of 1981. The Regional Office for the Western Pacific entered into an agreement with the Government of Australia for the supply of MEDLARS material to developing countries in that Region; this service operates through a system of national focal points.

13.26 During 1981 WHO began issuing a monthly list of its technical documents with a view to improving access to the information it produces. Two new studies were under way to determine how best to collect, process, and disseminate the health-related literature emanating from the developing countries. Much of this “fugitive”, often unconventional, literature could be of considerable interest to other countries with similar health problems.

13.27 Three regions drew up initial plans for indexing the health and biomedical periodicals of developing countries. A planned African Index Medicus was discussed and costed. The Regional Office for South-East Asia held a two-week workshop to train
librarians of the Region in indexing (using the medical subject headings of the United States National Library of Medicine) and issued a first experimental index to South-East Asian health literature.

13.28 A number of training plans were made. For their implementation assistance was obtained from certain other WHO programmes, notably the Special Programme for Research and Training in Tropical Diseases, which is prepared to finance the training of librarians in institutions receiving long-term support from the Special Programme. WHO promoted the participation of medical librarians from developing countries in the Fourth International Congress on Medical Librarianship (Belgrade, September 1980), a meeting that provided an occasion for them to follow continuing education courses. A subsequent meeting in Geneva of WHO librarians from headquarters, five regional offices, and IARC laid the basis for improved intra-organizational cooperation in the health literature field.

WHO publications

13.29 In 1980 an experimental issue of World Health Forum: an international journal of health development (Volume 1, Nos 1 and 2 combined) was produced in English and French versions. This issue was widely circulated and the replies to the questionnaire that accompanied it revealed almost universal approval of the proposed new journal. In January 1981 the Executive Board discussed the Forum and was in favour of its regular production in Arabic, Chinese, English, French, Russian, and Spanish. During 1981 four issues (Volume 2, Nos 1-4) appeared and were given an encouraging reception. The journal is directed principally at those responsible for health policy, at health planners and administrators, and at teaching staff in schools of public health and similar institutions.

13.30 The Forum was financed without any overall increase in the publications budget. This meant some reduction in other publications: notably the issues of the WHO Chronicle, which is published in the same six languages, were reduced from 12 in 1980 (Volume 34) to six in 1981 (Volume 35). Within those limitations the Chronicle continued to perform its task of keeping the health professions informed about WHO’s activities and publications. There was no change in the frequency of publication of WHO’s scientific journal, the Bulletin of the World Health Organization, which is published in a bilingual English/French edition and in a Russian edition; six issues (Volume 58) and a supplement appeared in 1980, and six issues (Volume 59) in 1981.

13.31 An important development was the initiation of a new series of non-periodical publications—the “Health for All” Series—which is published in Arabic, Chinese, English, French, Russian, and Spanish. This series is a medium for the publication of fundamental texts on policies, strategies, and processes that will assist countries in planning, implementing, and evaluating their own programmes for attaining health for all by the year 2000. The report of the Alma-Ata Conference (1978) and the document prepared by the Executive Board on formulating strategies for health for all (1979) were included, retroactively, as Nos 1 and 2 in this series. The other volumes issued up to the end of 1981 were: Global strategy for health for all by the year 2000 (No. 3), Development of indicators for monitoring progress towards health for all by the year 2000 (No. 4), Managerial process for national health development (No. 5), and Health programme evaluation: guiding principles (No. 6).

Among the numerous other books published during the biennium, the following give some indication of the wide range of topics covered by WHO's publishing programme: the second edition of *Chemotherapy of malaria* (WHO Monograph Series, No. 27), which has been completely revised to present the latest information at a critical time for malaria control; the report on the first phase of the WHO collaborative study on breastfeeding (*Contemporary patterns of breastfeeding*) and the text of the International Code of Marketing of Breast-milk Substitutes adopted by the Thirty-fourth World Health Assembly (see paragraphs 6.7-6.10); the *Manual of basic techniques for a health laboratory*, which describes in detail but in simple terms (each step being illustrated) all the techniques that a health laboratory will need to perform in support of primary health care; and a completely new version of the annual *Vaccination certificate requirements for international travel* that endeavours to increase security against the international spread of diseases by incorporating health advice to travellers (see also paragraphs 9.12-9.13).

The strengthening of the regional publications programmes, noted in the previous biennial report, was particularly marked during the period under review in the Eastern Mediterranean Region, where a large number of texts were issued as part of the regional Arabic programme. Some of these originated in the Region, while others were translations of WHO publications issued in other languages; all were selected for their particular relevance to regional needs and conditions.

Publications suited to regional concerns elsewhere may be illustrated by the following, which were issued by the appropriate regional offices: two volumes of *Health development in Africa; The eradication of smallpox from Bangladesh; The planning of health services: studies in eight European countries; and The health aspects of food and nutrition: a manual for developing countries in the Western Pacific Region of WHO*. Regional publishing programmes also covered some topics of global interest, as witness the PAHO publication *Emergency health management after natural disaster* and the European Regional Office glossaries on air pollution and on solid waste.

An indicator of the success of WHO publications is provided by the growing number of requests from national bodies (governmental or other) to reprint them for distribution among professional associations or to issue translations into languages in which WHO does not regularly publish. While the greatest number of requests concerned German, Japanese, and Portuguese, permission was granted for translations into numerous other languages—among them Bengali, Indonesian, Italian, Korean, Turkish, and Vietnamese.

**WHO technical documentation**

An ad hoc working group met in Geneva (October 1980) to discuss methods for improving the relevance and quality of documents prepared by WHO for use by countries. It made a number of recommendations concerning documentation for meetings, handbooks and manuals, bibliographies, and other types of technical documentation. These recommendations were implemented in 1981.

**Health legislation**

Work continued during the biennium to implement resolution WHA30.44, concerning the reorientation of the health legislation programme in accordance with the overall strategies of WHO and Member States. The sixty-fifth session of the Executive Board in January 1980 fully en-
endorsed the Director-General's report on measures taken to strengthen the programme (resolution EB65.R13), and in May 1980 the Thirty-third World Health Assembly strongly supported the proposed strategies for technical cooperation and information transfer in this sector; in resolution WHA33.28 it requested the Director-General to proceed with the formulation of a detailed programme based on these strategies.

13.39 The groundwork was laid for the preparation of such a programme, and many components are already operative; an informal global network of sources of expertise was further developed during the biennium. There was enhanced technical cooperation between WHO and Member States in the preparation of new legislation in key areas of both personal and environmental health services. An unprecedented number of requests for information, sometimes on policy issues and sometimes on highly detailed matters, was received from Member States. WHO was able to respond to these requests with the generous assistance of many national and international institutions and experts.

13.40 The Regional Office for South-East Asia promoted the holding of national seminars on health legislation issues; a seminar on law and health for development (Chonburi, Thailand, August 1980) was one outcome of this endeavour. A firm basis for programmes in the European Region was established by a regional advisory committee on health legislation, which held its first meeting in Dresden, German Democratic Republic (June 1981). The Regional Office for the Eastern Mediterranean carried out an in-depth study of the legal status of primary health care workers that will undoubtedly also be of interest to health administrators in other parts of the world.

13.41 Technical cooperation activities in health legislation, as in many other fields, must be based on up-to-date and reliable information. WHO provides such information in its quarterly journal, the International Digest of Health Legislation. In resolution EB65.R13 the Executive Board reaffirmed the criteria established for the selection of material for publication in the Digest and emphasized "the need for priority to be given to legislation in support of Member States' strategies for attaining health for all their people". Accordingly a reoriented Digest, with legislative texts arranged by subject rather than by country and with more analytical, comparative, and bibliographical material than hitherto, was introduced in 1981 and was favourably received. During the biennium the Digest reported on new legislation in Member States on such topics as breast-milk substitutes and breast-feeding, disabled persons and the elderly, workers' health, food and drug safety, and environmental health. The proportion of international as opposed to national texts was increased, and for the first time bilateral treaties between developed and developing countries for cooperation in the health sector were covered.

13.42 In line with the provisions of resolution WHA30.44, collaboration with other specialized agencies concerned with health legislation was strengthened. Thus WHO cooperated with FAO in systematically compiling national legislation governing foods for infants and young children. It played an active role in the preparations for, and was represented at, the Ad Hoc Meeting of Senior Government Officials Expert in Environmental Law, held under the auspices of UNEP (Montevideo, November 1981). Cooperation with nongovernmental organizations was intensified; for example, there was particularly close cooperation with the Council for International Organizations of Medical Sciences (CIOMS) in regard to legislation on human experimentation.
By its very nature health legislation is intersectoral, and an increasing number of WHO technical programmes (concerned with such matters as traditional medicine, essential drugs, control of smoking, drug dependence, control of alcohol abuse and alcoholism, care of the elderly, and chemical safety) undertook activities that have a health legislation component but are dealt with in other sections of this report.

Language services

The new policies and approaches of WHO had their impact on the language services during the period under review. The reduction in the number of permanent staff in response to resolution WHA29.48 was completed. There was however a steady increase in translated material in all languages. In order to cope with this situation several approaches were used, including:

- contracting out, under supervision, a significant proportion of the required translation work; and promoting a policy of self-revision among the permanent language staff while maintaining only for certain documents, of a legal, political, or regulatory nature, the more elaborate process of revision by a senior translator.

- exchanging translators/revisers between headquarters and regional offices during peak periods, in the interest of quality of translation and uniformity of terminology. The number of such exchanges increased substantially during the biennium.

- strengthening collaboration and coordination between central, regional, and country level, with increasing decentralization and delegation of functions. Examples were the activities carried out as part of the Arabic language programme of publications of the Regional Office for the Eastern Mediterranean; with the People's Medical Publishing House, Beijing, under an agreement with the Ministry of Health, China (for Chinese); with the Medicina Publishing House, Moscow, under an agreement with the Ministry of Health, USSR (for Russian); and at the PAHO/WHO Publications and Documentation Service in Mexico (for Spanish).

In 1981 the Council of Arab Ministers of Health decided to establish a centre for Arabic health documentation and publications in Kuwait and requested the cooperation of WHO. The Organization gave its full support to this centre as exemplifying the principles of technical cooperation among developing countries. It is expected that in due course it will contribute significantly to the WHO Arabic language programme.

Technical terminology

As in the previous biennium, the need for clear and unambiguous terminology continued. A study indicated that the establishment of a central computer terminology bank would be unjustifiably costly. Accordingly terminology work was reorganized so as to make maximum use of electronic text-processing equipment. Thanks to the use of special text-processing programmes for the preparation of multilingual glossaries and lists of terms, this has led to an increase in efficiency that is conservatively estimated at 200%. A further development was an agreement with the Terminology Bureau of the Commission of the European Communities, in Luxembourg, under which it enters and maintains all WHO-developed terminology in its large, multilingual computer term bank, all of which is made available to WHO free of charge.

Numerous glossaries and other terminological documents were prepared, primarily to ease the increasing termin-
ological problems faced by technical and linguistic staff. They covered such subjects as food hygiene, nutrition, health statistics, and nomenclature of pathogenic microorganisms. Of particular interest is a multilingual glossary of managerial terms, prepared in separate Arabic, Chinese, English, French, Russian, and Spanish versions with a view to publication as a volume in the "Health for All" Series. The Regional Office for Europe completed preliminary work on a thorough revision of its glossary of health care terminology. The Regional Office for the Eastern Mediterranean continued to support the preparation of English/Arabic and French/Arabic medical dictionaries by the Special Working Committee on Medical Arabic Terminology, these dictionaries being scheduled for publication in 1982.

13.48 WHO continued its part in the joint CIOMS/WHO project on the International Nomenclature of Diseases, for which CIOMS is the executing agency. However, owing to lack of funds, progress on this project was slower than had been foreseen, although one volume (on mycoses) was readied for publication and another (on viral diseases) was prepared in draft form.

**Distribution and sales**

13.49 Promotional efforts were continued to make WHO publications more widely known; they were exhibited at technical and medical congresses and also at bookfairs. A new catalogue was issued in English and French, and a Spanish edition is in preparation.

13.50 The computerization of mailing lists that has been undertaken in the interests of flexibility—and eventually of feedback from recipients—should be completed by April 1982.

13.51 The policy was continued of actively seeking facilities in various countries, particularly developing countries, where WHO's publications could be printed on more advantageous terms. The consequent reduction in printing costs was reflected in the sale price of publications. As a result of this and other factors, revenue from sales decreased from $3,071,163 in the biennium 1978-1979 to $4,670,913 in 1980-1981.

13.52 The bulk of sales continued to be made in western Europe (46%) and North America (31%).

**Health information of the public**

13.53 The Thirty-fourth World Health Assembly, in adopting the Global Strategy for health for all by the year 2000, called upon Member States to "enlist the involvement of people in all walks of life" in this historic movement. The challenge to the health information programmes during the biennium was therefore to create an understanding of the issues underpinning the Global Strategy and a willingness to become involved in and support the primary health care process.

13.54 As the Director-General acknowledged in an article in *World Health* magazine, the concept of health for all had aroused scepticism. "How do you define health?" "What do you mean by all?" These were the questions asked. By means of the printed word, audiovisual methods, and common efforts with the mass communication media,
the nongovernmental organizations, and the information departments of Member States, WHO set out to answer these questions and to demonstrate by numerous examples and case histories that the principles adopted in the Declaration of Alma-Ata were more than abstract theories. As a counterpoint to this global effort to form public opinion on complex and often controversial issues, the Organization sought to create a greater awareness of the advantages of living a healthy life by providing material for local campaigns to promote attitudes and behaviour conducive to health.

13.55 Among a number of events utilized to direct world attention to the work of Member States and WHO was the ceremony at the Thirty-third World Health Assembly (May 1980) that marked the eradication of smallpox. This was the occasion for radio broadcasts and television coverage, a transatlantic news conference, the production of a film, and the dissemination of information kits. Newspapers often critical of the United Nations system commented on the eradication of smallpox as demonstrating the value of international institutions.

13.56 Two central themes of the primary health care approach—maternal and child health, and provision of clean water and adequate sanitation—provided an opportunity to demonstrate the role of WHO as the directing and coordinating authority on international health work. Cooperating with UNDP and UNICEF, WHO undertook a global public information campaign to build up support for the International Drinking Water Supply and Sanitation Decade. Similarly, an intensive two-year campaign of information and education of the public, jointly conducted with UNICEF, preceded the adoption by the Thirty-fourth World Health Assembly (May 1981) of the International Code of Marketing of Breast-milk Substitutes. The campaign included national and international seminars for the mass media and nongovernmental organizations, and wide dissemination of printed and audiovisual material. The groundwork was laid for support to Member States in their health education campaigns to protect and promote breast-feeding.

13.57 World Health Day, 7 April 1980, took as its subject “Smoking or health: the choice is yours”. The theme was used to illustrate the roles of personal behaviour and community action in the primary health care process. Almost all Member States mounted health information and education campaigns and many found it opportune to introduce legislative or administrative curbs on the tobacco habit.

13.58 The information campaign to promote the new health doctrines reached a peak with World Health Day 1981, which was devoted to the theme “Health for all by the year 2000”. Declarations of support were issued by many heads of state or ministers of health and WHO material was used as the basis for national information campaigns in most Member States.

13.59 In the Global Strategy for health for all, information is seen as the “permanent operational arm of national and international strategies to mobilize political, financial, managerial, technical, and popular support”. Member States, nongovernmental organizations, and the mass media look to WHO to popularize the aims and benefits of the Strategy and to bring the process alive by reporting on the progress made and the problems encountered. This requirement guided the work of WHO’s information officers in responding to day-to-day inquiries and in producing publications and audiovisual material.

During the biennium two new documentary films were produced, bringing to six the number in the series entitled “Health for all—Aspects of primary health care”. They dealt with the primary health approach in Ghana and in Thailand. Other documentaries had as their subjects smoking, eradication of smallpox, health of the aged, and the continuing fight against tuberculosis—the latter to commemorate the discovery by Koch of the tuberculosis bacillus. WHO also joined with other organizations in the United Nations system in producing films on the International Drinking Water Supply and Sanitation Decade, the International Year of Disabled Persons, and the plight of African refugees. Work began on a film describing primary health care in the Western Pacific, to be financed by a contribution from the Australian Government. Some 950 copies of WHO films were sold.

The WHO radio service provided some 240 radio stations or networks with regular monthly programmes in English, French, and Spanish.

The 20 issues of World Health magazine published in 1980–1981 reflect the broad spectrum of WHO’s activities. With a monthly circulation of some 150,000 in English, French, Portuguese, Russian, and Spanish, and with quarterly issues in Arabic and Persian, not only is World Health widely read but its articles are frequently reprinted in the daily press.

In addition to collaborating with the United Nations system on specific issues, WHO continued to furnish material for the monthly newspaper, Development Forum.

Measures were taken to increase the relevance of reports on health by the mass media and to ensure that health information was popularized with accuracy. In Geneva, 40 scientific journalists were briefed on the latest developments in tropical disease research. The Regional Office for the Western Pacific cooperated with the Malaysian Ministry of Health in running a workshop on health reporting for journalists. A regional workshop on information, education, and communication for health was held in Manila (1981). A working group on information and health (Luxembourg, November 1980) recommended that WHO and Member States should foster greater access by journalists to health information and should seek their advice in formulating health education and information campaigns.
Chapter 14

Constitutional, Legal, and Administrative developments

Constitutional and legal matters

14.1 During 1980–1981, five new Members joined the World Health Organization: Dominica, Equatorial Guinea, Saint Lucia, San Marino, and Zimbabwe (formerly an Associate Member under the name of “Southern Rhodesia”). The Organization thus maintained its virtually universal character, which is vital to the fulfilment of its objectives. A list of Members (at present 157) and Associate Members (at present one) is given in Annex 1.

14.2 The amendments to Articles 24 and 25 of the Constitution, adopted in 1976 by the Twenty-ninth World Health Assembly and providing for an increase in the membership of the Executive Board from 30 to 31, were accepted by 13 Member States during the biennium, bringing the total number of instruments of acceptance so far deposited to 58; a further 47 acceptances were still required for the entry into force of the amendments, which under Article 73 of the Constitution must be accepted by two-thirds of the Members.

14.3 One instrument of acceptance was deposited for the amendment to Article 7 of the Constitution, adopted by the Eighteenth World Health Assembly in 1965; the number of acceptances thus reached 53 at the end of 1981.

14.4 The amendment to Article 74, providing for the inclusion of an Arabic version of the Constitution among the authentic texts, which had been adopted in 1978 by the Thirty-first World Health Assembly, had received a total of 16 acceptances by the end of 1981.

14.5 The Thirty-fourth World Health Assembly (May 1981) considered proposals for a transition from annual to biennial Health Assemblies but felt that this change in periodicity should take place only in association with other structural reforms, such as changes in the composition and size of the Executive Board and in the role and functions of all bodies of the Organization. It therefore resolved to maintain the practice of annual Health Assemblies for the time being. However, it decided that, beginning in 1982, the duration of the Health Assembly should be limited to not more than two weeks in even-numbered years, when there is no proposed programme budget to consider (see paragraph 1.43).

14.6 The Thirty-fourth World Health Assembly also adopted Additional Regulations amending the International Health Regulations (1969) in order to exclude smallpox, in view of its global eradication, from the

---

1 See resolution WHA18.48.
diseases subject to the International Health Regulations. The Additional Regulations came into force on 1 January 1982, and States bound by them may now no longer require smallpox vaccination certificates from international travellers (see also paragraph 9.4).

14.7 Basic agreements on technical advisory cooperation were concluded during the biennium by WHO with Djibouti, Equatorial Guinea, Kiribati, Vanuatu, Viet Nam, and Zimbabwe; and by PAHO with Bolivia and El Salvador.

14.8 The Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, which had as a starting-point the studies and first drafts prepared by WHO at the request of UNEP, was signed on 17 May 1980 in Athens by 12 Mediterranean coastal States and by the European Economic Community. It was published in the International Digest of Health Legislation.

14.9 On 20 May 1980 the Thirty-third World Health Assembly, having regard to proposals to remove the Organization's Regional Office for the Eastern Mediterranean from Alexandria, requested an Advisory Opinion of the International Court of Justice on the question whether the negotiation and notice provisions of the Agreement concluded with Egypt on 25 March 1951 were applicable in the event of such transfer. In paragraph 51 of its Opinion of 20 December 1980, the Court advised that the Organization and Egypt have a duty:

(a) to consult together in good faith as to the question under what conditions and in accordance with what modalities a transfer may be effected;

(b) in the event of a transfer being finally decided, to consult together and to negotiate regarding the arrangements needed to effect the transfer in an orderly manner and with a minimum of prejudice to the work of the Organization and the interests of Egypt;

(c) to give a reasonable period of notice taking account of all the practical arrangements needed to effect an orderly and equitable transfer.

On 18 May 1981 the Thirty-fourth World Health Assembly accepted the Advisory Opinion of the Court and recommended to all parties concerned to be guided by it. The Assembly further requested the Director-General:

(1) to initiate action as contained in paragraph 51 of the Advisory Opinion and report the results to the sixty-ninth session of the Executive Board in January 1982 for consideration and recommendation to the Thirty-fifth World Health Assembly in May 1982;

(2) to continue to take whatever action he considered necessary to ensure the smooth operations of the technical, administrative, and managerial programmes of the Regional Office for the Eastern Mediterranean during the period of consultation. As a result of the action initiated by the Director-General with regard to the Advisory Opinion, a meeting was held (Cairo, November 1981) between the representatives of the Government of Egypt and of the Director-General.

14.10 Questions of patent rights and the protection of the public sector with regard to inventions resulting from cooperation of the Organization with research institutions or industry raised increasingly complex issues. A study of these issues was initiated in 1981 and a document was prepared for consideration by the Executive Board in January 1982 and by the Health Assembly in the following May.
Administration

Establishment

14.11 On 30 November 1981 the total staff (excluding staff of the Pan American Health Organization) was 4377 as compared with 4378 on 30 November 1979 and 4321 on 30 November 1980. The number of professional or higher graded staff fell from 1630 in November 1979 to 1571 in November 1981, whereas that of general service staff rose slightly—from 2748 to 2806—in the same period, this being mainly due to an increase in general service project staff.

Staff development and training

14.12 Development and training of staff were intensified, the main expansion taking place in the three regional offices that have staff and established training programmes for this purpose (the Americas, Europe, and the Western Pacific).

14.13 Particular emphasis was given to training both WHO and national staff in the implementation of strategies and plans of action for national health development, and to introducing new technical and managerial approaches in the various programme areas. This is well demonstrated by the European Region, where four training programmes were conducted, two in advanced health services management and two in country health programming and managerial processes for national health development. Twenty-eight WHO staff members and many more nationals took part in these programmes. Similarly, in the Western Pacific, over 80 staff members took part in management workshops. In the Americas programmes for strengthening the management

1 Budgetary and financial data are presented separately in the annual financial reports.

and communication skills of field staff were developed. In all, close on 50 programmes were conducted or sponsored in managerial and related skills alone. A number of them focused on priority issues in health development, e.g., strategies for the International Drinking Water Supply and Sanitation Decade.

14.14 To maintain their technical proficiency, a total of 42 staff members were granted individual study leave for varying periods of time.

14.15 Secretarial development was expanded, some 450 staff members taking part in programmes for this purpose at headquarters or in regional offices.

14.16 Language training continued to absorb greater resources owing to demands for proficiency in German and Portuguese, as well as in the traditional official languages (Arabic, Chinese, English, French, Russian, and Spanish).

14.17 WHO played a major role in fostering interagency cooperation in staff training within the United Nations common system. Documentation in relation to career development, management training, and evaluation of staff training was prepared for consideration by a subcommittee of the ACC Consultative Committee on Administrative Questions. Other agencies were invited to participate in WHO training programmes.

Office accommodation

14.18 At the Regional Office for the Western Pacific, two additional floors were added to the annex building in 1981. Improvements to the main building were undertaken, including warehouse and covered parking space.
At headquarters, part of the V Annex building (18 offices) was demolished to make way for a road that has been constructed by the authorities of the Canton of Geneva (the building stands on land owned by the Canton).

Supply services

Supply operations during 1980–1981 showed a certain stabilization of centralized procurement and a steady increase in procurement at regional and country level, in the spirit of technical cooperation among developing countries. Inflation in the major industrialized countries was reflected in commodity prices and in freight transport costs, both by sea and by air.

The cost of supplies and equipment purchased by the Organization reached a record figure of $81,898,314, not including the $12,284,747 required to cover freight and insurance charges. Line items ran to 126,797, necessitating some 22,860 purchase orders.

Approximately two-thirds of all purchases were financed by extrabudgetary funds. Operations during the period included the provision of medical supplies and equipment to Democratic Kampuchea, the Lao People’s Democratic Republic, and Viet Nam (extrabudgetary resources and regular budget, $5,213,465); and continuation of the long-term programme of United Nations humanitarian assistance to Cyprus (funded by UNHCR, $1,400,321). Under an expanded programme of technical cooperation with China, WHO provided capital equipment and laboratory instruments to several collaborating centres and national institutes for research in various fields (regular budget and UNDP, $5,086,915).

Emergency assistance following natural or other disasters was provided to Algeria, Burma, Gambia, Italy, and Lebanon in the form of drugs, vaccines and other medical supplies ($214,215).

The Regional Office for Europe gave technical advice on the purchase and erection of prefabricated buildings for one hospital and five health centres in the earthquake-stricken area of El Asnam, Algeria. Funds came from a grant of one million European units of account by the Commission of the European Communities. The Regional Office also arranged for the purchase and dispatch to El Asnam of emergency supplies and equipment in the amount of $100,500.

In contrast to a decline in the previous biennium, there was an increase in purchase of supplies against reimbursement during 1980–1981, mainly in the Eastern Mediterranean Region. The total amount of such purchases, including those made under the Revolving Fund for Teaching and Laboratory Equipment, was $612,365.

Large quantities of vaccines and drugs donated by various countries to the Voluntary Fund for Health Promotion were received in Geneva and redistributed later to developing countries for their immunization programmes. The estimated value of these donations in 1980–1981 was $2,418,352.
Chapter 15

Regional Trends

African Region

15.1 MEMBER STATES of the Region have shown their determination to ensure that, through primary health care, individuals, families, and communities achieve a level of health that will permit them to lead a socially and economically productive life by the year 2000. In the years 1980 and 1981 virtually all those Member States signed the Charter for the Health Development of the African Region (paragraph 1.26) and made efforts to attain national self-reliance with a view to achieving the social objective of health for all by the year 2000. This objective is neither a pious hope nor a publicity slogan; rather it is the expression of a general political will to combat social injustice, which is incompatible with the establishment of a new international economic order.

15.2 Health is an inalienable and fundamental right. States have a duty to ensure, with the full participation of their people, that the essential needs of those people are met and that the quality of their life is improved. To this end they must exercise over the national health system, and the technology it adopts, the social control that is essential for rational implementation of national and regional health development strategies.

15.3 Far from being utopian, the strategy of the African Region, which is an integral part of the Global Strategy, is a reality to which the health revolution has only to give shape. The Lagos Plan of Action, adopted by OAU in April 1980, provides for implementation of the strategy contained in the Monrovia Declaration (1979) on the basis of the relevant guiding principles and the practical measures required for attainment of national and collective self-reliance in the social and economic fields.

15.4 In 1980 the Regional Committee devoted its attention to the subject of health for all by the year 2000. It concluded that the objective was both justified and relevant, as it offered a means of combating social injustice and cultural alienation, the principal causes of political instability and economic underdevelopment. The social liberation of the African peoples is dependent on integrated, multidisciplinary, multisectoral social and health development. A simplistic approach to the problem of health must be avoided, for the problem is essentially multidimensional and complex, and there should be no slavish copying of health systems that do not fit national requirements. The search for alternative paths to health development should be based on critical reflexion and open the way

---

1 Figure 15.1 delineates the six WHO regions and shows the location of regional offices.
Figure 15.1  Regional offices and the areas they serve
to other acquisitions in the field of social practice; for health practice cannot exist in isolation from the social setting. The implementation of measures arising from a proper approach must lead to the social and health liberation of communities and contribute to their physical, mental, and social well-being. That is the meaning of the objective of health for all by the year 2000, which has now been translated into a regional strategy. The main concern of this strategy is development of the health infrastructure on the basis of primary health care, with the object of ensuring that social and health measures reach the entire population.

Supervision and monitoring

15.5 The supervision and monitoring mechanisms are instruments of collaboration between Member States and the Regional Office. The Regional Committee is responsible for monitoring regional programme budget policy and strategy. The periodic reports of the Regional Director on the work of WHO in the African Region are mainly concerned with reviewing the implementation of national and regional development strategies, with particular emphasis on primary health care.

15.6 The co-management mechanisms, such as the Programme Subcommittee, the Standing Committee on TCDC, and the regional ACMR, have been strengthened. Other mechanisms have been introduced, in particular: (i) participation of members of the Programme Subcommittee in other meetings concerned with programming; (ii) study visits by representatives of health services to other countries of the Region, in accordance with the Regional Committee's decision at its thirtieth session; (iii) the establishment of an advisory committee on health development; and (iv) increased use of regional experts.

15.7 A plan of action for implementation of the resolutions adopted is drawn up after each session of the Regional Committee. This plan is given wide distribution in order to facilitate supervision and monitoring of the implementation of the regional programme in accordance with the guidelines laid down by the governing bodies.

15.8 Governments receive, through the WHO programme coordinators, periodic situation reports on the use of WHO regular budget funds allocated to them. They are also informed of the situation with regard to extrabudgetary funds. Free and frank use of the supervision and monitoring machinery has created a climate of mutual confidence and established close contacts between the Regional Office and Member States.

Regional structures

15.9 In order to increase efficiency, the Regional Office structures have been reorganized in accordance with resolution WHA33.17. The experiment of having national coordinators for WHO's programme at country level is continuing and they report directly to the Regional Director. Programme coordinators are participating increasingly in the international cooperation activities of ministries of health. In this capacity, they are often included in national delegations to meetings and sessions of WHO's governing bodies.

Special cooperation programmes

15.10 The International Conference on Apartheid and Health (Brazzaville, November 1981) provided an opportunity for discussion on action to put an end to an inadmissible injustice. The particularly disturbing health situation in Chad and in Equatorial Guinea led to the establishment of
special programmes of technical cooperation. A mission headed by the Chairman of the thirty-first session of the Regional Committee studied the social and health situation created by armed aggression in Angola and proposed an emergency programme of technical cooperation.

Technical cooperation among developing countries (TCDC)

15.11 Subregional working groups concerned with TCDC met in 1980 and in 1981, and their reports were considered by the Standing Committee on TCDC and then by the Regional Committee. In 1981, for the first time, the countries of each subregion studied topics chosen by themselves. The priority projects recommended were included in the list drawn up by WHO with a view to seeking extrabudgetary funds.

15.12 The African Health/2000 Resources Group, composed of 12 countries that are members of the Standing Committee on TCDC and a number of technical cooperation agencies, met in June 1980 and reviewed all the projects in the list. It made recommendations and issued an urgent appeal to the international community for funds.

15.13 The accession of Zimbabwe to independence has made possible a concentration of the efforts to increase support to the national liberation movements recognized by OAU and to the front-line States, whose social and health situation remains precarious because of South African aggression.

Research promotion and development

15.14 Regional research has been reoriented in the light of the objective of health for all by the year 2000. The main thrusts are promotion of research activities, dissemination of information, and training of research workers. Material facilities have been improved by grants, and collaborating centres have been designated. Project formulation and coordination have been strengthened through meetings of subcommittees on nutrition, diarrhoeal diseases, and health services research. The regional ACMR has played a decisive role in promoting and coordinating research.

Health services development

15.15 The African Health Charter 1975-2000 gave priority to activities aimed at improving peripheral services and the Charter for the Health Development of the African Region (resolution AFR/RC29/R11) confirmed that priority. The regional development strategy, which is a consolidation of the national strategies, places special stress on primary health care and calls for continuing creative effort, improvement of the management process, and community participation. The strategy has two main components: (i) the training of health personnel, with particular emphasis on country health programming, and (ii) technical cooperation at country level for the implementation of country health programming.

15.16 The food and nutrition situation in the Region continues to be disturbing, particularly in the arid zones, and conflicts, migration, and inflation are aggravating factors. During the biennium emphasis was placed on nutrition as an element of primary health care.

Disease prevention and control

15.17 Disease prevention and control form part of the strategy for attainment of the social objective of health for all. The Regional Committee at its thirty-first session (Sep-
tember 1981) adopted a plan of action for implementation of the regional strategy. National control strategies are emphasizing the role of primary health care in the treatment of disease and the protection of vulnerable groups, the training of health personnel, public information and education, and the participation of the international community. The Onchocerciasis Control Programme in the Volta River Basin Area is continuing satisfactorily. Control programmes have been planned for the new zones of infection in Nigeria and the United Republic of Tanzania.

Promotion of environmental health

15.18 The countries of the Region have begun the planning of water supply and sanitation programmes and, with the cooperation of GTZ, SIDA, UNDP, and WHO, have mobilized resources for part of the planned action. Nevertheless, the success or failure of the International Drinking Water Supply and Sanitation Decade in Africa depends essentially on the extent of participation in national efforts by the international community as a whole.

Health manpower development

15.19 The training of health manpower at all levels, an essential element of the regional strategy for attainment of health for all, has been given fresh urgency by new programming approaches and the increase in health and social services, which have led to a growing need for personnel with management capability. Training is provided by a network of national centres supported by regional centres to which they can refer. The TCDC approach has played a major role in this activity.

Region of the Americas

15.20 The major developments in 1980–1981 were the decisions and action taken to achieve health for all by the year 2000. At Punta del Este, Uruguay, in 1961 the decision had been taken to improve health as an integral part of socioeconomic development. In 1972 the results of the preceding 10 years’ efforts formed the basis of the Ten-Year Health Plan for the Americas (1971–1980), which was adopted at the Third Special Meeting of Ministers of Health. At the end of that period a regional evaluation of the Plan was carried out, based on reviews by 23 governments of the progress made toward the goals and objectives set in 1972. It showed that life expectancy at birth in the Region has risen to 67 years—63.6 for Latin America, 69.9 for the Caribbean, and 71.1 for Canada and the United States. Infant mortality in Latin America dropped from more than 105 deaths per 1000 live births in 1970 to less than 65 per 1000 in 1980. Mortality among children 1-4 years old declined from 8.5 to 4.3 per 1000 during the decade. Yet perinatal deaths still account for about 5% of all deaths, an indication of the vulnerability of the neonate. In communicable disease control, which had high priority during the decade, several countries showed progress; in others mortality from preventable diseases, especially among children under 5, is still a source of concern. Communicable diseases and diseases associated with hostile environments and overcrowding are still problems in all countries, reflecting deficient social and economic conditions and extreme poverty. Levels of health are decisively influenced by two phenomena: population growth and increasing urbanization. Undernutrition remains a serious problem, but some governments have started to take intersectoral measures to solve it. A determined effort was made to provide water supply and waste disposal services covering 80% of the urban and 50% of the rural population. By the end of the decade 71% of
the urban population and 34% of the rural population had access to sanitary drinking water supplies; 42% of the urban and 3% of the rural population benefited from adequate sewerage and excreta disposal facilities.

15.21 The main objective in the Region was to extend health service coverage to the entire population. The few valid indicators available for gauging the extent to which the coverage increased show that about half of the countries have made substantial gains. Nevertheless, the organization of the health sector and the development of human resources did not keep pace with the growth of facilities. Some countries made substantial efforts to promote intrasectoral coordination, particularly between the public health sector and the social security agencies. Several attempts were made to create intersectoral linkages in local projects within integrated rural development programmes and major economic and regional development. Regionally also, a close link was forged between the Regional Office and ECLA. Despite considerable investment in the health infrastructure, to which the Inter-American Development Bank contributed substantially, the growth of public expenditure for health care appears to have been slow and often to have lagged behind the general economic growth.

15.22 In short, while the countries in the Region made real gains, the gains in some cases fell short of expectations, because national economic development was unequal, economic structures and development measures were not always conducive to attaining the goals, or the time allowed for reaching them was too short. In addition, countries encountered difficulties in translating their goals into targets, and the will to attain the goals was not always as strong or sustained as it should have been.

15.23 In 1980 Member governments re-affirmed or revised their national strategies for attaining health for all, and the regional strategies based on them were adopted by PAHO’s Directing Council at its XXVII Meeting (the thirty-second session of the Regional Committee) in September 1980. The regional strategies reflect the situation and experience of the countries in the Region and provide a common reference point for re-orienting national policies and plans. In adopting the regional strategies in terms of level of health and coverage by health services, the governments set minimum goals for health structures and levels and undertook to pool their resources and energies so that no country would fall short of them two decades hence. Among the minimum goals the governments proposed that in no country should life expectancy at birth be less than 70 years, infant mortality be more than 30 deaths per 1000 live births, or mortality among children under 5 years of age be more than 2.4 deaths per 1000. Other goals are: immunization services against diphtheria, tetanus, whooping cough, tuberculosis, measles, and poliomyelitis; the provision of drinking-water supplies and sanitation facilities to 100% of the population by 1990, in accordance with the aims of the International Drinking Water Supply and Sanitation Decade, overall coverage being sustained through to the year 2000; and access to health services for the entire population.

15.24 The regional objectives set were: reorganization and expansion of health systems to make them more efficient, equitable, and effective; intersectoral linkages; and promotion and improvement of regional and interregional cooperation. Certain important features in the regional strategies were stressed. The first is the need to adopt innovative solutions to health problems, inasmuch as the essential determinants of
health status largely lie outside the health sector's traditional sphere of action. This means changes in the environment, in styles of socioeconomic development, and in living conditions. Just what changes are to be made depends on what is done in the various sectors to contribute to comprehensive community development and improved well-being. The second feature stressed is the urgency of revising traditional practices and methods so that health services are accessible to all the population and especially to the groups at greatest risk. Promotion and prevention programmes should be developed in combination with programmes for health restoration and rehabilitation and in close coordination with improvement of the physical and social environment.

15.25 It should be emphasized that the strategies also call for the reorientation of health systems so that services are extended to as much of the population as possible through the primary health care approach. This reorientation is to be accomplished by basic measures for enhancing the efficiency of the systems and increasing the public’s use of the services. Their operating capacity must be improved, resources must be made more productive, and budgetary programming, control, and evaluation must be tightened up so as to guarantee that the system will be efficient. The strategies emphasize the redirection of resources to the established goals and full mobilization of all national resources. International cooperation must be intensified, particularly in relation to TCDC.

Regional plan of action

15.26 The regional strategies later became the basis for the health component of the new regional development strategy adopted by ECLA in Uruguay in May 1981. A plan of action was drawn up with the participation of the PAHO Executive Com-

mittee's Subcommittee on Long-term Planning and Programming. The proposed regional plan, which was approved by the Directing Council of PAHO at its XXVIII Meeting (the thirty-third session of the Regional Committee) in September 1981, outlines the responsibilities and tasks assigned to governments and to the Organization.

15.27 This regional plan of action is the intermediate stage between the statement of regional objectives, goals, and strategies, and their translation into concrete programmes. For governments it serves as a guide and frame of reference for adjusting national health plans so they make their contribution to the regionwide effort by solving priority national problems. For the Organization it is the basic source of guidance for adjusting its cooperation policies, procedures, and programmes. At the world level it represents the input of the Americas to the global plan of action and to WHO's Seventh General Programme of Work.

15.28 The aim of the regional plan is to satisfy the health needs of the entire population, and especially of those groups development has bypassed; priority is given to rural and marginal urban groups and, within them, to special population groups, namely women, children, workers, the elderly, and the disabled. The plan calls for the organization of services to maximize their equity and efficiency. New technologies, procedures, and methods will have to be devised to improve productivity and strengthen planning and administration. The plan makes restructuring of the health sector an essential requirement and involves the incorporation of social security systems, the refocusing of financing mechanisms, and the participation of the community in improving its health.

15.29 The plan clearly establishes that primary care entails much more than the extension of basic health services: it is an
integral constituent of social development, and as such will lead countries to strengthen their social policies and harmonize their intersectoral plans and measures.

15.30 One of the plan's most notable and innovative features is its establishment of a regional monitoring and evaluation system closely coordinated with those of countries. The regional system is called on to supply to Member governments and PAHO/WHO the information necessary for gauging progress and making decisions about new methods and adjustments of policies, strategies, goals, and objectives at national, regional, and global level.

15.31 To implement the plan of action, the Directing Council has asked governments to assess, in the light of the national situation, the compatibility of their priorities and strategies with regional goals and priorities and make the adjustments found to be necessary. Governments will also have to devise mechanisms for improving international and intercountry programming and coordination.

South-East Asia Region

15.32 Regional and national strategies for attaining health for all by the year 2000 were formulated after intensive consultation and were endorsed by the Regional Committee at its thirty-fourth session, in 1981. High-level national councils or committees with responsibility for directing and coordinating their implementation were set up in almost all countries of the Region. Steps are being taken for the mobilization of resources for health development; for example, a study of resource utilization (in collaboration with the Health Resources Group for Primary Health Care) has been completed in one country. Mechanisms are being established to follow up the implementation of the strategies in all their aspects and reports will be made to the Regional Committee—annually in the initial years.

15.33 Political commitment to health development was reinforced at the first meeting of ministers of health of Member States of the Region (Jakarta, September 1981). The ministers affirmed that the action to follow on their commitment would be not only at political but also at executive and technical level. Recognizing the importance of technical cooperation among developing countries, they decided that time-limited plans of action for cooperation and collaboration should be prepared by meetings of government representatives, WHO fulfilling its coordinating and supporting role. The health ministers agreed to meet again immediately after the Regional Committee in 1982.

Health services development

15.34 A deeper appreciation of the need for equity in the allocation of health resources is evident and its result is a greater emphasis on the primary health care approach. Besides extending the network of primary health centres and subcentres, and retraining present single-purpose health workers as multipurpose workers, Member countries are also training and deploying a large number of community health volunteers, particularly in rural areas. A number of promotional activities have been planned that give increased attention to urban primary health care. In all countries multisectoral action is being taken to combat malnutrition, improve maternal and child health, and cover a number of other fields. Current initiatives, which span the entire health system and reach all levels, will improve the system’s capacity to deliver a variety of services through skilled manpower; they also give reason for con-
tinued optimism as to a rapid improvement in health throughout the Region.

Family health

15.35 In the family health programme the main emphasis continues to be on extension of coverage to underserved populations, particularly those groups at greatest risk. In line with this, support has been given to several countries for studies on the risk approach in the delivery of maternal and child health care; the guiding principles developed by WHO for monitoring and evaluating such programmes were tested in this Region. As regards manpower, training curricula for all levels of health workers are being remodelled to meet changing health needs; and national self-reliance in education and training is being fostered by means of regional teacher-training programmes and institution-strengthening. WHO continues to advocate the small family as the norm.

15.36 The integration of nutrition work into primary health care and the development of a coordinated approach with other disciplines in planning, programming, and research are the main elements of the comprehensive nutrition programme. Surveillance of nutritional status and research-cum-action projects in priority areas were successfully introduced in several countries of the Region. Evaluation of ongoing nutrition work in primary health care programmes was undertaken under the research priorities, and the preliminary results were discussed at a meeting of principal investigators; the results of this evaluation are being utilized for improvement of programmes. The regional food and nutrition strategies were discussed in a consultative meeting and clear indications for future activities were given. As part of the network being developed to provide training and research facilities as supportive mechanisms for government activities, two collaborating centres were established, in Bogor (Indonesia) and Dacca.

15.37 With the rapid extension of primary health care services, especially in rural communities, health education is being re-oriented to meet the educational and community participation needs of those services. In consequence, health behaviour studies, health education programmes, and appropriate educational methods and materials are being developed while at the same time mass communication is being utilized as an integral component of health education. WHO action supports national efforts and emphasizes health education as a process for influencing health behaviour, attitudes, and values.

Mental health

15.38 The programme in mental health focused on extending population coverage by the appropriate training of primary health care workers. Community involvement and self-help were promoted, with successful results in some countries, e.g., community participation in the drug-abuse control programme in Burma, and the self-help groups for the mentally handicapped in some parts of India.

Diagnostic, therapeutic and rehabilitative technology

15.39 Countries of the Region are at different stages of developing pharmaceutical supply systems. Lists of essential drugs for primary health care have been prepared but systems of procurement, distribution, and utilization need further strengthening. The trend at present seems to be towards improving the separate components of the pharmaceutical system; WHO has, however, assisted countries in developing a coordinated approach as well as in tackling specific
aspects. There is greater emphasis on achieving self-reliance in the production of essential drugs and on improving quality assurance. In the coming years WHO will cooperate with Member countries in further strengthening the technical, managerial, and administrative aspects of their drug policies and management.

**Disease prevention and control**

**15.40** Epidemiological surveillance services are being improved in order to make them an effective tool in controlling prevalent communicable diseases. The emphasis is on training programmes in field epidemiology.

**15.41** Antimalaria work continues to receive priority owing to the persistence of the disease and its explosive potential. Despite the expansion of operations, which absorb a major part of the public health funds of most countries, there was a levelling out of the sharp decline in incidence recorded during the past five years. In particular, the incidence of *Plasmodium falciparum* infection showed an overall regional increase of 14% between 1979 and 1980. In the face of these discouraging indications national control programmes are being revised; applied field research to overcome technical and operational constraints is being carried out with the help of the Special Programme for Research and Training in Tropical Diseases; national malaria coordinating committees are being strengthened by the participation of sectors other than health; and countries with common borders and similar problems are coordinating their approach by holding joint meetings.

**15.42** In leprosy, field studies to improve case-finding and treatment are in progress in several institutions. Research priorities have been identified and protocols developed, particularly in regard to drug resistance and treatment regimens. Multidrug regimen trials were started in India, Indonesia, and Thailand. The results of the rifampicin trial in Burma are expected to be available at the end of 1982.

**15.43** In diarrhoeal diseases the essential is to decrease, through oral rehydration, the high mortality from acute diarrhoea in children under 5 years of age. Regional training centres were established in Bangladesh and India, and preparations were completed for establishing a third centre in Indonesia, to train programme managers who will transmit their knowledge and skills to those working in primary health care.

**15.44** In the control of dengue haemorrhagic fever, early diagnosis and treatment was emphasized. Research on production of a vaccine is progressing satisfactorily at the WHO collaborating centre in Bangkok. Research studies on the pathogenesis and the epidemiological and entomological aspects of dengue haemorrhagic fever/dengue shock syndrome were conducted in Indonesia, Sri Lanka, and Thailand, with the support of the Regional Office.

**15.45** The Expanded Programme on Immunization is being rapidly developed. Surveys have been carried out in most countries to measure baseline incidence rates in the target diseases, evaluate immunization coverage in the target age groups, and assess community participation. Thailand was selected as a demonstration and training area for the global programme. Newly developed cold-chain equipment (including solar-powered refrigerators and freezers) are being field-tested, and several countries have begun the local manufacture of cold boxes and vaccine carriers. The expansion of the programme is however hampered by two factors: the inadequacy of the cold chain, and the less than optimal community participation as reflected in the high drop-out rate.
15.46 The principal trend in vector biology and control is the emphasis on comprehensive integrated programmes, increasingly employing bioenvironmental methods. Intersectoral collaboration is being promoted in order to reduce the prevalence—particularly in agricultural and industrial development areas—of malaria, filariasis, dengue haemorrhagic fever, Japanese encephalitis, leishmaniasis, and plague. The introduction of a health component at the planning stage of major development projects in most Member countries is a welcome step forward.

15.47 Most countries are developing programmes for the control of zoonotic diseases of public health significance, particularly rabies. WHO is helping to strengthen facilities for the production of rabies vaccine and to train national personnel in production technology and in modern methods of zoonosis control.

15.48 As regards noncommunicable diseases, there has been greater emphasis on training peripheral workers to identify high-risk groups and on providing facilities for early diagnosis and treatment (including rehabilitation) in the case of cancer, cardiovascular diseases, diabetes, blindness, and deafness, and for treatment and rehabilitation in the case of injuries resulting from accidents. Community-oriented activities in disability prevention and rehabilitation have been promoted through national surveys and through training programmes for the disabled, for members of their families, and for health workers. Health services for the working population have improved with the provision of better laboratory facilities and the availability of trained manpower; the hazards to agricultural workers as a result of the increasing use of pesticides and chemical fertilizers will receive continued attention.

Promotion of environmental health

15.49 The launching of the International Drinking Water Supply and Sanitation Decade greatly influenced the nature and type of environmental health work. WHO gave its support to coordinated policies and action to meet the requirements of a vastly increased programme in water and sanitation that includes the implementation of specific projects and various support programmes (appropriate technology, manpower development, and community education based on sociobehavioural studies). The very size of the Decade programme has aroused an interest in managerial aspects, information systems, and programme monitoring and evaluation.

15.50 Greater emphasis is being given to low-cost sanitation for the small towns and urban fringe areas that have hitherto been neglected. Sociobehavioural studies, using the multidisciplinary approach, are providing new insights into people's attitudes.

15.51 In spite of their low per capita income, a few countries of the Region have undertaken considerable work in control of air and water pollution. WHO has cooperated in assessing the environmental impact.

15.52 Food safety programmes are at present mainly confined to urban centres with central laboratories. WHO's role is now seen as that of promoting comprehensive food safety programmes in which veterinary and public health aspects are integrated with sanitation.

Health manpower development

15.53 Cooperation between WHO Member States was directed towards planning of health manpower and more effective coordination of planning, training, and utilization of personnel.
Progress was made in clarifying the nature and dimensions of teamwork as related to primary health care. This work will form the basis for a series of descriptive case studies of the health team in countries of the Region that will later be used to improve training programmes.

Teacher-training programmes for health personnel also made progress. Many countries now have formal structures for providing such programmes and these are being used to reorient the training towards community needs and primary health care.

Intensive efforts were made to redesign or reorient programmes of basic nursing education and to incorporate on a large scale the training of traditional birth attendants and similar workers. WHO cooperated in evolving a systematic approach to continuing education that should make it more relevant and accessible for a maximum number of health personnel, particularly at primary health care level.

Progress was made in organizing a regional health literature, library, and information system. It is being used for the training of staff and for research programmes, and is expected to contribute to the Region’s capacity for technical cooperation.

The trend towards awarding fellowships for study within the Region continued; 57% of fellowships were of this type in 1980 as compared with 47% in 1979. The monitoring and evaluation process to ensure that fellowships meet the requirements of Member countries has been improved.

The research programme was reoriented towards support of national and regional strategies for achieving health for all. A group of scientists from Member countries worked out a framework for action-oriented health services research, and projects in this context have already begun in several countries.

In view of the need for a multisectoral approach to research, the Regional Office has taken action to associate medical research councils, analogous bodies, and research foci in ministries other than the health ministry with its promotion and development of research. At national level also, coordination and management of research will be enhanced by greater contact with medical research councils. Training in research management and methods is being developed. Centres of excellence in the Region are being identified and networks of collaborating centres are being established to permit greater participation by national scientists and institutions in WHO programmes.

Programme planning and development

The planning, development, and delivery of programmes have been facilitated by the streamlining of internal management information systems, frequent government and WHO reviews of programme implementation (in two countries by joint governmental/WHO bodies), and the increased financial responsibility delegated to WHO programme coordinators. WHO’s programme budget as it relates to the country concerned is being used by ministries of health to coordinate and make better use of external resources.

A programme budgeting exercise carried out in Thailand has led to a better understanding of national and WHO procedures and should ensure that the programme budget for that country is closely related both to national objectives and strategies and to WHO’s General Programme of
Work. A mechanism for the Thai Government's management of the WHO country programme is being designed, to be set up in early 1982.

15.63 There has been close collaboration with several organizations in the United Nations system, particularly UNICEF, in consultative programme formulation at country level. An increasing number of missions relating to health, water, and sanitation in the Region are being jointly supported by WHO and the Asian Development Bank. This augurs well for further collaboration in defining the health component of Bank-assisted rural development programmes.

European Region

15.64 The biennium saw the steady development of a European strategy for health for all by the year 2000. One of the elements of the strategy is prevention, another the improvement of health care systems. The former covers a wide spectrum, from genetic counselling and immunization through food control and the provision of adequate drinking-water supplies and sanitation to the reduction of accidents, including road traffic accidents, and their consequences. Improvement of health care systems in accordance with the principles of the Declaration of Alma-Ata will, in many countries of the Region, entail major changes in professional practice and in the organization and financing of health care.

15.65 Other elements of the strategy, of immediate concern to the European Region, are the promotion of healthy lifestyles and minimization of the detrimental effects on health of poverty and unemployment. Healthy lifestyles are both an individual and a community responsibility, requiring efforts in education and public information, changes in social and economic conditions, and even regulatory controls to ensure food safety and halt illegal imports. The deteriorating economic climate, however, is likely to take its toll on the health of the less fortunate socio-economic groups. Preliminary studies have shown that unemployment has particularly deleterious and long-term effects on health; those caused by poverty are better known. The failure to recognize the extent to which health policy is dependent on that of other sectors—in particular the economic—has in the past militated against the optimum use of resources. The new strategy attempts to correct that tendency.

15.66 The new strategy is designed to encourage policy-makers to lead rather than to follow; it is therefore vitally important to develop regional targets to promote its implementation. Work in this sense has begun and takes into account both technological and economic possibilities and constraints. To monitor achievements, indicators are now being developed, due regard being paid to the different levels of development of health information systems in countries of the Region and to the WHO list of 12 indicators for monitoring progress at global level. The regional indicators fall into four categories: health status; factors affecting health; health care provision; and policy measures. These were in the course of 1981 subjected to analysis by national administrations and various international bodies with a view to finalizing a document on regional targets in 1982. Several Member States of the Region have held seminars and meetings on the subject to stimulate interest among their health professionals.

---

Technology and quality assurance of health services

15.67 The Regional Office developed a new medium-term programme in 1980, on model health care programmes and quality assurance of services. Many current quality assurance programmes aim at obtaining maximum instead of optimum quality because they over-emphasize the scientific and technical aspects. In the attempt to provide the best possible care for everybody the costs become prohibitive. The new programme, with the aim of making the most efficient use of available resources, suggests solutions to the problem such as routine quality assurance mechanisms and standard patterns of care.

Research promotion and development

15.68 The work of the European ACMR at its sessions in 1980 and 1981 is described in paragraphs 4.26-4.30.

Diagnostic, therapeutic, and rehabilitative technology

15.69 1980 was the first full year of operation of the new regional programme on prophylactic, diagnostic, and therapeutic substances, which at present deals mainly with chemical and pharmacological evaluation in drug control, research on drug utilization, and the development of national drug policies. Symposia held every year since 1972 in the Federal Republic of Germany have made recommendations on the investigation and regulation of drugs—on their efficacy, safety, quality, indications, and use. The broader themes discussed have included national drug policies and the utilization of specific groups of pharmaceuticals. Many of the recommendations of the symposia have been accepted by the European governments concerned and incorporated into their national legislation and administrative practices; others have influenced the clinical study and utilization of drugs.

15.70 The 1980 symposium concentrated on drugs for the elderly. The 1981 symposium, the tenth in the series, was on the use of drugs in infants and children. It considered the factors to be taken into account both in the choice of drugs and in the establishment of precautions to be taken by investigators and regulatory agencies to ensure the safe and efficacious use of drugs in the young, especially the very young.

15.71 Since the beginning of the 1970s, a drug utilization research group has dealt with methodological problems in the measurement and comparison of drug utilization, working closely with the Nordic Council on Medicines (paragraph 8.13). Marked differences in drug utilization in different countries have been found and the group is now studying the extent to which these differences are attributable to disease patterns or traditions of treatment, or both.

15.72 To improve the efficiency of pharmaceutical supply systems, the Regional Office has provided Member States with information on the role therein of regulatory agencies, health professions, universities, social security schemes, regional economic groupings, industry, and the consumer. The aim is to enable Member States to formulate the drug policies most appropriate to their own traditions and needs.

15.73 International Year of Disabled Persons. According to population surveys and other data, the number of disabled people is alarmingly high in many countries of the European Region, amounting to at least 10% of the population. The Regional Office contributed to the WHO programme on disability prevention and rehabilitation by convening meetings on the use of residual
vision by visually impaired persons\(^1\) and on ways of preventing disability in the elderly. In addition, over the last five years, the European programme for the prevention of road traffic accidents has reviewed all the related public health issues, with emphasis on the action required on the part of the authorities not only in the health sector but also in the other public sectors concerned. In March 1981 a symposium reviewed the characteristics of accident injuries, analysed disability patterns and their consequences for the health services, and considered the problem of indicators of the level of severity of injuries.

15.74 At the thirty-first session of the Regional Committee (Berlin, September 1981) the Technical Discussions had as their theme the medical and social problems of disabled persons. These were discussed in the light of the International Classification of Impairments, Disabilities, and Handicaps (paragraph 13.7). The aim was to provide guidance to Member States in formulating health and social policies to integrate the disabled into society. It was concluded that the severely disabled have special needs that should be carefully assessed and appropriately met by the rehabilitation services; that social problems are often the major determinants of handicap resulting from an impairment or a disability; and that, because structural and other physical barriers still prevent many disabled from becoming socially integrated, more attention should be given to the encouragement of barrier-free design. Appropriate preventive measures should be taken by way of legislation, and rehabilitation should whenever possible be carried out using the primary health care approach. Services should be community-based, with appropriate systems for supervision and referral, and should provide total coverage of the population. The administration and organization of disability prevention and rehabilitation services should be restructured to reflect the new approaches; and there should be concerted action by the authorities concerned with health, social affairs, and labour. Research, particularly health services research, should be encouraged and measures should be taken for the full participation of the disabled in community activities.

Cancer

15.75 A working group (Luxembourg, October 1981) reviewed the extent of development of cancer centres in Europe; the structure and functions of community-based cancer control programmes within the general health care system; and cancer registration and its role in cancer control. Proposals were made for a further expansion of the Regional Office’s programme in this field to include the systematic development of national cancer control programmes.

Cardiovascular diseases

15.76 In 1967, when the Region embarked on its long-term programme in this field, cardiovascular diseases were already the cause of some 50% of the deaths in Europe—25% of them due to coronary heart disease alone. The sharp decline in mortality from cardiovascular diseases in the USA since the mid-sixties has recently attracted interest. In Europe, however—except for Belgium, Finland, and Norway—coronary heart disease mortality, according to available data, is static or is continuing to rise, in the latter case particularly in the younger age groups. During the biennium work proceeded on a publication to evaluate the results of the long-term programme.

---

\(^1\) The use of residual vision by visually disabled persons. Copenhagen, World Health Organization, 1981 (EURO Reports and Studies, No. 41).
Promotion of environmental health

15.77 Continuous support has been given to Member States in water supply and waste disposal programmes, a major component of the support being the work undertaken by WHO as executing agency for UNDP. In Algeria, Morocco, Portugal, Turkey, and Yugoslavia pre-investment projects have been completed, the results of which have been used by the governments in successful applications for loans to the World Bank. The cost of the studies undertaken by the Regional Office in these projects has been about $5.5 million, amounting to some 2% of the loans generated. These figures do not include national investments based on project recommendations, which are considerable. The work of the Regional Office in recent years has resulted in the provision of water supplies or appropriate sanitation to about six million people. An assessment of the situation indicates, however, that there are still about 120 million people in the Region inadequately supplied with water and 450 million served by unacceptable sanitation systems.

15.78 The project for European cooperation on the environmental health aspects of the control of chemicals is now more than two years old. It comprises the formulation of programmes, approaches, and guidelines for training the necessary manpower; the preparation of contingency plans for emergencies and accidents; the development of methods of assessing the environmental health aspects; and the promotion of international collaboration and exchange of information on toxic chemicals. The manpower development component of the project is intended to assist in alleviating the crippling shortage of trained personnel for evaluation and control work. The skills, training, and education necessary for toxicologists, chemists, laboratory technicians, and public health inspectors are being defined, as is the knowledge needed by decision-makers in government. Training courses are being designed for use at various national institutes. Due attention is being given to accidents and emergencies involving toxic chemicals. A survey of existing emergency systems in a number of countries is being conducted to find out where the responsibilities lie and what equipment, manpower, and information are available. A model contingency plan for dealing quickly and effectively with emergencies involving toxic chemicals has been drawn up for use by governments.

Health manpower development

15.79 Cooperation continued with nongovernmental organizations such as the Association for Medical Education in Europe, the Association of Medical Deans in Europe, the Nordic Federation for Medical Education, the Association of Schools of Public Health in the European Region, and the European Association of Programmes in Health Services Studies. Their presidents are members of the Region’s advisory committee on health manpower development. A representative of the Regional Office is among the seven members of the executive committee of the Association of Medical Deans in Europe.

15.80 On behalf of WHO, the Association for Medical Education in Europe is undertaking a study on medical school admission procedures in the Region and on ways of introducing medical students to the different approaches to primary health and community care. It is also carrying out a study on different curricula for training in health management with a view to standardizing such training in schools of public health in the Region. With the collaboration of the Regional Office, the Association is extending its membership to countries in the south and east of the Region.
Publications

15.81 The European Region continued to be the main market for WHO publications, providing nearly 50% of revenue from sales in 1980. Nevertheless, one of the main problems in the regional publications programme remains the distribution of information, especially to those who do not use the working languages of the Region (English, French, German, and Russian). The problem is being tackled by using a computerized list of addresses for the distribution of publications, by progressive updating of publishing methods through modern text-processing and printing facilities, and by encouraging translation into as many European languages as possible.

15.82 A new departure was the sponsorship of a health encyclopaedia published commercially in weekly parts; it is appearing in Spanish in six countries, in French in three, and in Portuguese in two. It provides an unprecedented opportunity for WHO to reach a large audience with its views on health care.

Eastern Mediterranean Region

15.83 The work of WHO in the Eastern Mediterranean Region in 1980–1981, as on several occasions in the past, was carried out against a background of repeated change and frequent realignment of policies among the Member States of the Region. Immediately following the Thirty-third World Health Assembly in May 1980, and in the light of the decision of a number of countries (conveyed to the Director-General on 19 May 1980, and confirmed by similar communications in May 1981 and September 1981) that they would not be in a position to deal with the Regional Office at its present location, arrangements were made to ensure that the programme could continue to be delivered in the interests of all Member States. These arrangements, and the collaboration of WHO staff at all levels, have ensured a high rate of delivery of programmes with the minimum of interruption.

15.84 Collaborative programmes within countries have been carried out with very little disruption and, although certain intercountry activities have had to be cut back, a number of technical meetings have been held on a wide variety of subjects. The provision of advisory services, fellowships, and supplies within the intercountry projects has continued normally. On the other hand, it was not found possible for the Regional Committee to meet in regular session in either 1980 or 1981.

15.85 Three subregional meetings (Damascus, Mogadishu, and Kuwait, 1980) provided the necessary impetus for the formulation of national strategies for health for all. The number of countries including primary health care programmes as an inherent component of their national health plans increased, and all the various activities have been heavily influenced by the national strategies for health for all and the focus on primary health care. The diversity of the demographic, social, economic, and political situations in the countries of the Region calls for a broad and flexible regional strategy. It can be considered as a regional framework for international cooperation and national efforts in meeting people's basic health needs and carrying out priority programmes corresponding to the eight main components of primary health care. During the biennium, for example, there was particular emphasis on the immunization of children, water supply and sanitation, and maternal and child care—all key components of primary health care.

15.86 The challenging task ahead—to accelerate the process of building up health systems based on primary health care
principles—calls for substantial administrative and managerial reforms, the active participation of the population, and a coordinated effort on the part not only of the health sector but also of all sectors concerned with socioeconomic development. Such an endeavour requires a reshaping of the infrastructure of countries' health systems so that traditional priorities can be reviewed and priority accorded to the most essential health programmes. It also calls for reorientation of training programmes towards meeting community needs, increasing managerial skills at all levels, and promoting research on health services and on the development of appropriate technologies. Progress can therefore be made only gradually, in accordance with specific country situations and needs, but many countries of the Region have already taken steps towards meeting the challenge.

15.87 It is only through such adaptation that WHO can really maintain and develop further its usefulness to the countries and people of the Region, fulfilling its functions as the coordinating authority on international health work and the technical adviser and close partner of all Member countries.

Health manpower development

15.88 The need to focus the programme more intensively on primary health care has resulted in emphasis on certain activities which had in any event been coming to greater prominence in recent years. They include manpower planning and management and a broad series of activities relating to evaluation.

15.89 In manpower planning and management there has been renewed emphasis on planning and prediction, including the preparation of a set of guidelines adapted for regional use and shortly to be tested in selected countries. Management training per se has been the focus of a substantial number of fellowships and of two national training activities (in Israel and Somalia), which are expected to be followed by others on similar lines.

15.90 It has been gratifying to observe the keen interest in evaluation. Bahrain and Egypt, with WHO's technical cooperation, have already embarked on the initial stages of setting up national mechanisms for the continuous evaluation of their health manpower development activities, and a number of other countries have shown interest in taking similar steps.

15.91 A series of studies to evaluate the quality of nursing services was developed during the biennium. Both in nursing and in medicine, the oldest of the health professions, there are signs of increasing discontent with traditional approaches and with the imposition of imported models. So far as medical education is concerned, WHO collaboration in the traditional approach has been steadily declining. Building on a decade of experience in teacher-training and the application of modern methods to the training of medical teachers, it has concentrated its efforts on a few selected faculties and departments within the faculties, orienting them towards the community's defined health needs and introducing a problem-based approach to learning.

Research promotion and development

15.92 The regional programme in research can be said to have come of age in its fifth and sixth years, and has become central to WHO's work.

15.93 Health services research continued to receive high priority as recommended by the regional ACMR in its early years. The
health services coverage study in Bahrain, Egypt, and Yemen was completed (see para-
graph 4.33) and a detailed report was submit-
ted to the sixth session of the regional ACMR. On the basis of the results of the study certain strategies have been proposed in order to increase coverage. The study will also be used as a teaching tool in health services research and planning.

15.94 The subject of research manpower and the provision of adequate career oppor-
tunities for research workers in developing countries has assumed considerable impor-
tance during the recent past on account of the efforts being made by WHO to develop and strengthen national capabilities for research. A preliminary analysis of the research man-
power situation in some countries of the Region has revealed a paucity of full-time medical research workers, even in the presence of an adequate career structure, and a lack of comprehensive plans for developing such manpower. It would appear that there is no single solution to this problem, and a variety of innovative approaches will have to be tried out.

Family health

15.95 The countries of the Region have welcomed the increased attention given to breast-feeding in recent years. Without exaggerating its importance or taking it out of its context in infant care and nutrition as a whole, there is no doubt that breast-feeding plays a key role in protecting the child from communicable diseases, especially diarrhoea, in the first year of life. This view is shared by almost all paediatricians in the Region, a number of whom, with special experience in the subject, took part in a scientific working group on breast-feeding (Nicosia, January 1981). The group’s report provides clear guidelines, both for WHO and for Member States, on activities in this field for the next three years. Member countries gave their full support to the International Code of Market-
ing of Breast-milk Substitutes (see paragraphs 6.7-6.10).

Disease prevention and control

15.96 The control of communicable diseases remains an important component of primary health care and, above all, the epidemiological surveillance mechanisms of all countries need continuing and close attention. Encouraging progress has been made in providing the necessary manpower at national level but high priority must continue to be given to training. The persistence of many communicable diseases in developing countries is an indicator of social standards that could be largely improved through increased self-reliance, better management, a higher level of community participation, and more effective health education. All of these aspects continued to receive WHO’s attention in its collaboration with countries.

15.97 It is natural to take pride in the recent achievement of global eradication of smallpox, but at the same time the Region is facing many other threats, some of them new. Although by no means of a magnitude comparable to the threat of smallpox, per-
iodic outbreaks of “new” diseases, including the viral haemorrhagic fevers such as Congo-
Crimean, Ebola, and Rift Valley fevers, have been causing particular concern to some countries of the Region in the past few years. New mechanisms of collaboration with governments were developed to tackle each of these outbreaks as it occurred.

15.98 Every effort is being made to integrate communicable disease control pro-
grammes into the general health services at primary health care and other levels. There is also a definite trend towards developing integrated programmes for the control of
groups of communicable diseases that share common features. It is being increasingly realized that such an approach, besides being more effective in solving the problems, makes better and more economic use of available resources. An example of such a comprehensive programme is the Blue Nile health project for the control of water-associated diseases in Sudan.

15.99 Acute diarrhoeal disease is still the most important cause of childhood morbidity and mortality in the Region, and the diarrhoeal disease control programme continues to be one of the major communicable disease programmes. A number of activities have been successfully implemented during the period under review, especially with regard to the development of national control programmes, training and dissemination of information, and applied research. The programme is particularly oriented towards the reduction of mortality through oral rehydration. Collaboration with UNICEF and Member States in the production of oral rehydration packages has continued; Afghanistan, Egypt, Pakistan, and the Syrian Arab Republic are producing such packages, and other countries will soon begin to do so. Applied research on various aspects of diarrhoeal disease control is being supported, both technically and financially, in various countries of the Region, and a regional scientific working group on diarrhoeal diseases research has been established.

15.100 The Expanded Programme on Immunization is fulfilling the high hopes expressed for it two years ago. It forms an essential part of all primary health care efforts, and all countries in the Region are collaborating in it. At the beginning of the second five years of this 15-year programme (1976–1990), the annual regional totals of completed immunization courses in children of the most appropriate age had increased more than five-fold—from less than 4% of the number of births to over 22%. This achievement was the result of considerable activity both within countries and at regional level. The Expanded Programme involves large-scale and complex management activities—for even if the state of knowledge of immunization procedures is advanced it is extremely difficult to ensure that all children are actually immunized. Large-scale training activities are required, as well as constant technical improvements, particularly to develop an effective cold chain so that vaccines and other material can be delivered in a safe and effective form to the point of immunization. At the beginning of the second five-year period, the review of existing programmes is a major activity; such reviews have already taken place in Bahrain, Somalia, Sudan, and the United Arab Emirates and are planned for other countries also. The reports recount achievements, identify major constraints, and make recommendations for future action. One conclusion that emerges from these reviews and from the regular reports all countries provide is that progress in combating tetanus of the newborn is not commensurate with the progress achieved in other parts of the Expanded Programme.

Promotion of environmental health

15.101 Environmental health programmes are assuming ever-increasing importance in the Region, which is witnessing unprecedented urbanization and industrialization, accompanied by high population increases. WHO has collaborated with a number of countries in activities connected with the International Drinking Water Supply and Sanitation Decade, and special emphasis has been given to the training of all categories of personnel for environmental health work, particularly regarding water supply and sanitation.
 Maintenance and repair of medical equipment

It is widely recognized that one of the most serious obstacles to the implementation of health programmes throughout the Region is the fact that between 20% and 40% of a country’s medical equipment may be out of order at any given time. There is a severe shortage of trained manpower to maintain and repair such equipment, which is purchased from widely different sources and varies greatly in sophistication and complexity. WHO is therefore collaborating with countries in developing regional training facilities—for example, at a regional training centre in Cyprus and at centres in Bahrain, Egypt, and Iraq. In general there has been vast expenditure on the renewal of supplies and equipment, while little has been budgeted for maintenance and repair. It is clear, however, that the provision of specialized manpower for this purpose will not in itself solve this huge problem, and a special effort will be made during the coming biennium to promote effective national policies on equipment maintenance and repair.

Health information

Effective communication between those responsible for the various components of health services development is essential in this fast-developing Region, and three regional publications are being increasingly recognized as worthwhile developmental tools. The Learner, a quarterly journal of prime interest to educators of all categories of health professionals, published in collaboration with the University of Shiraz, Iran, is now in its eighth year of publication. The Health Services Researcher, a similar quarterly journal but with its focus on health services research, has been published since 1980 by the health services research group of the Institute of National Planning, Cairo, under the guidance of a multidisciplinary international editorial board and supported by WHO. Like The Learner, it promises to become an important link among the network of people and institutions in the Region working in its sphere. A third vehicle of information—with wider dissemination, including all Member governments and the information media throughout the Region—is the EMRO Newsletter, which now appears monthly. Its objective is to keep all concerned informed of WHO’s ongoing activities within the Region.

Western Pacific Region

At its thirty-second session in 1981 the Regional Committee updated the regional strategy for the attainment of health for all, which is based on the national strategies developed by the Region’s Member States. WHO has provided support for the planning, implementation, and evaluation of national health development measures aimed at achieving health for all, based on sound managerial practices adapted to the specific needs of each country. Countries are being encouraged to establish national health development networks that will provide a framework for TCDC activities.

Research promotion and development

Additional WHO collaborating centres for research and training have been established in various Member States. An increasing number of grants have been made under the Special Programme for Research and Training in Tropical Diseases and the Special Programme of Research, Development and Research Training in Human Reproduction. WHO has supported studies on diseases of particular importance in the Region, such as clonorchiasis, schistosomiasis, dengue, acute respiratory infections, and fish poisoning. Meetings of the Western Pacific ACMR and its various subsidiary
bodies have laid the foundation for a substantial regional research programme which supplements national efforts.

**Health services development**

15.106 Efforts in the Region were concentrated on developing a system of health services based on primary health care and community involvement. Countries were supported in developing their health manpower for primary health care. Health care delivery systems were reoriented and strengthened, and direct support was given to research and development. Exchange of information and of experience in the development of primary health care was encouraged.

15.107 Support for traditional medicine, including the use of medicinal plants, was continued. The use of appropriate technology in the prevention, diagnosis, and management of disease and in the rehabilitation of the disabled was promoted.

15.108 The trend in the organization of the health services is increasingly towards decentralization, balanced development, an integrated approach to the provision of care, and more reliance on middle-level and lower-level health workers. Nevertheless some intermediate and higher-level facilities may have to be strengthened, since there are limits to the services that can be provided by peripheral health units. Intersectoral collaboration has become an increasingly important element in regional policies.

15.109 There was a growing demand for collaboration in the design, management, and maintenance of health facilities. WHO supported university and regional programmes of training in hospital administration; and a WHO-sponsored course was organized by New Zealand for the teaching of repair and maintenance skills so that countries can keep their essential equipment in service. The need exists for simple diagnostic equipment, to be used in support of primary health care programmes.

15.110 There have been few requests for technical cooperation in national occupational health programmes, in spite of concern about the health of rural workers, who are being increasingly exposed to chemical hazards. The more developed countries are continuing, and in some cases intensifying, their occupational health and accident prevention activities and increased cooperation may be expected in that domain between them and the developing countries.

15.111 Following a regional working group on health care of the elderly (Manila, October 1981), a programme is being promoted to increase awareness of the problems of the elderly, to encourage research, training, and education in regard to those problems, and to promote the establishment of services for the care of the aged.

15.112 In connexion with the International Year of Disabled Persons, 1981, many countries in the Region have increased their educational, social, and therapeutic activities on behalf of the disabled. A regional working group (December 1981) planned a medium-term programme to encourage preventive measures, particularly in childhood, and to promote ways of increasing the independence of disabled persons.

15.113 Cooperation with Member States in respect of laboratory services consisted mainly in standardizing simplified laboratory techniques to be used principally at peripheral level for the diagnosis of the most important communicable diseases, special emphasis being placed on antibiotic susceptibility testing in view of the serious and growing problem of resistance among pathogenic bacteria. Efforts to improve the organization
and management of health laboratory services and quality control continued and are based on the training of laboratory staff and adaptation to national conditions of the techniques used in essential laboratory work.

Family health

15.114 Many countries are showing increased awareness of the health needs of adolescents and particular attention is being given to the biological, psychological, and social problems, which include teenage pregnancy and fertility management.

15.115 In maternal and child health care, interest in the risk approach has been stimulated by workshops on the subject. Malaysia has already completed the collection and analysis of data in this area and will be formulating a strategy in 1982. National training programmes for personnel concerned with maternal and child health/family planning have been gradually strengthened throughout the Region. During the biennium three interregional courses for senior teachers on fertility management and maternal and child health care were held in Singapore. Papua New Guinea and the Republic of Korea have continuous training programmes, and in China the construction of two training centres began in 1980. National maternal and child health/family planning programmes concentrated on improving the delivery of services through primary health care. Eighteen projects, financially supported by UNFPA and executed by WHO, are under way in 13 countries or areas of the Region. Activities to promote breastfeeding, with adequate supplementation at a later stage, are being carried out in several countries or areas in the Region and a number of meetings were held. The thirty-second session of the Regional Committee (1981) adopted a resolution urging Member States to give their full support to implementing the Health Assembly resolutions on infant and young child feeding.

15.116 Emphasis in nutrition was placed on the need for appropriate measures to control the marketing of breast-milk substitutes, and on developing health programmes within the framework of national food and nutrition policies. In many countries priority is being given to the control of specific nutritional deficiencies, the development of systems to monitor nutritional status, and the integration of the health sector's nutrition-related activities in the primary health care system. The various categories of nutrition worker required for the health sector can now be trained in the Region itself.

15.117 Health education in the Region aimed at promoting a healthy way of life and developing community self-reliance in health. Great importance was attached to teaching peripheral health and allied workers how to establish contact with the community and promote community organization, how to work in a team, how to collaborate with other sectors, and how to carry out health education. Support was given to the training of health education specialists, particularly at intermediate level. Eight countries or areas in the Region received support in developing communication strategies and improving audiovisual facilities. Efforts to give health education a more solid footing in priority health programmes continued, particularly in regard to tuberculosis and leprosy control, family health, water supply, and sanitation. Interest in behavioural research as an aid to health education was also encouraged. Activities were however limited by the shortage of trained manpower and of audiovisual equipment.
Mental health

15.118 In line with the recommendations of the regional coordinating group on mental health in 1979, efforts were made to develop and strengthen mental health services in the Region. The emphasis was on integrating mental health services into primary health care: in many countries of the Region effective innovative programmes in community-based mental health care were developed. Among the priority subjects were alcoholism and related problems, misuse of psychotropic drugs, improved teaching of mental health, and the psychosocial aspects of child development in the face of rapid social change. During the biennium four WHO collaborating centres in mental health and neurosciences were designated in China and one in Japan.

Diagnostic, therapeutic, and rehabilitative technology

15.119 Intercountry activities on drug policies and management and on pharmaceuticals are being expanded, collaboration continuing in particular with governments in the South Pacific area, where a joint pharmaceutical service is to be inaugurated. WHO continued to collaborate with ASEAN countries in developing technical cooperation in the field of pharmaceuticals. Evaluation of the therapeutic properties and efficacy of medicinal plants continued.

Disease prevention and control

15.120 Action to prevent or control diarrhoeal diseases, acute respiratory infections, arbovirus infections, and malaria was intensified and leprosy, tuberculosis, filariasis, schistosomiasis, and sexually transmitted diseases continued to receive due attention. Many of the activities undertaken contain a research component. WHO’s insistence on the value of a sound disease surveillance system has led to a growing awareness of the need to strengthen national communication networks for the reporting and exchange of information on communicable diseases. WHO intensified its efforts to improve the collection, analysis, and dissemination of regional data. Support was given to courses in epidemiology in an attempt to correct existing deficiencies.

15.121 There was little change in the overall malaria situation. Strains of Plasmodium falciparum resistant to antimalarial drugs have now been found in all the endemic malarious countries in the Region. Progress in malaria control was made in parts of the Lao People’s Democratic Republic, Malaysia, and Viet Nam. The favourable trend observed in China during recent years was affected in 1980 by adverse weather conditions, and there was a slight deterioration in other malarious countries of the Region. One achievement was the certification in 1981 of malaria eradication in Australia, another the establishment of an Asian malaria training centre in Kuala Lumpur.

15.122 In the programmes on immunization and the control of diarrhoeal diseases there was a shift in emphasis from interregional and intercountry to national activities, the latter including staff training, the improvement of information and surveillance systems, and the strengthening of programme evaluation. In the immunization programme special efforts are being made to improve the cold chain, while the diarrhoeal diseases programme is becoming increasingly involved in research. The programme on acute respiratory infections, which began with the establishment of a prototype research and control scheme in Goroka (Papua New Guinea), is being expanded to cover other countries. National units are being set up, research projects have been launched, and field assess-
ments are being made. There is increasing interest in viral diseases in the Region: research on the epidemiology of hepatitis B and dengue haemorrhagic fever concentrated on determining which groups should be vaccinated when vaccines become available. The importance as a health problem of haemorrhagic fever with a renal syndrome is being recognized. The widespread occurrence of beta-lactamase-producing strains of Neisseria gonorrhoeae is one of the factors that is perpetuating the problem of sexually transmitted diseases. Efforts to strengthen national control programmes for those diseases were continued.

15.123 Leprosy control programmes are being developed in collaboration with WHO in the many developing countries in the Region where the disease is a problem. A combined drug regimen, comprising dapsone and rifampicin or clofazimine, is now being introduced for the treatment of lepromatous and borderline cases. In some countries tuberculosis is on the decline, as is shown by the fall in the tuberculin-positive rate among children. Four prevalence surveys in the Republic of Korea showed a significant reduction in the prevalence of bacteriologically positive cases. In some other countries, on the other hand, there has been little or no improvement. In four countries or areas short-term therapy with streptomycin, isoniazid, rifampicin, and pyrazinamide has already been introduced.

15.124 The programme for the prevention of blindness was promoted in many countries or areas in the Region through visits of consultants and provision of equipment and supplies. A workshop (Manila, December 1981) assessed the magnitude of the problem and outlined a programme for the Region.

15.125 Considerable progress has been made in research on the etiology of cancer of the liver and the oesophagus. A community-based control programme is under way in the Philippines for rheumatic fever and rheumatic heart disease and a similar scheme is being introduced in Viet Nam. Several epidemiological studies are being made on hypertension, and control programmes are being carried out in China, Japan, Malaysia, and the Philippines. In Australia and New Zealand, where ischaemic heart disease is common, comprehensive community-based programmes are being developed for the control of cardiovascular diseases, with emphasis on the need for a healthy way of life and a rational diet. As a result of rapid changes in social and economic conditions, leading to a high calorie intake and less exercise, diabetes is becoming a serious health problem among Polynesian and Micronesian populations in the South Pacific. Epidemiological studies are being conducted and control measures introduced, but international cooperation is urgently needed.

15.126 WHO continued to support courses in public health dentistry and other educational projects as an important element in enabling countries to improve the planning of their basic oral health services. Periodontal disease continued to be a major cause of loss of teeth and a number of studies began whose aim is to provide a basis for preventive measures. To help combat dental caries the topical application of fluoride is gradually being introduced into schools in a number of countries. The oral health project in China, involving as it does professional training within the country and overseas training for a number of Chinese specialists, is a particularly significant undertaking.

Promotion of environmental health

15.127 Activities in relation to the International Drinking Water Supply and Sanitation Decade moved from the prepara-
tory stage to implementation. A programme was drawn up to guide regional activities during the next few years. Discussions on field projects were held with UNDP resident representatives, and UNDP-supported water supply and sanitation projects are now under way in several countries or areas. Increasing emphasis is being laid on programmes in rural areas involving community participation and a multidisciplinary approach.

15.128 There are important programmes on the control of environmental hazards in both developed and developing countries and areas of the Region. Support was given to Member States and to UNEP's Global Environment Monitoring System (GEMS) through the further supply of monitoring equipment and the holding of WHO-assisted seminars and workshops on monitoring techniques. The Regional Centre for the Promotion of Environmental Planning and Applied Studies in Kuala Lumpur, now firmly established, was of particular assistance in meeting the real and growing need for advisory, planning, and training services.

**Health manpower development**

15.129 An increasing number of Member States in the Region are taking a fresh look at their health manpower requirements in the light of their national strategies for health for all. WHO has consequently placed increased emphasis on manpower planning, strengthening of the capacity of countries to produce health manpower, continuing education, and the application of educational theory and techniques to training programmes. In a number of countries however health manpower studies have been limited to certain categories required by the primary health care approach, e.g., community-oriented nursing staff and environmental health personnel. In several countries continuing education is being developed as an essential means of preparing health workers for the expansion in their duties and improving their managerial skills.

15.130 Strong support and encouragement were given to planning, training, and utilizing middle-level practitioners. Most countries have already defined their requirements and taken the first step towards appropriate programmes. For instance, a comprehensive programme is being developed in Tonga, with the ultimate goal of decentralizing the health services and improving health in the rural areas. Elsewhere curricula are being revised in the light of the new tasks to be performed and the system of supervision and referral to be introduced.

15.131 Advances were made in the training of primary health care workers, especially through the exchange of information among the countries interested. Health workers from other regions made extensive studies of the systems used in China and the Philippines. Numerous seminars and workshops were held and attempts were made to determine the most appropriate training methods.

15.132 Teacher-training and the development of more effective educational techniques and processes continued, not only for traditional categories of health personnel but also, increasingly, for new categories such as community health workers. In addition to the regional teacher-training centre, two national centres are expanding and are sharing their resources and experience. A third centre is soon to be established. Countries are showing great interest in the production and use of appropriate educational material, and WHO has been active in promoting this trend.

15.133 WHO collaborated in the revision of curricula in a large number of programmes for training such categories of health worker as dentists, occupational therapists, anaesthetists, nurses, and midwives.
15.134 The fellowships programme con­tinued to expand, in particular to meet the training requirements of China and to accom­modate trainees from other regions. A follow-up study of former fellows showed that the vast majority had made good use of their training on their return home.

Health information

15.135 WHO strove to broaden its cooperation with Member States in selecting appropriate ways of utilizing data-processing technology and in strengthening the capacity of national health statistical services to analyse the data they obtain. Encouragement was given to lay reporting as an effective procedure for gathering data on health and health-related problems and services. Greater stress is being placed on the development of rational systems of medical records as an essential element in information systems for health management.

15.136 The dissemination to countries in the Region of information contained in health and biomedical literature is being supported. Steps are being taken to develop the capacity of individual countries to establish and manage biomedical and health literature services. Access to information is being improved through the establishment of a regional biomedical information centre and a network of subcentres and libraries.
At 31 December 1981 the World Health Organization had 157 Member States and one Associate Member. They are listed below with the date on which each became a party to the Constitution or the date of admission to associate membership.

<table>
<thead>
<tr>
<th>Member State</th>
<th>Date of Admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>19 April 1948</td>
</tr>
<tr>
<td>Albania</td>
<td>26 May 1947</td>
</tr>
<tr>
<td>Algeria*</td>
<td>8 November 1962</td>
</tr>
<tr>
<td>Angola</td>
<td>15 May 1976</td>
</tr>
<tr>
<td>Argentina*</td>
<td>22 October 1948</td>
</tr>
<tr>
<td>Australia</td>
<td>2 February 1948</td>
</tr>
<tr>
<td>Austria*</td>
<td>30 June 1947</td>
</tr>
<tr>
<td>Bahamas*</td>
<td>1 April 1974</td>
</tr>
<tr>
<td>Bahrain</td>
<td>2 November 1971</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>19 May 1972</td>
</tr>
<tr>
<td>Barbados*</td>
<td>25 April 1967</td>
</tr>
<tr>
<td>Belgium*</td>
<td>25 June 1948</td>
</tr>
<tr>
<td>Benin</td>
<td>20 September 1960</td>
</tr>
<tr>
<td>Bolivia</td>
<td>23 December 1949</td>
</tr>
<tr>
<td>Botswana</td>
<td>26 February 1975</td>
</tr>
<tr>
<td>Brazil*</td>
<td>2 June 1948</td>
</tr>
<tr>
<td>Bulgaria*</td>
<td>9 June 1948</td>
</tr>
<tr>
<td>Burma</td>
<td>1 July 1948</td>
</tr>
<tr>
<td>Burundi</td>
<td>22 October 1962</td>
</tr>
<tr>
<td>Byelorussian SSR</td>
<td>7 April 1948</td>
</tr>
<tr>
<td>Canada</td>
<td>29 August 1946</td>
</tr>
<tr>
<td>Cape Verde</td>
<td>5 January 1976</td>
</tr>
<tr>
<td>Central African Republic*</td>
<td>20 September 1960</td>
</tr>
<tr>
<td>Chad</td>
<td>1 January 1961</td>
</tr>
<tr>
<td>Chile*</td>
<td>15 October 1948</td>
</tr>
<tr>
<td>China*</td>
<td>22 July 1946</td>
</tr>
<tr>
<td>Colombia</td>
<td>14 May 1959</td>
</tr>
<tr>
<td>Comoros</td>
<td>9 December 1975</td>
</tr>
<tr>
<td>Congo</td>
<td>26 October 1960</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>17 March 1949</td>
</tr>
<tr>
<td>Cuba*</td>
<td>9 May 1950</td>
</tr>
<tr>
<td>Cyprus*</td>
<td>16 January 1961</td>
</tr>
<tr>
<td>Czechoslovakia*</td>
<td>1 March 1948</td>
</tr>
<tr>
<td>Democratic Kampuchea*</td>
<td>17 May 1950</td>
</tr>
<tr>
<td>Democratic People’s Republic of Korea</td>
<td>19 May 1973</td>
</tr>
<tr>
<td>Democratic Yemen</td>
<td>6 May 1968</td>
</tr>
<tr>
<td>Denmark*</td>
<td>19 April 1948</td>
</tr>
<tr>
<td>Djibouti</td>
<td>10 March 1978</td>
</tr>
<tr>
<td>Dominica</td>
<td>13 August 1981</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>21 June 1948</td>
</tr>
<tr>
<td>Ecuador*</td>
<td>1 March 1949</td>
</tr>
<tr>
<td>Egypt*</td>
<td>16 December 1947</td>
</tr>
<tr>
<td>El Salvador</td>
<td>22 June 1948</td>
</tr>
<tr>
<td>Equatorial Guinea</td>
<td>5 May 1980</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>11 April 1947</td>
</tr>
<tr>
<td>Fiji*</td>
<td>1 January 1972</td>
</tr>
<tr>
<td>Finland*</td>
<td>7 October 1947</td>
</tr>
<tr>
<td>France</td>
<td>16 June 1948</td>
</tr>
<tr>
<td>Gabon</td>
<td>21 November 1960</td>
</tr>
<tr>
<td>Gambia*</td>
<td>26 April 1971</td>
</tr>
<tr>
<td>German Democratic Republic*</td>
<td>8 May 1973</td>
</tr>
<tr>
<td>Germany, Federal Republic of*</td>
<td>29 May 1951</td>
</tr>
<tr>
<td>Ghana*</td>
<td>8 April 1957</td>
</tr>
<tr>
<td>Greece*</td>
<td>12 March 1948</td>
</tr>
<tr>
<td>Grenada</td>
<td>4 December 1974</td>
</tr>
<tr>
<td>Guatemala*</td>
<td>26 August 1949</td>
</tr>
<tr>
<td>Guinea*</td>
<td>19 May 1959</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>29 July 1974</td>
</tr>
<tr>
<td>Guyana*</td>
<td>27 September 1966</td>
</tr>
<tr>
<td>Haiti*</td>
<td>12 August 1947</td>
</tr>
<tr>
<td>Honduras</td>
<td>8 April 1949</td>
</tr>
<tr>
<td>Hungary*</td>
<td>17 June 1948</td>
</tr>
<tr>
<td>Iceland</td>
<td>17 June 1948</td>
</tr>
<tr>
<td>India*</td>
<td>12 January 1948</td>
</tr>
<tr>
<td>Indonesia*</td>
<td>23 May 1950</td>
</tr>
<tr>
<td>Iran*</td>
<td>23 November 1946</td>
</tr>
<tr>
<td>Iraq*</td>
<td>23 September 1947</td>
</tr>
<tr>
<td>Ireland*</td>
<td>20 October 1947</td>
</tr>
<tr>
<td>Israel</td>
<td>21 June 1949</td>
</tr>
<tr>
<td>Italy</td>
<td>11 April 1947</td>
</tr>
<tr>
<td>Ivory Coast*</td>
<td>28 October 1960</td>
</tr>
</tbody>
</table>

* Member States that have acceded to the Convention on the Privileges and Immunities of the Specialized Agencies and its Annex VII.
<table>
<thead>
<tr>
<th>Member States</th>
<th>Date of Accession</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamaica*</td>
<td>21 March 1963</td>
</tr>
<tr>
<td>Japan*</td>
<td>16 May 1951</td>
</tr>
<tr>
<td>Jordan*</td>
<td>7 April 1947</td>
</tr>
<tr>
<td>Kenya*</td>
<td>27 January 1964</td>
</tr>
<tr>
<td>Kuwait*</td>
<td>9 May 1960</td>
</tr>
<tr>
<td>Lao People's Democratic Republic*</td>
<td>17 May 1950</td>
</tr>
<tr>
<td>Lebanon</td>
<td>19 January 1949</td>
</tr>
<tr>
<td>Lesotho*</td>
<td>7 July 1967</td>
</tr>
<tr>
<td>Liberia</td>
<td>14 March 1947</td>
</tr>
<tr>
<td>Libyan Arab Jamahiriya*</td>
<td>16 May 1952</td>
</tr>
<tr>
<td>Luxembourg*</td>
<td>3 June 1949</td>
</tr>
<tr>
<td>Madagascar*</td>
<td>16 January 1961</td>
</tr>
<tr>
<td>Malawi*</td>
<td>9 April 1965</td>
</tr>
<tr>
<td>Malaysia*</td>
<td>24 April 1958</td>
</tr>
<tr>
<td>Maldives*</td>
<td>5 November 1965</td>
</tr>
<tr>
<td>Mali*</td>
<td>17 October 1960</td>
</tr>
<tr>
<td>Malta*</td>
<td>1 February 1961</td>
</tr>
<tr>
<td>Mauritania</td>
<td>7 March 1961</td>
</tr>
<tr>
<td>Mauritius*</td>
<td>9 December 1968</td>
</tr>
<tr>
<td>Mexico</td>
<td>7 April 1948</td>
</tr>
<tr>
<td>Monaco</td>
<td>8 July 1948</td>
</tr>
<tr>
<td>Mongolia*</td>
<td>18 April 1962</td>
</tr>
<tr>
<td>Morocco*</td>
<td>14 May 1956</td>
</tr>
<tr>
<td>Mozambique</td>
<td>11 September 1973</td>
</tr>
<tr>
<td>Nepal*</td>
<td>2 September 1933</td>
</tr>
<tr>
<td>Netherlands*</td>
<td>25 April 1947</td>
</tr>
<tr>
<td>New Zealand*</td>
<td>10 December 1946</td>
</tr>
<tr>
<td>Nicaragua*</td>
<td>20 April 1950</td>
</tr>
<tr>
<td>Niger*</td>
<td>5 October 1960</td>
</tr>
<tr>
<td>Nigeria*</td>
<td>25 November 1960</td>
</tr>
<tr>
<td>Norway*</td>
<td>18 August 1947</td>
</tr>
<tr>
<td>Oman*</td>
<td>28 May 1971</td>
</tr>
<tr>
<td>Pakistan*</td>
<td>23 June 1948</td>
</tr>
<tr>
<td>Panama</td>
<td>20 February 1951</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>29 April 1976</td>
</tr>
<tr>
<td>Paraguay</td>
<td>4 January 1949</td>
</tr>
<tr>
<td>Peru*</td>
<td>11 November 1949</td>
</tr>
<tr>
<td>Philippines*</td>
<td>9 July 1948</td>
</tr>
<tr>
<td>Poland*</td>
<td>6 May 1948</td>
</tr>
<tr>
<td>Portugal*</td>
<td>13 February 1948</td>
</tr>
<tr>
<td>Qatar*</td>
<td>11 May 1972</td>
</tr>
<tr>
<td>Republic of Korea*</td>
<td>17 August 1949</td>
</tr>
<tr>
<td>Romania*</td>
<td>8 June 1948</td>
</tr>
<tr>
<td>Rwanda*</td>
<td>7 November 1962</td>
</tr>
<tr>
<td>Saint Lucia*</td>
<td>11 November 1980</td>
</tr>
<tr>
<td>Samoa*</td>
<td>16 May 1962</td>
</tr>
<tr>
<td>San Marino</td>
<td>12 May 1980</td>
</tr>
<tr>
<td>Sao Tome and Principe</td>
<td>23 March 1976</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>26 May 1947</td>
</tr>
<tr>
<td>Senegal*</td>
<td>31 October 1960</td>
</tr>
<tr>
<td>Seychelles</td>
<td>11 September 1979</td>
</tr>
<tr>
<td>Sierra Leone*</td>
<td>20 October 1961</td>
</tr>
<tr>
<td>Singapore*</td>
<td>25 February 1966</td>
</tr>
<tr>
<td>Somalia</td>
<td>26 January 1961</td>
</tr>
<tr>
<td>South Africa</td>
<td>7 August 1947</td>
</tr>
<tr>
<td>Spain*</td>
<td>28 May 1951</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>7 July 1948</td>
</tr>
<tr>
<td>Sudan*</td>
<td>14 May 1936</td>
</tr>
<tr>
<td>Suriname</td>
<td>23 March 1976</td>
</tr>
<tr>
<td>Swaziland</td>
<td>16 April 1973</td>
</tr>
<tr>
<td>Sweden*</td>
<td>28 August 1947</td>
</tr>
<tr>
<td>Switzerland</td>
<td>26 March 1947</td>
</tr>
<tr>
<td>Syrian Arab Republic</td>
<td>18 December 1946</td>
</tr>
<tr>
<td>Thailand*</td>
<td>26 September 1947</td>
</tr>
<tr>
<td>Togo*</td>
<td>13 May 1960</td>
</tr>
<tr>
<td>Tonga*</td>
<td>14 August 1975</td>
</tr>
<tr>
<td>Trinidad and Tobago*</td>
<td>3 January 1963</td>
</tr>
<tr>
<td>Tunisia*</td>
<td>14 May 1956</td>
</tr>
<tr>
<td>Turkey*</td>
<td>2 January 1948</td>
</tr>
<tr>
<td>Uganda*</td>
<td>7 March 1963</td>
</tr>
<tr>
<td>Ukrainian SSR</td>
<td>3 April 1948</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>24 March 1948</td>
</tr>
<tr>
<td>United Kingdom of Great Britain and Northern Ireland*</td>
<td>22 July 1946</td>
</tr>
<tr>
<td>United Republic of Cameroon</td>
<td>6 May 1960</td>
</tr>
<tr>
<td>United Republic of Tanzania*</td>
<td>15 March 1962</td>
</tr>
<tr>
<td>United States of America</td>
<td>21 June 1948</td>
</tr>
<tr>
<td>Upper Volta*</td>
<td>4 October 1960</td>
</tr>
<tr>
<td>Uruguay*</td>
<td>22 April 1949</td>
</tr>
<tr>
<td>Venezuela</td>
<td>7 July 1948</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>17 May 1950</td>
</tr>
<tr>
<td>Yemen*</td>
<td>20 November 1953</td>
</tr>
<tr>
<td>Yugoslavia*</td>
<td>19 November 1947</td>
</tr>
<tr>
<td>Zaire*</td>
<td>24 February 1961</td>
</tr>
<tr>
<td>Zambia*</td>
<td>2 February 1965</td>
</tr>
<tr>
<td>Zimbabwe*</td>
<td>16 May 1980</td>
</tr>
</tbody>
</table>

* Associate Member

Namibia                                           | 16 May 1974       |

* Member States that have acceded to the Convention on the Privileges and Immunities of the Specialized Agencies and its Annex VII.
Annex 2

Organizational and Related Meetings

1. Meetings in 1980

Executive Board: Working Group to study the question of the transfer of the Regional Office for the Eastern Mediterranean
Geneva, 7, 8 and 14 January

Executive Board: Programme Committee
Geneva, 8 and 22 January
Geneva, 9-25 January
Geneva, 10 and 16 January
Geneva, 17 January;
Geneva, 14 May;
Geneva, 15-17 September
Geneva, 23 January
Geneva, 3 and 22-24 April;
Geneva, 21 May
Geneva, 3-6 May
Geneva, 5-23 May
Geneva, 9 May
Geneva, 14 May
Geneva, 26-27 May
Geneva, 27 May
Male (Maldives),
1-7 September
Manila, 9-15 September
Brazzaville,
17-24 September
Washington, 22 September-
3 October
Fez (Morocco),
7-11 October
Geneva, 24-28 November
Geneva, 1-3 December

Executive Board: Programme Committee (preparatory meeting)
Regional Committee for South-East Asia, thirty-third session
Regional Committee for the Western Pacific, thirty-first session
Regional Committee for Africa, thirtieth session
Regional Committee for the Americas, thirty-second session/XXVII Meeting of the Directing Council of PAHO
Regional Committee for Europe, thirtieth session

Executive Board: Programme Committee
Executive Board: Working Group to study the functions and activities carried out by the Secretariat

2. Meetings in 1981

Executive Board: Working Group on the assessment of previous organizational studies of the Executive Board and their impact on the policy and activities of WHO
Geneva, 12 January;
Geneva, 27 May;
Geneva, 9-10 November

Executive Board: Ad Hoc Committee on Drug Policies
Executive Board, sixty-seventh session
Executive Board: Standing Committee on Nongovernmental Organizations
Executive Board: Working Group on the organizational study on the role of WHO in training in public health and health programme management, including the use of country health programming
Executive Board: Working Group to study the functions and activities carried out by the Secretariat

World Health Assembly: Special Committee of Experts to study the health conditions of the inhabitants of the occupied territories in the Middle East
Executive Board: Committee to Consider Certain Financial Matters prior to the Thirty-fourth World Health Assembly
Thirty-fourth World Health Assembly
Executive Board, sixty-eighth session
Executive Board: Programme Committee (preparatory meeting)
Regional Committee for South-East Asia, thirty-fourth session
Regional Committee for Europe, thirty-first session
Regional Committee for Africa, thirty-first session
Regional Committee for the Americas, thirty-third session/XXVIII Meeting of the Directing Council of PAHO
Regional Committee for the Western Pacific, thirty-second session
Executive Board: Programme Committee

Annex 3

Intergovernmental Organizations that have entered into Formal Agreements with WHO approved by the World Health Assembly, and Nongovernmental Organizations in Official Relations with WHO

at 31 December 1981

1. Intergovernmental organizations

African Development Bank
International Committee of Military Medicine and Pharmacy
International Office of Epizootics

Islamic Development Bank
League of Arab States
Organization of African Unity
2. **Nongovernmental organizations**

| African Medical and Research Foundation International Biometric Society |
| Christian Medical Commission |
| Commonwealth Medical Association |
| Council for International Organizations of Medical Sciences |
| European Society for Clinical Investigation |
| Inter-American Association of Sanitary and Environmental Engineering |
| International Academy of Pathology |
| 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 of Cancer Registries |
| International Association for Child and Adolescent Psychiatry and Allied Professions |
| International Association of Environmental Mutagen Societies |
| International Association of Hydatid Disease |
| International Association for the Study of the Liver |
| International Association of Logopedics and Phoniatrics |
| International Association of Medical Laboratory Technologists |
| International Association for Suicide Prevention |
| 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 of the Red Cross |
| International Confederation of Midwives |
| International Council on Alcohol and Addictions |
| International Council on Jewish Social and Welfare Services |
| International Council for Laboratory Animal Science |
| International Council of Nurses |
| International Council of Scientific Unions |
| International Council on Social Welfare |
| International Council of Societies of Pathology |
| International Council of Women |
| 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 Health Records Organizations |
| International Federation for Housing and Planning |
| International Federation for Information Processing |
| International Federation for Medical and Biological Engineering |
| 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 League against Epilepsy |
| International League against Rheumatism |
| International Leprosy Association |
| International Organization for Cooperation in Health Care (Medicus Mundi Internationalis) |
| International Organization for Standardization |
| International Organization against Trachoma |
| International Paediatric Association |
| International Pharmaceutical Federation |
| International Planned Parenthood Federation |
| International Radiation Protection Association |
| International Society of Biometeorology |
| International Society of Blood Transfusion |
| International Society for Burn Injuries |
| International Society and Federation of Cardiology |
| International Society of Chemotherapy |
| International Society of Endocrinology |
| International Society of Hematology |
| International Society for Human and Animal Mycology |
| International Society of Orthopaedic Surgery and Traumatology |
| International Society of Radiographers and Radiological Technicians |
| International Society of Radiology |
| 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 Microbiological Societies |
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
Rehabilitation International
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 Associations of Clinical Toxicology Centers and Poison Control Centers
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 Proprietary Medicine Manufacturers
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 4

Structure of the World Health Organization at 31 December 1981
WHO Secretariat as a whole

1The Liaison Office with the United Nations and the WHO medical advisors to UNICEF (who are also responsible for liaison with UNFPA) report to the Division of Coordination.

2Regional Office for the Americas/Pan American Sanitary Bureau.

3The Regional Office in Europe is responsible on behalf of the Director-General for the global programmes on health care of the aged and on road traffic accidents.
WHO Headquarters Secretariat

- **Assistant Director-General (Health and Biomedical Information Programme)**
  - Office of Publications
  - Office of Language Services
  - Office of Library and Health Literature Services
  - Distribution and Sales

- **Assistant Director-General (Parasitic Diseases Programme)**
  - Malaria Action Programme
  - Epidemiological Methodology and Evaluation
  - Programming and Training
  - Research and Technical Intelligence

- **Assistant Director-General (Division of Communicable Diseases)**
  - Communicable Diseases
  - Epidemiological Surveillance of Communicable Diseases
  - Smallpox Eradication
  - Tuberculosis and Respiratory Infections
  - Leprosy
  - Bacterial and Vascular Infections
  - Viral Diseases
  - Control Programme
  - Special Programme on Safety Measures
  - in Microbiology
  - Programme for the Prevention of Blinding
  - Veterinary Public Health

- **Assistant Director-General (Division of Communicable Diseases)**
  - Maternal and Child Health
  - Health Education

- **Assistant Director-General (Division of Health Manpower)**
  - Development

- **Assistant Director-General (Division of Strengthening of Health Services)**
  - Special Programme on Immunization

- **Assistant Director-General (Expanded Programme on Immunization)**
  - Expanded Programme on Immunization

- **Assistant Director-General (Division of Environmental Health)**
  - Environmental Health
  - Environmental Health Technology and Support
  - Global Protection and Cooperation for Water Supply and Sanitation
  - International Programme on Chemical Safety

- **Assistant Director-General (Division of Noncommunicable Diseases)**
  - Cardiovascular Diseases
  - Cancer
  - Human Genetics
  - Oral Health
  - Nutritional Health
  - Immunology

- **Assistant Director-General (Division of Diagnostic, Therapeutic, and Rehabilitative Technology)**
  - Biologic and Laboratory Technology
  - Pharmacology
  - Action Programme on Essential Drugs
  - Programme of Essential Surgery
  - Radiation Medicine
  - Traditional Medicine
  - Rehabilitation

- **Assistant Director-General (Division of Information Systems)**
  - Support
  - Information Systems Methodology
  - Data and Text Processing Services

- **Assistant Director-General (Special Programme for Research and Training in Tropical Diseases)**
  - Tropical Diseases

*The responsibilities of the Assistant Director-General include the chairmanship of the Headquarters Programme Committee*
INDEX
Index

References are by paragraph. Main references by subject are in bold type.

Abortion, 6.17, 6.38, 6.80, 6.99
ACC, see Administrative Committee on Co-ordination
Accidents, 8.65, 8.86
  laboratory, 9.146-9.149
  occupational, 8.86, 10.86, 15.110
road traffic, 8.1, 8.84-8.91, 15.73
  interregional conference (1981), 8.84, 8.88, 8.91
  role of alcohol and drugs, 4.29, 7.19, 8.85, 8.86
toxic chemicals, 15.78
Acupuncture, 8.73, 8.76, 12.60
  World Congress, Seventh (1981), 8.79
Administration and finance information system, 2.43
Administrative Committee on Co-ordination (ACC), 3.13, 3.14
  Consultative Committee on Administrative Questions (CCAQ), 14.17
  Consultative Committee on Substantive Questions (Programme Matters), 3.10
  Sub-Committee on Nutrition, 6.49
Administrative matters, 14.11-14.26
Adolescence, see Youth and adolescence
Advertising, breast-milk substitutes, 6.7
tobacco products, 10.47
Advisory Committee on Medical Research, global (ACMR), 4.3-4.7, 7.48
  subcommittees, 4.3, 4.7
  on cancer, 10.3
  on health services research, 4.3, 5.57, 6.31
  on mental health and neuropsychiatry, 7.47
Advisory committees on medical research, regional, 1.31, 4.4
  Africa, 4.16, 15.6, 15.14
  Americas, 4.18, 7.43
  Eastern Mediterranean, 4.31, 15.93
  Europe, 4.26-4.30, 5.15, 7.49, 15.68
  South-East Asia, 4.22-4.23
  Western Pacific, 4.38, 5.15, 15.105
Afghanistan, 6.17, 9.25, 13.15, 15.99
Aflatoxin, 10.18, 11.53
Africa, newly independent and emerging States, 1.45
African Development Bank, 3.8

Charter for Health Development, 1.26, 1.42, 15.1, 15.15
Health 2000 Resources Group, 1.12, 15.12
Regional Advisory Committee on Health Development, 1.3, 1.35, 15.6
Regional Health Development Centre, 6.44, 6.65, 12.101, 12.148
Aga Khan Foundation, 3.8
Aging, see Elderly
Alcohol, society and the state, 7.42
Alcohol-related problems, 1.38, 7.5, 7.6, 7.36-7.43, 7.66, 8.86, 10.15, 10.85, 12.153, 15.118
Algeria, 2.18, 3.39, 3.44, 5.3, 5.8, 5.27, 6.25, 9.27, 9.122, 11.18, 13.15, 14.23, 14.24, 15.77
All-Africa Conference on Health Education (1981), 12.149
Allergic diseases, 10.60, 10.92
Alder, 15.127-15.128
Alma-Ata 1978: primary health care, 1.12
Americas, Ten-Year Health Plan (1971-1980), 1.4, 15.20
Anemias, hereditary, 10.62, 10.63

nutritional, 6.17, 6.55-6.57

Anaesthesia and anaesthesiology, 8.75, 8.82, 8.83, 12.99

Andean region, 1.28, 11.15, 11.47

Angola, 3.41, 8.77, 9.38, 9.210, 13.10

Animal health, 9.179

see also Veterinary public health

Animals for research, 4.7, 9.200

nonhuman primates, 4.7, 8.40, 10.30

Anopheles mosquitoes, 9.202, 9.207, 9.219

Antibiotics, 8.32, 8.33, 8.35, 9.121, 9.124, 9.152

in food, 11.41

resistance, 15.13

Apartheid, 1.45, 15.10

Approaches to planning and design of health care facilities in developing areas, 5.27

Appropriate technology for health, 1.4, 1.11, 1.13, 3.27, 4.13, 5.37-5.48, 5.51, 8.69, 10.2, 11.18, 15.86, 15.107

action group, 6.50

directory, 5.40

information systems, 2.49, 5.37-5.40, 5.47

newsletter, 5.40

Arab Board for Medical Specialization, 12.98

Arab countries of the Gulf area, Council of Ministers of Health, 8.91, 13.45

Arab Fund for Economic and Social Development, 5.8

Arab Organization for Standardization and Metrology, 11.50

Arab populations in occupied territories, health conditions, 1.46


Arrhythmias, classification, 10.44

ASEAN, see Association of South-East Asian Nations

Asian Development Bank, 3.26, 8.21, 11.63

Asian Foundation for the Prevention of Blindness, 9.159

Associate Members of WHO, 14.1

Association of Medical Deans in Europe, 15.79

Association for Medical Education in Europe, 15.79, 15.80

Association of Schools of Public Health in Europe, 12.141, 15.79

Association of South-East Asian Nations (ASEAN), 1.24, 8.6, 8.14, 8.22, 8.26, 8.76, 15.119


see also Teaching/learning materials

Australia, 6.4, 6.128, 7.65, 9.26, 9.125, 9.185, 10.33, 12.123, 13.25, 13.60, 15.121, 15.125

Austria, 9.184, 12.58


see also Community health workers; Medical assistants and auxiliaries: Primary health care workers; and under the various categories of health personnel

Ayurvedic medicine, 8.79


Bahamas, 2.19

Bahrain, 2.46, 4.33, 8.24, 9.110, 10.74, 12.16, 12.77, 12.137, 15.90, 15.93, 15.100

Bangladesh, 3.43, 5.7, 5.23, 5.34, 5.45, 5.52, 6.40, 8.20, 8.59, 9.85, 9.11, 9.92, 9.110, 10.76, 11.17, 12.12, 12.27, 12.87

Barbados, 7.10, 11.15, 12.9, 12.153

Basic safety standards for radiation protection, 11.37


Behavioural sciences, 1.8, 1.14, 1.42, 4.3, 6.63, 6.66, 6.81, 7.25, 7.27, 7.47, 7.49, 9.263-9.264, 11.17, 13.37, 15.50, 15.117

see also Psychosocial factors and health

Beijel, 9.154

Belgium, 3.4, 3.32, 7.8, 8.89, 9.5, 11.31, 11.38, 12.72, 12.97, 15.76

Benin, 2.7, 3.6, 5.5, 6.64, 8.85, 9.39, 9.52, 12.42, 12.127

Bhutan, 9.110

Biologicals, 1.24, 8.31-8.43

standardization, 8.32, 8.35, 8.37

Biomedical information, 13.23-13.32

Biomedical research, see Research

Birth control, see Fertility regulation

Birthweight, low, 6.20-6.21, 13.14

Blackfly, see Simulium

Blindness, prevention, 9.156-9.164, 15.48, 15.124

national programmes, preparation, 9.158

advisory group, 9.157, 9.162

PAHO/WHO advisory committee, 9.156

research, 9.162, 9.163

training, 9.160, 9.161, 9.162

Blood products and transfusion, 8.32, 8.39

Blue Nile health project, 9.44, 9.219, 13.98

Boletin de la Oficina Sanitaria Panamericana, 8.19

Bolivia, 5.6, 5.24, 7.35, 8.67, 11.16, 12.47, 12.51, 14.7

Botswana, 2.19, 5.5, 5.15, 6.64, 7.4, 8.64, 9.39, 9.42, 10.74, 10.76

Bovine tuberculosis, 9.179

Bowel cancer, 10.17

“Brain drain” see Migration of health manpower


Breast-feeding, 3.22, 6.7, 6.10, 6.16, 6.32-6.36, 9.69, 11.32, 12.178, 13.33, 13.56, 15.95, 15.115

brochure, 6.35

Breast-milk substitutes, 6.7, 6.10, 15.116

International Code of Marketing, 1.39, 3.22, 6.7-6.9, 6.32, 13.33, 13.56, 15.95

Brucellosis, 9.179, 9.190, 12.169

Bulgaria, 3.32, 5.13, 7.61, 9.185, 10.64, 10.74

Bulletin of the World Health Organization, 13.30

Burkitt’s lymphoma, 4.12

Burma, 2.11, 3.43, 5.2, 5.3, 5.7, 5.18, 5.52, 6.29, 7.33, 8.20, 8.21, 8.49, 8.54, 8.59, 8.69, 8.79, 8.95, 9.92, 9.93,
INDEX

Burma


Burundi, 3.41, 3.5, 12.74

Cameroon, see United Republic of Cameroon

Canada, 7.42, 7.36, 9.113, 9.132, 11.27

Canadian International Development Agency (CIDA), 11.16, 12.51

Cancer, 10.2-10.32, 10.79, 15.48, 15.75, 15.125

classification of tumours, 10.11

domestic animals, 9.198

control and prevention, common strategy and national programmes, 10.2, 10.4, 10.5, 15.75

integration with general health care, 10.5

training, 10.5, 12.171

coordinating committee, 10.4

epidemiology, 10.16, 10.30, 10.31

directories, 10.12

registries, 10.12, 10.13, 15.75

standardization of reporting, 10.13

research, 4.3, 10.12-10.29

comparative studies, 9.181, 9.198-9.199

training, 10.30-10.32

screening and early detection, 10.5

statistics, 10.8, 10.10, 13.14, 13.18

Cancer incidence in five continents, 10.12

Carcinogens, environmental, 9.126, 10.31

see also Chemicals, carcinogenic

Cardiomyopathies, classification, 10.44

Cardiovascular diseases, 10.33-10.46, 15.48, 15.76

classification, 10.44

community control, 10.18-10.40, 15.125

epidemiology, 10.45-10.46

long-term programme of WHO, 15.76

primordial prevention, 10.34, 10.37

research, 4.12, 4.38, 10.33, 10.35, 10.36, 10.41-10.43

studies on physical activity, 10.43

training in prevention and epidemiology, 10.45-10.46

Caribbean area, 6.39, 6.64, 8.67, 11.13, 11.47, 12.45

Caribbean Community, 5.4

Caribbean Development Bank, 11.16

Caribbean Food and Nutrition Institute, 6.44

Caribbean Regional Drug Testing Laboratory, 8.19

Caribbean sea, pollution, 11.35

Caries, 15.126

Cataract, 9.161

Central African Republic, 3.41, 9.38

Central America and Panama, 11.16

community health training programme, 12.47, 12.51, 12.80, 12.112, 12.129

Cerebrospinal meningitis, 9.118

Cerebrovascular diseases, 10.35, 12.153

CERN, see European Organization for Nuclear Research

Chad, 3.41, 9.4, 9.38, 15.10

Chagas' disease, 9.63


Charters for health development, regional, 1.26-1.27, 1.42, 15.1, 15.15

Chemicals, in food and the environment, 10.74, 10.79, 11.21, 11.53, 15.48, 15.78, 15.110

carcinogenic, 10.24-10.29, 10.30, 11.22

international programme on safety, 4.28, 11.22-11.25

interregional research units, 11.22

monitoring of effects, 10.74, 10.79

Chemotherapy of malaria, 9.28, 13.33

Children, 6.15, 6.16, 15.28

accidents, 8.89

cardiovascular diseases, 10.36


diarrhoeal diseases and gastroenteritis, 9.68, 15.43, 15.99

drug treatment, 8.12, 15.70

growth and development, 6.16, 6.18, 6.28, 6.37, 6.50, 7.45

health education, 6.64

mental health, 4.29, 7.5, 7.44-7.46, 15.118

mortality 6.15, 6.16, 6.43, 6.108, 15.98

see also Immunization, Infant and young child feeding

Maternal and child health

Chile, 5.21, 5.24, 7.10, 7.41, 7.46, 9.185


Choler, 9.75

Chromosomal diseases, 10.63

CIDA, see Canadian International Development Agency

CIOMS, see Council for International Organizations of Medical Sciences

Circumcision, female, 6.13

Classification, international, of diseases, injuries and causes of death, 13.7-13.9

of impairments, disabilities and handicaps, 13.7, 13.74

of procedures in medicine, 13.7

of tumours, 10.11

in domestic animals, 9.198

Clonorchiasis, 4.38, 15.105

Coastal water pollution, 11.35


"Cold chain" development and management, 3.21, 9.168, 9.171, 9.172, 15.45, 15.100, 15.122

Collaborating centres, 1.41, 4.10, 4.20, 4.28, 9.179, 10.48, 12.70, 12.106, 13.14, 15.66, 15.105

accident prevention, 8.89, 8.90

biostatistics, 10.10

blindness prevention, 9.162

cancer, 10.10, 10.11
Collaborating centres (continued)
chemical reference substances, 8.6
classification of diseases, 13.9
comparative oncology, 9.199
dengue haemorrhagic fever, 4.24, 9.137, 15.44
diabetes, 10.55
disability prevention, 8.66, 8.70
disasters, epidemiology, 3.32
drug dependence and alcohol-related problems, 7.42
drug monitoring, international, 8.10
environmental, health 11.15, 11.29
family health, 6.21
family planning, 6.118, 6.119
food contamination monitoring (FAO/WHO), 11.53
food hygiene and zoonoses (FAO/WHO), 9.188,
9.191, 12.168
food virology, 9.189
health services research, 5.52
hospital infections, 9.150
human genetics, 10.64
human reproduction, 6.84, 6.107, 6.116, 6.118, 6.119
immunology, 10.90
laboratory technology, 8.49, 8.50
malacology 9.45, 9.214
manpower development, 12.13
medical informatics, 2.47
mental health, 7.5, 7.15, 15.118
neurosciences, 7.15, 15.118
nutrition, 15.16
occupational health, 10.73
pesticides, 9.203
equipment testing, 9.206
plague, 9.117
primary health care, 5.11
psychosocial factors, 7.11
radiation, 11.33
emergency assistance, 11.38
rehabilitation, 8.66, 8.70
rickettsial diseases, 9.139
smallpox, vaccine, 9.5
traditional medicine, 8.73, 8.74, 8.77, 8.78, 8.79, 8.80
water resources development, 9.41
Colombia, 5.3, 5.6, 5.16, 5.21, 5.24, 5.42, 6.46, 6.81, 7.10,
7.31, 7.64, 8.37, 8.60, 8.67, 9.105, 9.110, 9.112,
9.136, 9.203, 9.210, 12.18, 12.24, 12.36, 12.51, 12.65,
12.71, 12.113
Commission of the European Communities, 10.32, 13.46,
14.24
Committee for International Coordination of National
Research in Demography, 13.18
Communicable diseases, 1.26, 6.16, 8.65, 9.1-9.269,
10.61, 10.64, 12.130, 15.20, 15.40-15.47, 15.96-
15.100, 15.120-15.123
epidemics, consultation on strategies, 9.2
epidemiological surveillance, 4.26, 8.44, 9.7, 9.8, 9.69,
15.40, 15.96, 15.120
immunology, 10.93
integration of services in public and primary health care,
5.8, 9.18, 9.22, 9.33, 9.34, 9.54, 9.69, 9.71,
9.122, 9.124, 15.17, 15.98
malnutrition and infection, 6.16, 6.43, 9.68
resistance to infection, 10.64
see also Expanded Programme on Immunization;
Tropical diseases
Communicable eye diseases, see Blindness; Trachoma
Community health workers, training, 5.7, 5.13, 6.44,
9.160, 12.18, 12.59, 12.104, 15.34, 15.122
interregional study, 5.15, 12.79
Community participation in health and development
programmes, 1.4, 1.7, 1.13, 1.42, 5.5, 5.6, 5.8, 5.14,
6.23, 6.30, 6.31, 6.46, 6.59, 6.60, 6.73-6.75, 9.237,
10.6, 11.7-11.8, 12.24, 12.28, 12.41, 12.59, 12.123,
15.15, 15.28, 15.37, 15.38, 15.45, 15.96, 15.106,
15.127
Comoros, 3.41, 5.3
Comparative medicine, 9.198-9.199, 9.248
Computing, medical, 2.47-2.50, 13.20, 13.22
training, 2.48
see also Electronic data processing
Congenital anomalies, 10.23
Congo, 5.5, 6.46, 6.64, 9.8, 9.39, 9.42, 9.214
Congo virus, 15.97
Conjunctivitis, haemorrhagic, 9.135
Constitutional and legal matters, 14.1-14.10
amendments to the WHO Constitution, 14.2-14.4
Contraceptives, injectable, 6.89-6.91, 6.102-6.103
oral, for men, 6.104, 6.107
for women, 6.81-6.86
postcoital preparations, 6.105
vaccines, 6.106
see also Fertility regulation; Intrauterine devices
Contributions to WHO, voluntary, see Extrabudgetary
sources of funds
Convention on Narcotic Drugs, Single (1961) 7.16
Convention on Psychotropic Substances, 7.16, 7.21
Cook Islands, 2.24, 6.60, 12.73
Coordination, in international health work, WHO's role,
1.31, 3.1
with the United Nations system of organizations, 1.9,
1.19, 1.30, 1.31, 3.9-3.16, 3.35, 3.38, 3.47, 5.13,
5.16, 6.8, 6.66, 7.8, 8.30, 8.61, 11.5, 11.9, 13.60,
14.17, 15.63
see also under names of individual organizations
Coronary heart disease, 10.33, 10.34, 10.36, 10.43, 15.76
Costa Rica, 5.3, 5.6, 5.18, 5.22, 5.24, 5.42, 7.44, 11.15,
12.9, 12.42, 12.47
Council for International Organizations of Medical
Sciences (CIOMS), 10.44, 13.42, 13.48
INDEX

Council of Ministers of Health of Arab countries of the
Gulf area, 8.91, 13.45
Country health programming, 2.10, 15.15
training, 2.10, 2.19, 15.15
Cretinism, 6.52
Cuba, 5.27, 6.4, 6.29, 6.128, 9.137, 9.210, 10.80, 12.51, 12.144
Cyclops, control, 9.213
Cyprus, 1.46, 3.45, 8.74, 9.185, 14.22
Cysticercosis, 9.190, 12.169
see also Hydatidosis
Czechoslovakia, 6.29, 10.74, 12.58

Dams, see Water resources and river basin development, health aspects
Danish International Development Agency (DANIDA),
8.46, 8.49, 8.77, 9.84, 9.111, 9.211, 9.223, 11.29, 12.167
Data banks, 9.164, 13.10
Data processing, see Electronic data processing
Deafness, 10.66
Declaration of Alma-Ata, 1.12, 5.38, 6.59, 6.68
Declaration of Monrovia, 15.3
Declaration on the Prevention of Disablement, Leeds
Castle, 8.65
Declaration on the Rights of Mentally Retarded Persons,
United Nations, 7.29
Democratic Kampuchea, 3.46, 9.27, 14.22
Democratic People’s Republic of Korea, 8.59
Democratic Yemen, 2.19, 2.22, 2.23, 5.2, 5.3, 5.23, 6.17, 6.46, 8.24, 12.24, 12.133
Demographic studies, 13.17, 13.18
see also Population
Dengue and dengue haemorrhagic fever, 9.137, 15.44
research, 9.137, 15.44, 15.105, 15.122
vaccine, 4.24, 10.91, 15.44, 15.122
vector biology and control, 9.202, 9.210, 15.46
Denmark, 2.18, 5.4, 6.4, 6.128, 7.8, 9.168, 12.72
Dental health, see Oral health
Depression, 7.51
Development, health as part of (United Nations General
Assembly resolutions), 1.12, 1.18, 1.28, 3.9
International Strategy, 1.28, 3.11
see also Children, growth and development; Rural
development; Socioeconomic development;
United Nations Development Programme;
Women in health and development
Development forum (United Nations), 15.63
Development of indicators for monitoring progress towards
health for all by the year 2000, 1.17
Diabetes, 4.38, 7.56, 10.53-10.57, 15.48, 15.125
national programmes, 10.53-10.54
study of vascular diseases in diabetics, 10.57
training of health workers, 10.56

Diagnostic substances and technology, 4.27, 8.1-8.60,
9.172
see also Reagents
Diarrhoeal diseases, 4.6, 6.16, 6.33, 9.66, 9.68-9.77, 9.219,
15.43, 15.95, 15.99, 15.120, 15.122
control programme (WHO), 2.42, 3.20, 3.21, 9.68
management and financing, 9.77
national programmes, promotion and evaluation,
9.69-9.70, 9.73, 15.99
primary health care approach, 9.69, 9.71
rehydration therapy, 9.69, 9.70, 9.72, 9.73, 9.76, 15.43,
15.99
research, 4.18, 4.24, 4.38, 5.53, 9.74-9.76, 15.14, 15.99,
15.122
training in control, 9.71-9.72, 15.43, 15.99
Diphtheria, 9.173
vaccination and vaccine, 15.23
see also DPT vaccine
Director-General’s Development Programme, 9.29
Directory of on-going research in cancer epidemiology, 10.12
Disability prevention and rehabilitation, 1.40, 8.61-8.72,
8.86, 8.89, 15.28, 15.48, 15.73-15.74, 15.107, 15.112
integration, in primary health care, 8.62, 15.74
national programmes, 8.71, 8.72
research, 8.64, 8.69, 8.71, 8.89, 15.74
statistics, 13.14
training, 8.64, 8.67, 8.69, 12.154, 15.48
see also Blindness prevention
Disaster relief, see Emergency assistance; Natural disas-
ters and catastrophes
Djibouti, 1.45, 14.7
DNA, recombinant, 9.149, 9.216
Documents (WHO), 13.37
see also Health literature services
Dominica, 5.21, 14.1
Dominican Republic, 5.24, 6.29, 7.10, 12.51, 12.153
DPT vaccine, 9.166
Dracunculiasis, 9.215
Drinking-water, 1.21, 9.215, 11.4, 11.21, 11.29, 15.20,
15.23
standards, 11.29
supply, international decade (1981-1990), 1.40, 3.20,
6.66, 9.215, 11.11-11.20, 12.66-12.67, 12.174,
13.16, 13.60, 15.18, 15.23, 15.31, 15.49, 15.101,
15.127
Drinking-water and sanitation, 1987-1990: a way to health,
11.3
Drug information, 8.8-8.9, 8.19, 8.28
Drug problems in the sociocultural context: a basis for policies
and programme planning, 7.34
Drugs, 4.42, 8.2-8.30
dependence and abuse, 7.5, 7.16-7.22, 7.30-7.35, 8.75,
12.153, 15.18, 15.118
epidemiology and surveillance, 7.34-7.35, 7.41, 7.66
information systems, 7.66
training in surveillance, 7.31, 7.33, 12.153

273
Drugs (continued)
effects, in increasing occupational hazards, 8.85, 10.83
on motor-vehicle drivers, 4.29, 7.19, 8.85, 8.86
essential drugs, 3.21, 3.37, 8.2, 8.4, 8.5, 8.8, 13.39
action programme, 2.42, 8.15-8.30
lists, 8.14, 8.16, 8.17, 13.39
monitoring system for adverse reactions, 8.14
proprietary names, 8.7
policies and management, 5.24, 8.2, 8.15, 8.19, 8.20,
8.24, 8.28, 8.30, 13.39, 13.69, 15.72, 15.119
procurement, 1.24, 7.7, 8.17, 8.18, 8.19, 8.20, 8.23,
8.25, 9.170
production, national and regional, 8.16, 8.17, 8.20,
8.28
good manufacturing practices, 8.14
quality control, 8.2-8.4, 8.14, 8.17, 8.19, 8.21, 15.39,
15.69
certification scheme, 8.3
training, 8.14, 8.29
registration, 8.9, 8.24
safety and efficacy, evaluation and monitoring, 8.9,
8.19, 15.69
supplies to countries, 8.27, 14.23, 14.26
utilization in treatment, 8.12, 8.23, 8.94, 15.70
research, 5.11, 8.13, 8.18, 8.24, 10.85, 15.69, 15.71
see also Contraceptives, oral; Filaricides; Malaria;
drugs; Medicinal plants; Pharmacology, clinical;
Psychotropic substances
Dusts, industrial and vegetable, 10.82, 10.84

Eastern Mediterranean Region, 1.10, 2.21-2.23, 3.45,
4.31-4.35, 5.9, 5.29, 5.42, 5.47, 5.54, 6.17, 6.120,
7.12-7.13, 7.61, 8.2, 8.24, 8.71, 8.80, 8.90, 9.25, 9.95,
9.140, 9.166, 9.191, 10.6, 11.19, 11.26, 11.27, 11.34,
11.50, 12.29, 12.32, 12.49, 12.59, 12.65, 12.82, 12.86,
12.98, 12.114, 12.121, 12.132-12.135, 12.136-12.140,
Regional Health Development Advisory Committee,
1.35
Ebola virus, 9.141, 15.97
ECA, see Economic Commission for Africa
9.190, 12.169
ECLA, see Economic Commission for Latin America
Economic Commission for Africa (ECA), 6.41, 11.14
Economic Commission for Latin America (ECLA),
15.21, 15.26
Economic Commission for Western Asia (ECWA), 12.64
Economic instability, health aspects, 3.1, 5.35
Economic Order, New International, 1.7, 3.11, 15.1
Economic and Social Commission for Asia and the
Pacific (ESCAP), 13.18
Ecuador, 5.6, 5.22, 5.24, 5.42, 7.35, 7.41, 8.67, 9.54,
9.112, 9.211, 12.51, 12.153
ECWA, see Economic Commission for Western Asia
Education, see Health education; Medical education

Educational handbook for health personnel, 12.117
Educational technology, 12.75, 12.80, 12.115, 12.119-
12.120, 15.132
centres, Cairo, 12.136
Latin America, 2.12, 12.15, 12.47, 12.112, 12.119,
12.151
see also Teaching/learning materials and processes
Egypt, 2.46, 4.33, 5.18, 5.23, 6.17, 6.46, 6.81, 7.35, 7.44,
10.80, 11.19, 12.18, 12.137, 13.23, 15.90, 15.93,
15.99
host agreement with, 14.9
El Salvador, 5.42, 5.44, 5.42, 8.67, 12.47, 14.7
Elderly, care of, 1.8, 1.40, 8.1, 8.65, 8.68, 8.70, 8.92-8.95,
12.13, 13.60, 15.28, 15.73, 15.111
drug treatment, 8.12, 8.94, 15.70
mental disorders, prevention, 7.26-7.27
nutrition, 8.93
research, 4.7, 8.96
World Assembly on Aging (1982), 3.15, 8.92
Electronic data-processing, 2.39-2.50, 13.20, 13.22
Encephalitis, Japanese, 5.46
Encyclopaedias, medical, 15.82
Energy sources, health risks, 11.31
Entomologists, training, 9.222, 9.223
Environmental health, 1.24, 11.1-11.53, 15.18, 15.49-
15.52, 15.77-15.78, 15.101, 15.127-15.128
centres, regional, 11.15, 11.26, 11.30, 15.128
criteria, 11.25, 11.29, 11.36
national planning and establishment of agencies, 11.3,
11.4, 11.12, 11.15, 11.16, 11.17, 11.26, 15.18
research, 11.25, 11.34
training, 11.3, 11.9, 11.15, 11.16, 11.17, 11.20, 11.27,
11.33, 12.63, 12.66-12.67, 12.73, 12.73-12.174,
15.101, 15.128, 15.129
see also Chemicals in food and the environment;
Sanitary and public health engineering; Sanita­tion;
Severeage; Wastes disposal; Water supplies
Environmental health criteria, 11.25, 11.36
Environmental monitoring, 11.27, 11.34, 15.78
global system, 15.128
Environmental pollution and hazards, 11.27-11.35,
15.128
emergencies, 15.78
see also Air pollution; Chemicals; Coastal pollution;
Soil pollution; Water pollution
Epidemiology and epidemiological surveillance, 4.26,
programme of WHO, 9.3, 9.13
research, 6.31, 9.141, 9.261, 9.263, 10.30, 10.58
training, 5.31, 9.162, 9.262, 12.160-12.162, 15.40,
15.120
Epilepsy, 7.58
Equatorial Guinea, 14.1, 14.7, 15.10
INDEX

Equipment, medical, 8.47, 8.51, 8.58, 8.82, 8.83, 14.22
repair and maintenance, 5.42, 5.51, 8.51, 9.171, 12.84, 15.102
training, 5.42, 9.171, 12.84, 15.102, 15.109
see also Supplies and equipment
ESCAP, see Economic and Social Commission for Asia and the Pacific
Escherichia coli, enterotoxigenic, 9.73
European Region, 1.22, 2.18-2.20
European Organization for Nuclear Research (CERN), 9.87
European Association of Programmes in Health Services Studies, 15.79
European Economic Community, 3.26, 14.8
European Organization for Nuclear Research (CERN), 9.87
Advisory Committee on Primary Health Care, 5.8
Advisory Committee on Health Legislation, 13.40
Advisory Committee on Health Manpower Development, 15.79
Health Development Advisory Council, 1.7, 1.35, 2.18
European Society of Human Genetics, 10.64
European standards for drinking-water, 11.29
Evaluation of programmes, 2.27, 2.36, 2.38, 9.174-9.176, 9.231
guiding principles, 2.4
national, 9.177, 15.122
Excreta disposal, 15.20
Executive Board, 1.18, 1.19, 1.20, 1.29, 1.30, 1.31, 1.37, 1.39, 1.40-1.41, 1.42, 1.44
membership, 1.34, 1.42
organizational studies, 1.41, 12.40-12.41
Programme Committee, 2.31-2.32, 10.3
Exercise, see Physical activity
Expanded Programme on Immunization, see Immunization
Expert Advisory Panel on Virus Diseases (Antivirals and Interferon), 9.144
Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations, 8.5
Expert Advisory Panel on Traditional Medicine, 8.75
Expert advisory panels and committees, organizational study, 1.41
Expert Committee on Bacterial and Viral Zoonoses (1981), 9.178
Expert Committee on the Biological Control of Vectors (1981), 9.217
Expert Committee on Biological Standardization (1980 and 1981), 8.32, 8.35, 8.37
Expert Committee on Diabetes Mellitus (1979), 10.53
Expert Committee on Disability Prevention and Rehabilitation (1981), 8.63
Expert Committee on Energy and Protein Requirements, Joint FAO/WHO (1971), 6.48
Expert Committee on Health Effects of Combined Exposures in the Work Environment (1980), 10.85
Expert Committee on Implementation of the Convention on Psychotropic Substances (1980), 7.18
Expert Committee on Leprosy (1976), 9.80
Expert Committee on the Prevention of Coronary Heart Disease (1981), 10.34
Expert Committee on Problems related to Alcohol Consumption (1979) 7.42
Expert Committee on Rabies (1972), 9.184
Expert Committee on the Selection of Essential Drugs (1977), 8.8
Expert Committee on Specifications for Pharmaceutical Preparations (1981) 8.4
Expert Committee on Tuberculosis, 9.101
Expert Committee on Vector Biology and Control (1979), 9.219
Extrabudgetary sources of funds, 1.19-1.22, 3.3-3.8, 6.128, 8.63, 9.168, 9.219, 10.70, 12.41, 12.42, 14.22, 15.8, 15.11-15.12
studies on economic aspects, Europe, 4.29
see also Visual impairment
Facts about low-level radiation, 11.37
Falkland Islands (Malvinas), 9.185
Family health, 6.1-6.128, 11.35-15.37, 15.95, 15.114-15.117
indicators, 6.2
integration with general and primary health care services, 6.2-6.3, 6.19, 8.24-8.25, 8.30, 15.115
programme financing, 6.3
records, 6.30
training, 12.146, 15.35
see also Maternal and child health
Family planning, 6.1, 6.6, 6.18, 6.80, 6.119, 15.115
integration in primary health care, 6.68, 6.72, 6.73, 6.79
International Conference, Djakarta (1981), 6.93
national programmes, support, 6.23-6.27
psychosocial aspects, 6.70, 6.72, 6.74-6.75, 6.81, 6.82, 6.118, 6.125, 7.24
research, 6.40, 6.121, 6.125
staff, medical and nonmedical, 6.72
role of nurses and midwives, 6.78, 6.79

275
Family planning (continued)
training, 6.24, 6.26-6.27, 6.76-6.78, 6.120, 6.121, 12.87, 

see also Fertility regulation; Human reproduction

FAO, see Food and Agriculture Organization of the
United Nations

Fellowships, 1.42, 7.15, 8.2, 9.30, 10.31, 10.88, 12.41, 
12.48, 12.54-12.61, 12.123, 12.131, 12.134, 12.177, 
12.163, 15.84, 15.89, 15.134

programme regionalization, 12.55, 12.56, 12.57, 12.61, 
15.58

studies on utilization, 12.60, 12.62

Fertility, 6.5-6.6, 6.74, 13.15

Fertility regulation, 2.42, 6.5, 6.121, 8.75, 12.146, 15.114, 
15.115

research 4.15, 6.117, 6.126

natural methods, 6.100-6.101

new methods, 6.93-6.107

safety and efficacy, 6.83-6.92

Fibre, dietary, 10.17

Fibres, man-made, health hazards, 10.21-10.22

Fiji, 2.24, 2.25, 3.46, 11.51, 12.73, 12.78, 12.83, 12.162

Filarial infections, 9.47-9.57, 15.120

chemotherapy and chemotherapy, 9.51, 9.55, 9.56-
9.57

diagnostic techniques, 9.242


vector biology and control, 9.209, 9.242, 15.46

see also Onchocerciasis


Films (WHO), 13.60

Finland, 5.18, 6.4, 6.128, 7.42, 8.89, 9.168, 10.4, 10.5, 
10.33, 10.36, 12.72, 15.76

Fish, larvivorous, 9.217, 9.260

Fish and shellfish hygiene, 9.197, 15.105

Flea control, 9.213

Food additives, 11.23, 11.40-11.41

Food and Agriculture Organization of the United
Nations (FAO), 11.35, 11.38

joint activities, 13.42

communicable diseases, 9.212, 9.218, 9.223, 11.9

food safety and hygiene, 9.193, 9.195, 9.196, 9.197, 
10.18, 11.59, 11.40-11.46, 11.50, 11.53, 12.168

human reproduction, 6.4

nutrition, 6.41, 6.48, 6.49

rural development, 5.16, 6.66

zoonoses, 9.178, 9.186, 12.168

Food contamination and hazards, 11.39

joint monitoring programmes (FAO/IARC/UNEP/ 
WHO), 10.18, 11.46, 11.53

see also Chemicals

Food and foodstuffs, fortified, 6.54-6.55

irradiated, 11.42

weaning foods, 6.47

see also Breast-milk substitutes

Food safety and hygiene, 4.12, 4.13, 9.180, 9.183, 9.189,
11.39-11.53, 15.12

microbiological aspects, 9.192, 9.193-9.197, 12.170

training, 9.192, 11.47, 11.49, 11.50

see also Infant and young child feeding

Food safety services, 11.49

Food standards and criteria, 9.196, 11.43-11.45

Foodborne diseases and food poisoning, 9.181, 9.182, 
9.187, 9.188, 9.190, 11.49, 11.51, 15.105

training, 12.169

Foot-and-mouth disease, 9.179

Formulating strategies for health for all by the year 2000, guiding 
principles and essential issues, 1.12

France, 3.4, 7.44, 8.38, 8.89, 9.184, 10.15, 12.72

Front-line States, assistance to, 1.45, 15.13

Gabon, 9.39, 9.214, 12.9

Gambia, 3.41, 5.5, 9.136, 12.43, 12.93, 14.23

Gammaglobulin, 10.93

General Programmes of Work of WHO, 2.27

Seventh, 1.29, 2.2, 2.31-2.33, 2.35-2.36, 7.1, 15.27

Sixth, 2.2, 2.34, 2.35, 7.1

Genetic disorders, 10.61-10.65

Genetic engineering, 9.149, 9.235, 9.236

Genetic markers, 10.64

Genetics, human, 10.61-10.65

research centres, 10.62, 10.64

Genital ulcers, 9.153

Geriatrics and gerontology, see Elderly, care of the

German Democratic Republic, 3.52, 10.36, 10.74

Germany, Federal Republic of, 3.4, 6.4, 6.128, 7.56, 8.11,
8.55, 8.58, 9.184, 10.12, 10.36, 11.31, 12.141, 12.158

Gesellschaft für Technische Zusammenarbeit (GTZ), 
9.214, 11.3, 11.12, 11.16, 11.19, 15.18

Ghana, 3.41, 5.5, 6.64, 7.61, 9.38, 9.39, 9.42, 9.43, 9.52,
9.57, 9.136, 9.238, 12.127, 13.60

Global strategy for health for all by the year 2000, 1.12

Glossaries, 13.35, 13.46, 13.47

Glossina, see Tsetse fly

Goitre, endemic, 6.72

Gonococcal infections, 9.152, 9.153

Governing bodies, see Executive Board; Regional com-
mittees; World Health Assembly

Greece, 3.7, 7.44, 10.32, 10.76, 10.80

Grenada, 5.21, 7.10

GTZ, see Gesellschaft für Technische Zusammenarbeit

Guam, 9.110, 12.33, 12.73

Guatemala, 5.21, 5.24, 5.28, 6.46, 6.55, 9.54, 9.211, 11.15, 
12.47, 12.51

Guide to trachoma control, 9.164

Guidelines for evaluating a training programme for health 
personnel, 12.118

Guidelines for training community health workers in nutrition, 
6.44

Guides, technical, 9.85, 9.164, 9.197, 10.67, 11.26, 12.16,
12.76, 12.88, 12.117, 12.125, 12.176

see also Manuals, technical

Guinea, 6.64, 9.217
INDEX

Guinea-Bissau, 9.211
Gulf Arab Development Foundation for the United Nations, 3.8
Guyana, 5.24, 5.28

Habitual physical activity and health, 10.43
Haemorrhagic fever, 9.140-9.142, 15.97
vaccine, 9.142
see also Dengue and dengue haemorrhagic fever
Haiti, 5.24, 9.35, 11.15, 11.16
Headquarters, accommodation, 14.19
structures and functions, 1.30
Health, attainment by the year 2000 of a level permitting a socially and economically productive life, 4.2, 4.30,
13.20, 13.35-13.34, 13.58, 15.1, 15.20
global strategy, 1.1, 1.9, 1.10, 1.12-1.18, 1.28, 1.29, 2.1-2.3, 2.31, 3.12, 6.67, 12.35, 13.3, 13.10
monitoring and evaluation, 1.6, 1.7, 1.8, 1.17, 1.18,
6.20, 13.2, 13.12, 15.5, 15.30, 15.66
indicators, 1.7, 1.17, 1.2, 13.10, 15.66
national and regional strategies, 1.2-1.29, 1.30, 2.3, 2.6,
2.7, 2.10, 2.11, 2.18, 2.22, 2.24, 2.33, 6.5, 6.50,
6.59, 7.2, 12.116, 15.3-15.4, 15.15, 15.17, 15.23-
15.31, 15.32, 15.64-15.66, 16.35, 15.104
political support, 1.23-1.28
resources, mobilization, 1.15, 1.19-1.22, 3.2, 15.32
"Health for All" Series, 13.31, 13.47
Health care, delivery, 1.7, 1.8, 1.24, 5.20, 13.21, 15.24-
15.25, 15.64, 15.93, 15.106
costs, 2.20, 5.34-5.36, 12.46, 13.6
facilities, development, 5.27, 5.30, 15.109
patient management, 12.18
research, 4.27, 5.33
see also Primary health care
Health conditions in the Americas, 1977-1980, 13.16
Health economics, 4.29, 5.33, 5.35, 5.36, 5.53, 12.46
Health education, 7.7, 1.8, 1.40, 1.42, 6.59-6.66, 13.58,
13.64, 15.117
in accident prevention, 8.85
in breast-feeding, 13.56
in communicable disease control, 6.60, 6.63, 9.55, 9.82,
9.96, 9.124, 15.96, 15.117
in environmental health, 6.60, 11.8, 11.17, 15.117
in family health, 6.35, 6.39, 6.62, 15.117
in mental health, 7.47
in noncommunicable disease control, 10.6, 10.56
in nutrition and food safety and hygiene, 11.52
in occupational health, 8.85, 10.81
in tobacco, alcohol and drug abuse control, 10.47,
13.57
integration in primary health care, 6.60, 6.65, 12.150,
15.37
Pan African Conference (1981), 12.149
research, 6.60, 6.61
training of staff, 6.65, 12.148, 12.149-12.152, 15.117
regional centres, 6.65, 12.148
Health laboratory services, see Laboratory technology and services
Health legislation, 1.42, 6.9, 6.34, 6.80, 8.16, 8.28, 8.77,
9.41, 10.47, 12.106, 13.38-13.43, 13.57, 15.69, 15.74
Health literature services, 13.23-13.28, 15.57, 15.136
see also Guides; Manuals; Teaching/learning materials;
Textbooks
Health management, 1.24, 1.42, 12.19, 12.90, 13.3, 15.96
information systems, 2.46, 12.45, 15.61, 15.133
training, 2.5, 2.8-2.9, 2.12, 2.13, 2.23, 5.25, 5.26, 12.40-
12.49, 12.99, 15.80, 15.89
organizational study, 1.41, 12.40, 12.41
Health manpower, see Manpower development, management and planning
Health planning and programmes, national, development,
1.24, 2.1-2.25, 5.1, 5.21, 15.61
conference, interministerial, Dakar (1980), 2.7
guiding principles, 2.2
training in management, 2.13, 2.17, 2.24, 12.46
see also Country health programming; Environmental health, national planning; General Programmes of Work; Health for all by the year 2000, national and regional strategies; Programme of WHO
Health programme evaluation: guiding principles, 2.4
Health records, see Medical records
Health sciences, training centres, meetings of deans and directors, Africa, 12.75, 12.92, 12.127
Health services, development, 1.3, 1.4, 5.1-5.58, 15.15,
15.16, 15.21, 15.24-15.25, 15.34, 15.67, 15.106-15.113
financing, 4.14, 5.3, 5.7, 5.24, 5.33-5.36, 12.46
information, 5.3, 5.24
institution strengthening, 5.3, 5.5
planning and management, 5.3, 5.5, 5.18-5.36
study of coverage, Eastern Mediterranean, 15.93
see also Health management; Health planning and programmes, national, development; Manpower development, management and planning
Health services research, 1.14, 2.17, 4.2, 4.3, 4.6, 4.14,
4.16, 4.18, 4.23, 4.28, 4.32, 4.37, 4.38, 4.59-4.58,
6.28, 6.31, 6.40, 6.70, 6.78, 6.79, 6.82, 6.118, 6.119,
6.125, 12.90, 15.14, 15.19, 15.74, 15.86, 15.93
newsletter (Eastern Mediterranean), 5.14, 11.103
training, 4.14, 4.29, 4.32, 4.33, 5.50, 5.54, 5.56, 5.58,
6.28, 6.82, 6.119
Health statistics, see Statistics
Health teams, 12.51, 12.68, 12.75, 12.90, 12.100-12.102,
12.110, 12.120, 15.54
Helen Keller International (Foundation), 6.54
Helmintic and protozoal infections, intestinal, 9.66-9.67
Hepatitis, viral, 9.130, 10.19-10.20, 15.122
vaccination and vaccine, 8.32, 15.122
see also Liver cancer and other chronic liver diseases
Herpes virus, 9.144
Hipólito Unanue Agreement, 5.28
Histological classification of tumours, 10.11
Honduras, 3.15, 3.21, 7.41, 12.47, 12.51
Hong Kong, 6.40, 7.65, 9.106, 12.122
Hormones, in food, 11.41
Hospitals, planning, administration and maintenance, 5.29, 5.30, 5.33, 13.17
statistics, 13.6
training, 5.30, 15.109
see also Medical records; Nosocomial infections

Hospitals in the Americas, 13.16
Human experimentation, 13.42
Human genetics, see Genetics, Human
Human reproduction, 11.25
research, development and research training, special programme, 2.42, 4.15, 6.67-6.128
financing, 6.4, 6.128
information dissemination, 6.126-6.127
institutions, strengthening, 6.4, 6.69, 6.70, 6.82, 6.111-6.121
training, 6.123
grants, 6.121, 6.122, 15.105
see also Family planning; Fertility; Infertility; Sterilization

Hungary, 3.12, 6.40
Hypertension, arterial, 6.17, 6.19, 10.42, 15.125
WHO community control project, 10.39

IAEA, see International Atomic Energy Agency
IARC, see International Agency for Research on Cancer
ICAO, see International Civil Aviation Organization
Iceland, 12.97
ILO, see International Labour Organization
IMCO, see Inter-Governmental Maritime Consultative Organization

Immunization, 1.3, 6.25, 6.35, 9.106, 15.25, 15.85
global advisory group, 9.174
information systems, 9.170, 9.174, 9.176
national programmes, 9.165, 9.177
research, 9.172-9.273, 10.64
training, 9.168, 9.171, 12.130, 12.131, 15.100
Immunoglobulins, 8.38, 8.39

centres for research and training, 10.88, 10.89, 12.172

Index medicus, 4.16, 4.20, 13.27
India, 2.15, 3.26, 5.7, 5.15, 5.16, 5.43, 5.52, 6.4, 6.29, 6.40, 6.64, 6.66, 6.79, 6.117, 6.128, 7.64, 8.39, 8.64, 8.69, 8.88, 8.91, 9.5, 9.11, 9.27, 9.31, 9.37, 9.04, 9.78, 9.92, 9.93, 9.106, 9.202, 10.64, 11.27, 11.34, 11.48, 12.18, 12.42, 12.87, 12.89, 12.120, 12.151, 13.17, 15.38, 15.42

Indicators of health status, 5.32, 6.2, 6.3, 6.17, 6.20, 6.50

Industrialization, 8.84, 15.101

Infant and young child feeding, 2.39, 6.7-6.10, 6.45-6.48, 12.178, 13.42, 15.115-15.116
joint FAO/WHO/UNU consultation (1981), 6.48


Infertility, 6.5, 8.75
research, 4.15, 6.70, 6.108-6.110

Influenza, 9.128-9.129
Information of the public, see Public information
global programme, 2.39-2.50, 9.170, 9.174

regional offices, 13.10-13.11

equipment, 9.60, 9.206, 9.210
training, 9.223
see also Larvicides; Pesticides

Institute of Nutrition of Central America and Panama (INCAP), 6.44, 6.46, 6.49

Inter-American Development Bank, 1.22, 3.5, 5.21, 11.16, 15.21

Interferons, 9.143, 9.144

Inter-Governmental Maritime Consultative Organization (IMCO), 9.147, 10.81, 11.35

Intergovernmental organization, (Annex 3)

International Agency for the Prevention of Blindness, 9.119

International Agency for Research on Cancer (IARC), 10.2, 10.4, 10.5, 10.12-10.32, 11.22, 11.46, 13.28

publications 10.12, 10.24-10.25

International Air Transport Association, 9.147

International Atomic Energy Agency (IAEA), 8.56-8.57, 8.59, 8.60, 10.42, 10.82, 11.31, 11.37, 11.58, 11.42, 12.158, 12.159

International Children’s Centre, 6.4, 8.81, 12.146

International Civil Aviation Organization (ICAO), 9.147

International Classification of Diseases, 13.7-13.9
centres, 13.9

Ninth Revision, 13.7

Tenth Revision, 13.8

International Classification of Impairments, Disabilities and Handicaps, 13.7, 13.74

International Classification of Procedures in Medicine, 13.7
INDEX

International Code of Marketing of Breast-milk Substitutes, 1.39, 3.22, 6.7-6.9, 6.32, 13.33, 13.56, 15.95
International College of Surgeons, 8.83, 12.100
International Commission on Radiation Units, 8.18
International Commission on Radiological Protection, 8.58, 11.37
International Committee of the Red Cross, 3.
International Commission on Health (1981), 1.45, 15.10
International Conference on Family Planning, the 1980s (Djakarta, 1981), 6.93
International Conference on Global Impacts of Applied Microbiology, Sixth (1980), 9.90
International Conference on Islamic Medicine, Second (1982), 8.80
International Conference on Primary Health Care (1978), 1.12, 12.79
International Congress on Medical Librarianship, Fourth (1980), 13.28
International Congress of Radiology, Fifteenth (1981), 8.53
International Council on Alcohol and Addictions, 7.40
International Council for Laboratory Animal Science, 9.200
International Council of Nurses, 12.14, 12.69, 12.110
International Council of Scientific Unions, 9.149
International Council of Women, 3.49
International Court of Justice, 14.9
International Development Strategy, 1.28, 3.11
International Diabetes Federation, 10.16
International Digest of Health Legislation, 13.41, 14.8
International Economic Order, New, 1.7, 3.11, 15.1
International Electrotechnical Commission, 8.58
International Emergency Fund, 9.160
International Federation of Anti-Leprosy Associations, 9.83
International Federation of Gynecology and Obstetrics, 6.4
International Federation of Health Records Organizations, 13.6
International Federation of Hygiene, Preventive Medicine and Social Medicine, 12.100
International Federation of Pharmaceutical Manufacturers Associations, 8.29
International Federation of Surgical Colleges, 8.83
International Health Regulations, 9.3 additional regulations, 14.6
International Histological Classification of Tumours, 10.11
International Institute of Applied Systems Analysis, 13.22
International Institute for Social Studies, 6.63
International Labour Organisation (ILO), 6.66, 7.40, 8.69, 8.86, 10.77, 10.78, 10.79, 10.80, 10.81, 10.82, 10.87, 11.9, 11.22, 11.23, 11.37, 11.38, 12.63
International League against Rheumatism, 10.59
International Leprosy Association, 9.83
International medical guide for ships, 10.81
International Nomenclature of Diseases, 13.48
International Organization of Islamic Medicine, 8.80
International Paediatric Association, 6.4, 6.18
International Pharmacopoeia, 8.5-8.6
International Planned Parenthood Federation, 6.4, 6.40
International Programme on Chemical Safety, 4.28, 11.22-11.25
International Radiation Protection Association, 11.38
International Society and Federation of Cardiology, 10.44, 10.45
International Society of Prosthetics and Orthotics, 8.83
International Society of Radiographers and Radiological Technicians, 8.53
International Society of Radiology, 8.53
International standards for drinking-water, 11.29
International Telecommunications Union, 3.18
International Union against Cancer, 9.128, 10.4, 10.5
International Union of Health Education, 6.4, 12.149
International Union of Immunological Societies, 10.93
International Union of Nutritional Sciences, 6.4
International Vitamin A Consultative Group, 6.58
International Year of Disabled Persons (1981), 1.40, 3.15, 8.65, 8.68, 8.85, 8.89, 9.161, 13.60, 15.73, 15.112
Intersectoral coordination in health and environmental management: an examination of national experience, 11.25
Intrauterine devices, 6.86, 6.87-6.88, 6.96-6.97
Iran, 3.45, 5.15, 9.25
Iraq, 2.22, 8.71, 9.38
Ireland, 7.42
Irrigation, see Water resources and river basin development projects
Ischaemic heart disease, 10.35, 10.36, 10.41, 10.44, 15.125
Islamic Development Bank, 3.5, 3.8
Israel, 2.21, 6.40, 8.71, 9.110, 10.36, 12.71, 15.89
Italy, 3.44, 7.46, 10.16, 10.62, 12.97, 14.23
Jamaica, 3.42, 5.1, 5.15, 5.16, 5.24, 12.65, 12.71
Japan, 7.16, 8.14, 8.21, 9.111, 12.167, 15.125
Japan Shipbuilding Industry Foundation (Sasakawa Memorial Health Foundation), 3.4, 9.84, 9.93, 9.158, 9.168
Joint Commission on International Aspects of Mental Retardation, 7.29
Joint Committee on Health Policy, UNICEF/WHO, 3.24, 5.1-5.2, 9.82
Joint Committee on the Health of Seafarers, ILO/WHO (1981), 10.81
Joint Committee on Occupational Health, ILO/WHO (1981), 10.78, 10.87
Joint FAO/IAEA/WHO Expert Committee on the Wholesomeness of Irradiated Food (1980), 11.42
Joint FAO/WHO Expert Committee on Energy and Protein Requirements (1971), 6.48
Joint FAO/WHO Food Standards Programme, 11.43
Joint FAO/WHO/OAU Regional Food and Nutrition Commission (Africa), 6.41
Jordan 8.71, 10.76

Kellogg Foundation, 2.12, 12.45
Kiribati, 2.24, 6.60, 6.65, 8.76, 9.110, 14.7
Kuwait, 2.19, 2.46, 3.4, 6.17, 7.22, 7.61, 10.92, 11.34, 12.140

Laboratory animals, health, breeding and management, 4.7, 9.200
Laboratory equipment, 8.47, 8.51, 14.22
Laboratory services and technology, 6.124, 8.44-8.51, 9.131, 9.145, 9.151, 15.113
training of personnel, 6.120, 8.41, 8.46, 8.49, 9.133-9.134, 12.118, 12.132, 15.113
see also Collaborating centres; Microbiological laboratories; Drugs, quality control

Language services of WHO, 15.44-13.45
Lao People's Democratic Republic, 6.60, 8.27, 12.78, 14.22, 15.121
Larvivorous fish, 9.217, 9.260
Lassa virus, 9.141
Latin American Association of Schools of Public Health, 12.95
Latin American Centre for Educational Technology in Health, 2.12, 12.15, 12.47, 12.112, 12.119, 12.131
Latin American Centre for Perinatology and Human Development, 6.22
League of Arab States, 3.8
League of Red Cross Societies, 3.35, 6.66
Lebanon, 1.46, 3.45, 3.29, 6.60, 8.71, 11.19, 14.23
Leishmaniasis, 9.64-9.65, 15.46
research, 9.61, 9.252, 9.249-9.252
Leprosy, 1.41, 9.78-9.97, 15.120, 15.123
chemotherapy, 9.78-9.80, 9.91, 9.93, 9.97, 15.123
drug resistance, 9.78, 9.79, 9.80
trials, 9.255, 15.42
combined leprosy and tuberculosis activities, 6.60, 9.89, 9.91
diagnostic techniques, 9.234
immunology, 9.232
information system, 9.85
primary health care approach, 9.83, 9.91, 9.92, 9.95
training in control, 9.82, 9.83, 9.91, 9.93, 9.95, 9.96
vaccines 9.81, 9.253
Leptospirosis, 9.179, 9.190, 12.169
Lesotho, 5.5, 7.4, 9.21, 12.18
Liberation, national, health aspects, 1.42
Liberation movements recognized by OAU, health cooperation, 1.45, 3.47, 15.15
Liberia, 5.5, 9.42, 12.43, 12.93, 12.100
Libraries, see Health literature services; Medical libraries
Libyan Arab Jamahiriya, 5.9, 9.110
Life table and mortality analysis, 13.15
Life-styles, see Behavioural sciences
Liver cancer and other chronic liver diseases, 10.18-10.20, 12.171, 15.125
Long-term planning, 2.33

Macao, 10.76
Madagascar, 3.41, 9.38, 9.42
Malaria, 1.21, 1.42, 6.60, 6.86, 9.14-9.34, 15.41, 15.120, 15.121
advisory committee (global), 9.19
Asian Conference, Seventh (1980), 9.34
certification of eradication, 9.21, 9.26, 15.121
coordination between countries, 9.20, 9.22, 9.23, 9.24, 9.26
conferences, Europe, 9.24
tercountry border meeting, 15.41
trials, 9.228, 9.232-9.234
epidemiology, 9.19, 9.31 (Fig. 9.1)
immunology, 9.233, 9.233-9.236
information system, 9.19
medium-term programme (WHO), 9.16
national programmes, 9.27
prevention of reintroduction, 9.20, 9.26
primary health care approach, 5.8, 9.18, 9.22, 9.34
demonstration area, 9.33
revised strategy and action programme, 9.16-9.20, 9.23, 9.30, 9.32
strategy, African Region, 1.42, 9.18
centre, 15.121
INDEX

Malaria (continued)
- vaccine, trials, 9.235
- biological and environmental, 9.208, 9.219
- insecticides, 9.206, 9.207

Malawi, 5.5, 9.38, 9.42, 9.54, 9.214


Maldives, 8.79, 9.27, 12.87


Malnutrition, 1.3, 6.17, 6.41, 6.42, 6.43, 6.45, 6.46, 6.47, 6.48, 7.45, 9.68, 10.54, 10.85, 15.20, 15.34, 15.116
- see also Nutritional deficiencies

Malta, 10.54

Management, see Health management; Programme of WHO, general development and management

Managerial process for national health development: guiding principles, 2.3

Manpower development, management and planning, 1.34, 1.13, 1.24, 1.26, 1.5, 12.1-12.180, 1.15, 15.19, 15.21, 15.33-15.38, 15.79-15.80, 15.88-15.91, 15.96, 15.129-15.134
- assessment of performance, 12.16, 12.142-12.143
- career structures, 12.61, 15.94
- community-oriented educational programmes, 12.47, 12.51, 12.77, 12.80, 12.82, 12.109, 12.112, 12.129
- continuing education, 12.41, 12.42, 12.50-12.53, 12.70, 12.98, 12.100, 15.16, 15.129
- curricula, 12.14, 12.15, 12.71, 12.82, 12.83, 12.91, 12.100, 12.110, 12.113, 12.115, 15.35, 15.130, 15.133
- directories, 12.85-12.86
- evaluation of programmes, 12.136-12.141, 15.88, 15.90
- indicators, 12.37, 12.137
- information service, 12.7
- information systems, 12.17
- integration with health services development, 12.22-12.24

International migration, 12.1, 12.30, 12.64-12.65

medium-term programme of WHO, 12.5-12.6

primary health care approach, 12.10, 12.15, 12.79, 12.82, 12.91, 12.93, 12.99, 12.100, 12.109

projections, 12.35-12.36

regional centres, Africa, 6.65

research, 4.34, 12.8-12.21, 12.29, 12.34, 12.38-12.39, 12.42

review of policy (1968-1980), 12.8-12.10

selection of applicants, 12.17, 12.124

statistics, 12.31, 13.5, 13.14

training in management, 2.13
- see also Auxiliary health personnel; Educational technology; Health management, training; Medical education; Public health training; Teacher training

- see also Guides, technical

Marburg virus, 9.141

Marine pollution, 11.34, 11.35, 14.8

Maternal and child health, 1.26, 6.15-6.40, 6.62, 9.18, 9.177, 12.20, 12.147, 13.15, 13.34, 13.85

national programmes, support, 6.23-6.27

research, 4.6, 5.57, 6.19, 6.20, 6.22, 6.24

risk approach, 6.28-6.31, 12.144, 15.35, 15.115

statistics, 13.15

training, 6.22, 6.24, 6.26-6.27, 6.30, 6.31, 12.87, 12.88, 12.145, 12.146, 15.115

Maternal mortality, 6.17-6.18, 6.19, 6.57, 13.14, 13.15

Mauritania, 2.7

Mauritis, 3.41, 5.5, 9.21, 9.27, 9.42, 10.33, 10.76, 10.77, 13.15


Meat hygiene, 9.185, 9.195-9.196

Medical assistants and auxiliaries, 12.83, 12.133

Medical care, see Health care

Medical education, 12.19, 12.74-12.78, 12.98, 12.115, 12.122, 12.151, 15.79-15.80, 15.91

continuing education of physicians, 12.100

curricula, 12.77, 12.100, 12.110

medical textbooks, provision of, 12.179

primary health care approach, 12.100, 15.80

Medical libraries, 4.20, 13.23-13.25

meetings of librarians, 4.16, 13.24, 13.28

regional libraries, 2.12, 4.20, 12.175, 15.57, 15.136

training of librarians, 12.175, 13.27, 13.28

Medical records, 13.4, 13.6, 15.133

Medical schools, 12.76, 12.77, 12.85, 15.80

meetings of deans and directors, 12.75, 12.76
- see also Medical education

Medicinal plants, 8.28, 8.73, 8.76, 8.78, 8.79, 15.107, 15.119

Mediterranean sea, pollution, 11.34, 11.35, 14.8

Medium-term programming, 2.27, 2.34-2.36

guidelines, 2.36

MEDLARS, 13.25

Membership of WHO, 14.1 (Annex 1)

Meningitis, see Cerebrospinal meningitis

Meningococcal vaccines, 8.32

Mental health, 12.24, 7.1-7.67, 8.86, 15.38, 15.118

action group, African Region, 7.4-7.8

community services, 7.11, 7.13, 7.70, 15.118

drug treatment, 7.54-7.55

global coordinating group, 7.1

integration in primary health care, 7.2-7.3, 7.47, 12.18, 15.118

281
Mental health (continued)
national coordination groups, 7.8
national programmes, development and support, 7.61-7.67
research, 4.3, 4.29, 7.3, 7.6, 7.28, 7.44, 7.47-7.60, 7.64, 7.67
self-help, 7.23, 7.24, 15.38
statistics, 13.19
training, 7.5, 7.12, 7.14, 7.15, 7.47, 7.51, 7.54, 12.95, 12.153-12.157, 15.38, 15.118
Mental retardation, 7.5, 7.29
Mentally disabled, 12.154, 15.38
Methods of assessment of avoidable blindness, 9.164
Mexico, 5.42, 6.91, 7.41, 7.36, 7.66, 8.64, 8.67, 9.54, 9.105, 9.110, 9.122, 9.211
Microbiological laboratories, prevention of accidents and infections, 8.45, 9.146-9.149
training, 9.148
Microbiology, 9.181
Micronesian Islands, 4.58, 15.125
Midwifery, 12.72, 12.73, 12.81, 12.106, 12.107, 12.108
role of midwives in family planning, 6.78, 6.79
role of midwives in primary health care, 12.70, 12.93
see also Nursing: Traditional birth attendants
Migrants, health of, 1.8
Migration of health manpower, 12.1, 12.90, 12.64-12.65
multinational study, 12.64
Milk hygiene, 9.181, 9.193
Mineral water, 9.193
Miners, health of, 10.74
Molluscicides, 9.42, 9.214, 9.238
Mongolia, 5.29, 6.64, 8.20, 8.59, 9.110, 12.151
Monkeypox, 9.8, 9.9, 9.141
Monrovia Declaration, 15.3
Morocco, 2.18, 5.3, 6.25, 7.22, 8.23, 8.49, 9.39, 11.18, 12.126, 15.77
Motor vehicles, effects of drugs on drivers, 4.29, 7.19, 8.85, 8.86
emissions, 11.30
road accidents, 8.1, 8.84-8.91, 15.73
Myocardial infarction, 10.42

Namibia, 1.45
Narcotic drugs, 7.16-7.22
National decision-making for primary health care, 5.1
National health councils, establishment, 1.30, 12.24
National staff, involvement in WHO programmes, 1.30, 1.32, 15.9
Natural disasters and catastrophes, preparedness and management, 3.50, 3.51-3.57
training, 3.53-3.54

Nepal, 3.43, 5.2, 5.7, 6.66, 8.20, 8.49, 8.54, 8.59, 8.69, 9.92, 9.93, 9.110, 9.112, 9.158, 11.17, 12.27, 12.126
Neurological disorders, 7.56-7.59
training, 12.153, 12.156, 12.157
New Hebrides, see Vanuatu
New International Economic Order, 1.7, 3.11, 15.1
New Zealand, 5.30, 9.181, 10.33, 15.109, 15.125
Nicaragua, 5.42, 5.5, 5.24, 6.29, 9.64, 9.110, 9.112, 12.47, 12.51
Niger, 6.63
Nomenclature of Diseases, International, 13.48
Non-aligned countries, 1.25
Noncommunicable diseases, 10.1-10.94, 15.48
community control, 10.1, 10.38
research, 4.12
Nordic Council on Medicines, 8.13, 15.71
Nordic Federation for Medical Education, 15.79
Norway, 5.4, 5.16, 6.128, 7.8, 9.118, 10.36, 15.76
Nosocomial infections, 8.45, 9.150
Nuclear conflict, prevention, 1.47
Nuclear energy and fuel, 11.31, 11.37, 11.38
Nuclear medicine, 8.81, 8.57, 8.59, 8.60, 12.158
Nursing, 8.82, 12.13, 12.31, 12.33, 12.140, 15.91
mental health, 7.5, 12.153
post-basic nursing education, programmes, 12.91, 12.94, 12.95, 12.97
regional centres, 12.93
primary health care, 12.69-12.73, 12.91, 12.93
research, 12.72
role of nurses in care of the elderly, 8.93
role of nurses in family planning, 6.78
textbooks, and other educational materials, 7.5, 12.106, 12.107, 12.108, 12.119, 12.128
teacher training, 12.91, 12.115, 12.123
Nutrition, 1.3, 1.24, 3.24, 3.26, 6.7, 6.18, 6.41-6.58, 8.93, 10.37, 11.44, 13.16, 15.36, 15.116
centres for research and training, 6.44
integration in primary health care, 6.42, 6.43-6.44, 6.46, 15.16, 15.36, 15.116
national food and nutrition policies, 15.116
research, 4.3, 4.13, 4.18, 6.46, 6.52-6.53, 9.75, 9.76, 10.42, 15.14, 15.36
surveillance, 4.13, 6.49-6.50, 15.36, 15.116
training, 6.49, 15.116
Nutritional deficiencies, 6.48, 6.51-6.57, 15.116
see also Malnutrition
OAU, see Organization of African Unity
Occupational health, 1.24, 10.73-10.87, 15.110
early detection of impairment, 10.84
exposure limits, 10.83-10.85
integration into general and primary health services,
10.75, 10.76, 10.77, 10.78
research, 4.38, 10.75, 10.85
training, 10.76, 10.77, 10.78-10.79
see also Working populations, health of
Occupational therapy, 10.86, 12.122
OECD, see Organisation for Economic Co-operation
and Development
Oesophageal cancer, 10.16, 10.28, 15.125
Onchocerciasis, 9.15, 9.216,
Operational research, 6.46,
Oral health, 10.67-10.72, 15.126
manpower, 10.70, 10.72
research, 4.12, 10.67, 10.70
training, 12.95, 12.132, 15.126
Organisation for Economic Co-operation and Development
(NUCLEAR ENERGY AGENCY), 11.17
Organization of African Unity, 1.5, 1.23, 1.45, 6.41,
9.212, 9.223, 15.5,15.13
Organization for Coordination and Cooperation in the Control of Major Endemic Diseases in West Africa,
Technical Conference (1981), 9.90
Organization of the Islamic Conference, 3.8
Organization of Petroleum Exporting Countries, 3.8
Organizational and related meetings, (Annex 2)
Organisational structure of WHO, (Annex 4)
re-examination in the light of functions, 1.1, 1.30-1.44
Organizational studies by the Executive Board, 1.41,
12.40-12.41
Orthopaedic and orthotic services, see Disability prevention and rehabilitation
Orthopoxvirus, 9.8, 9.9, 9.10
PAHO, see Pan American Health Organization
Palestine, health conditions, 1.46
Pan American Association of Neurological Sciences, 7.19
Pan American Development Institute, 6.44
Pan American Centre for Sanitary Engineering and Environmental Sciences, 11.15, 11.26
Pan American centres for research, 4.20
Pan American conference on research policy, planned,
4.17
Pan American Federation of Associations of Medical Schools, 12.76
Pan American Foot-and-Mouth Disease Control Centre, 9.179
Pan American Health Organization (PAHO), 14.7, 15.20-15.31
publications, 13.16, 13.35, 13.44
synchronization of planning cycle, 1.35
Pan American Sanitary Bureau, see Regional Office for the Americas
Pan American Zoonoses Centre, 9.179
Panama, 1.24, 7.22, 7.61
Papua New Guinea, 2.24, 2.25, 4.37, 5.3, 5.10, 5.13, 5.26,
5.55, 6.26, 6.46, 6.60, 6.65, 7.61, 8.76, 9.96, 9.110,
9.122, 9.123, 12.24, 12.73, 12.107, 12.116, 12.152,
13.115, 13.122
Paragonimiasis, 4.38
Paraguay, 5.21, 5.24, 11.15, 11.16
Parasitic diseases, 6.17, 9.14-9.67, 10.85, 13.21
research, 4.37
see also Tropical diseases
Particulate matter, health hazards, 10.82, 10.84
Patent rights, 14.10
Peace, health and, 1.47, 5.10
Perinatal care and perinatology, 6.19-6.22, 6.24, 10.20
Perinatal mortality, 13.17, 15.20
Periodontal diseases, 10.68, 15.126
Permanent Commission and International Association on Occupational Health, 10.74
Pertussis, vaccination and vaccines, 9.173, 15.23
see also DPT vaccine
Philippines, 2.24, 2.25, 4.10, 5.11, 5.15, 5.30, 5.48, 5.55,
6.55, 6.60, 6.62, 7.65, 8.14, 8.76, 9.38, 9.39, 9.40,
9.78, 9.110, 9.122, 9.123, 9.184, 10.20, 10.59, 10.74,
12.36, 12.71, 12.87, 12.99, 12.107, 12.122, 12.123,
12.126, 12.132, 15.125
Physical activity, 10.43
Physicians, role in preservation and promotion of peace, 1.47
Pinta, 9.154
Plague, 9.117, 9.213, 15.46
Planning, see Environmental health, national planning;
General Programmes of Work; Health planning and programmes; Long-term planning; Manpower development, management and planning; Medium-term planning; Programme of WHO
Pneumonia, 9.120, 10.64
Poland, 7.42, 10.74, 12.16, 12.23, 12.72, 12.146
immunization and vaccines, 8.32, 8.35–8.37, 9.132, 9.153, 9.166, 15.23
Pollution, see Air pollution; Costal pollution; Environmental pollution; Soil pollution; Water pollution
Polynesian Islands, 4.38, 15.125
Population dynamics, 1.10
Portugal, 2.18, 6.25, 6.40, 7.16, 15.77
Postgraduate training, 4.8, 5.53, 9.192, 12.90–12.99, 12.173, 12.176
Poverty, 6.15, 15.65
Poxviruses, research, 9.8, 9.9
Pregnancy, hypertension problems, 6.17, 6.19
in adolescence, 6.38, 6.39, 15.114
nutritional aspects, 6.18, 6.45, 6.46, 6.57
spacing, 6.81
termination, abortion and wastage, 6.17, 6.38, 6.80, 6.99, 6.108
testing, 8.32
Prevention of alcohol-related problems: an international review of preventive measures, policies and programmes, 7.42
Prevention in childhood of health problems in adult life, 6.37
Primary health care, 1.3, 1.4, 1.11, 1.13, 1.24, 1.26, 1.42, 2.20, 3.1, 3.10, 3.21, 3.23, 5.5–5.17, 5.18, 5.19, 5.21, 5.45, 5.6, 5.12, 6.31, 7.25, 8.76, 10.75, 10.77, 12.28, 12.80, 13.56, 13.57, 13.60, 15.1, 15.4, 15.5, 15.15, 15.25, 15.29, 15.34, 15.83–15.86, 15.93, 15.104, 15.106
drugs for, 8.3, 8.13, 8.18
in urban areas, consultation, 5.13
integration, of disability prevention and rehabilitation, 8.62, 15.74
of family health, 15.115
of family planning 6.68, 6.72, 6.73, 6.79, 15.115
of health education, 6.60, 6.65, 12.150, 15.37
of maternal and child health services, 6.2–6.3, 6.19, 6.24–6.25, 6.30
of mental health, 7.2–7.3, 7.47, 12.18, 15.118
of nutrition services, 6.43–6.44, 6.46, 15.16, 15.36, 15.116
of radiological services, 8.59
International Conference (Alma-Ata, USSR, 1978), 1.12, 12.79
joint studies (UNICEF/WHO), 3.24, 5.1–5.2, 5.15
management, 1.8, 5.13
programme financing, 1.20
Health Resources Group, 1.20, 3.6, 15.32
initiative fund, 3.7
interregional study, 5.17
records and statistics, 15.1–15.4, 15.7, 15.14, 15.21
research, 4.3, 4.16, 4.29, 4.33, 5.8, 5.10, 5.13, 5.55, 6.63
role of nurses and midwives, 12.69–12.70, 12.73, 12.93
role of traditional health workers, 12.20
support, health systems, 1.38, 5.19–5.20
training, 5.6, 5.8, 5.11, 8.79, 9.155, 12.48, 12.52, 12.53, 12.60, 12.62, 12.63, 12.68, 12.69–12.84, 12.99, 12.100, 12.102, 12.111, 12.116, 12.124, 15.43, 15.54, 15.55, 15.80, 15.106, 15.129
teaching/learning materials, 12.18, 12.100, 12.103–12.108, 12.128, 12.129, 12.130, 12.134, 12.135
workshops, 5.4, 5.12, 5.17
see also Drugs, essential
Primary health care workers, 6.44, 7.9, 7.47, 7.51, 8.81, 10.5, 10.6, 12.36, 12.57, 12.19, 12.10, 15.40
training, 5.6, 5.7, 5.8, 6.26, 6.44, 6.65, 7.23, 7.30, 8.28, 12.18, 12.33, 12.83, 12.103, 12.116, 12.129, 12.130, 12.177, 15.38, 15.131
Primates, nonhuman, 4.7, 8.40, 10.30
Programme budgeting, 1.5, 1.35, 2.27, 2.35, 2.36–2.37, 2.43
national, 15.62
Programme budgets (WHO), 2.38, 15.61
for 1982–1983, 1.42
for 1984–1985, 1.18, 2.36, 2.37
policy and strategy, 15.5
Programme Committee, Global, 1.37
of the Executive Board, 2.31–2.32, 10.3
regional programme committees, 1.35, 15.6
Programme coordinators (WHO), 1.32, 1.33, 3.6, 3.51, 11.8, 15.61
national, 1.32, 15.9
Programme of WHO, general development and management, 2.26–2.50
use of resources, studies, 2.37
see also Evaluation
Prosthetics, 8.67, 8.69, 8.71
Protein-energy malnutrition, 6.48
Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources, 14.8
Protozoal infections, 9.66–9.67
Psychiatry, 7.52–7.54
training 7.51, 7.54, 12.153, 12.155, 12.179
Psychopharmacology and psychopharmacotherapy, 7.54–7.55, 12.135
INDEX

Psychosocial factors and health, 1.42, 7.5, 7.23-7.28, 8.89, 10.86, 15.118
research, 1.8, 1.14, 4.3, 6.63, 6.66, 6.70, 6.82, 6.118, 6.125, 7.43, 7.44, 7.25, 7.26, 7.49
Psychotropic substances, 7.7, 7.16-7.22, 7.55, 15.118
Public health services, see Health services
Public health training, 12.95, 12.96, 12.141, 12.148, 15.80
African centres, 12.118
organizational study, 1.41
schools, meetings of directors (1981), 12.90
Public information 9.116, 13.53-13.64
Publications, WHO programme, 13.12, 13.13, 13.14,
13.29-13.36, 13.41, 13.62
distribution and sales, 13.49-13.52
regional publications, 13.16, 13.34-13.35, 13.44, 13.47,
15.81-15.82, 15.103
translation, 13.36, 15.81
Publications and Documentation Service, PAHO/WHO (Mexico), 11.44
Puerto Rico, 9.46

Qatar, 10.76
Quality control, see Biologicals; Drugs; Drinking-water;
Water, quality control

vaccines, 8.32, 9.184, 15.47
wildlife rabies, 9.184
Radiation health and protection, 8.58, 8.59, 8.60, 11.31,
11.36-11.38
environmental radiation, 11.33
ionizing radiation, 8.18
personnel monitoring, 11.37
non-ionizing radiation, 11.36
standards, 11.37
training, 8.60
Radiation medicine, 8.52-8.60
diagnosis, 12.158, 12.180
integration in primary health care, 8.59
therapy, 8.52, 8.53, 8.56, 8.57, 8.59, 8.60, 12.159
training of radiographers and radiological technicians,
8.52, 12.158-12.199, 12.180
Radiological equipment, 8.54
standard dosimetry, 8.56, 8.59
Reagents and reference substances, 6.124, 8.6, 8.14, 8.31,
8.36, 8.50, 9.123, 9.131, 9.199, 9.247, 10.93
production 8.45, 8.48, 9.130, 10.90
Refugees and displaced persons, 1.45, 1.46, 3.33, 3.36,
3.38, 9.25, 13.60
Regional Committee for Africa, 1.3, 1.35, 1.36, 1.37, 1.38,
1.39, 1.40, 1.44, 1.45, 13.5-13.7
technical discussions, 4.16
Regional Committee for the Americas, 1.4-1.5, 1.22, 1.29,
1.33, 1.38, 1.40, 1.42, 6.13
technical discussions, 6.60, 11.47
timing of sessions, 1.35
Regional Committee for the Eastern Mediterranean,
1.46, 15.84
Regional Committee for Europe, 1.7-1.9, 1.34, 1.35, 1.39,
1.40, 1.42
technical discussions, 1.40, 15.74
Regional Committee for South-East Asia, 1.6, 1.29, 1.33,
1.39, 1.40, 1.42
technical discussions, 1.28
Regional Committee for the Western Pacific, 1.11, 1.54,
1.38, 1.39, 1.40, 1.42
technical discussions, 1.40
Regional committees, 1.18, 1.19, 1.23, 1.29, 1.30, 1.31,
1.35, 1.42
methods of work, 1.36-1.39
Regional development banks, 8.30
Regional Office for Africa, 2.43
structure, 15.9
Regional Office for the Americas, 2.44, 13.10
publications, 13.16, 13.35, 13.44
Regional Office for the Eastern Mediterranean, 2.44
publications, 13.16, 13.34, 13.44, 13.47, 15.103
transfer, 14.9
Regional Office for Europe, 2.43, 2.44, 8.1, 8.13
publications, 13.16, 13.35, 13.81-13.82
Regional Office for South-East Asia, 2.44
Regional Office for the Western Pacific, 2.44, 13.10,
13.17
accommodation, 14.18
Regional offices, (Fig. 15.1)
information systems, 13.10-13.11
structures and functions, 1.30
Regions of WHO, (Fig. 15.1)
Rehabilitation, see Disability prevention and rehabilitation
Rehydration salts, oral, 9.69, 9.72, 9.75, 9.76, 15.43, 15.99
production, 3.21, 9.70
Reporting system of WHO, 2.40
Repository of chromosomal variants and anomalies in man,
10.63
Republic of Korea, 2.24, 2.25, 3.27, 4.37, 5.3, 5.18, 5.30,
5.36, 6.29, 6.40, 6.62, 6.65, 6.79, 9.110, 9.205, 10.74,
11.34, 11.51, 12.33, 12.71, 12.144, 15.115, 15.123
Research, 1.4, 1.13, 1.14, 4.1-4.39
capability, strengthening, 4.2, 4.11, 4.17, 4.21, 4.36-
4.37, 5.11, 6.29, 15.94
career structures, 4.5
directory of institutions, 13.16
ethical aspects, 4.7, 4.17
evaluation, 4.22
financing, 4.1, 4.4, 4.16, 4.29
information systems, 4.74, 4.16, 4.28, 5.36
management, 4.28, 4.35, 4.36, 4.37, 4.39
national medical research councils, establishment of
and links with, 4.6, 4.10, 4.37, 15.60
meetings of directors, 4.23
policy and priority-setting, 4.1, 4.17, 4.34

285
Research (continued)
regional programmes, 15.14, 15.59-15.60, 15.68, 15.92-15.94, 15.105
scientific planning groups, 4.3
standardization of procedures, 4.27, 4.29
technical cooperation among research institutions, 4.9, 4.36
training, 4.2, 4.6, 4.8-4.9, 4.11, 4.29, 4.37, 12.144, 15.14, 15.60
centres, 9.268
grants and awards, 4.8-4.9, 4.21, 4.28, 6.121, 6.122, 9.230, 9.266, 15.14, 15.105
IARC programme, 10.12-10.32
see also Health services research; Human experimentation, and under individual subjects of research
Research coordination, 1.25, 1.59, 4.6, 4.36, 6.125, 15.14, 15.60
Respiratory diseases, acute, 1.42, 6.16, 9.120-9.126, 15.120
chemotherapy, 9.121, 9.124
research, 4.37, 4.48, 9.121-9.123, 9.126, 9.131, 15.105, 15.122
training in control, 9.123
chronic 10.58
Réunion, 9.21
Revolving Fund for Teaching and Laboratory Equipment, 14.25
Rheumatic diseases, 10.59-10.60
Rheumatic fever, 10.40, 15.125
Rheumatic heart disease, 10.40, 15.125
Rickettsial diseases, 9.139
Rift Valley fever, 9.138, 9.180, 15.97
vaccine, 8.55
Rockefeller Foundation, 9.46, 12.130
Rodent control and rodenticides, 9.213
Rodent Control Demonstration Unit (Rangoon), 9.213
Romania, 10.64, 12.154
Rotavirus, 9.77
Royal Commonwealth Society for the Blind, 9.119
Rural development, 5.16, 9.45, 9.178, 13.21, 13.63
water supply and sanitation, 1.40, 3.27, 6.66, 11.3, 11.15, 11.18, 15.127
Rural health, 5.26, 12.73, 12.82, 15.130
incorporation of nutrition activities, 6.46
Rwanda, 7.4, 9.42, 9.214, 12.127
San Marino, 14.1
Sandflies, 9.202, 9.250
Sandoz Foundation, 12.64
Sanitarians, 12.65
Sanitary and public health engineering, training, 12.173
Pan American centre, 11.15, 11.26
Sanitation, 1.3, 1.21, 1.26, 1.40, 6.60, 9.44, 11.4, 11.5, 11.6, 11.11, 11.13, 11.16, 11.18, 13.56, 15.23, 15.49, 15.50, 15.65, 15.77, 15.81, 15.127
information systems, 11.15, 11.17
integration in primary health care, 11.2
national programmes, support, 11.2, 11.3, 11.4, 11.12, 11.15, 11.16, 11.17, 15.18
see also Environmental health; Sewerage; Wastes disposal; Water supplies
Saudi Arabia, 2.19, 7.13, 8.71, 9.64, 9.206, 10.76, 12.138
Schistosomiasis, 6.86, 9.36-9.46, 15.120
chemotherapy, 9.40, 9.42, 9.238
diagnostic techniques, 9.239
snail control, 9.42, 9.43, 9.214, 9.219, 9.238
training, 9.43
Schizophrenia, 7.50, 7.13
Scientific Group on Prevention Strategies in Cancer (1981), 10.3
Scientific Group on Treponemal Infections (1980), 9.153
Seafarers, health of, 10.81
Seas, regional, coordinated programme (UNEP), 11.35
Self-care and self-reliance in health care, 1.8, 1.11, 1.24, 1.27, 1.31, 4.29, 4.33, 5.8, 6.61, 6.62, 9.68, 15.93
Self-help, 7.23, 7.25, 15.38
Senegal, 2.7, 5.18, 5.27, 7.16, 8.83, 9.38, 9.40, 9.211, 12.127
Sera, 8.48
Sewerage, 11.15, 15.20
Sexually transmitted diseases, 9.151-9.155, 15.120, 15.122
chemotherapy and drug resistance, 9.112
research on diagnostic techniques, 9.151, 9.153
Seychelles, 9.21
SIDA, see Swedish International Development Authority
Sierra Leone, 2.19, 9.8, 9.211, 12.20, 12.87, 12.93, 13.15
Singapore, 5.36, 7.44, 7.65, 9.26, 10.19, 10.77, 12.78, 12.122
Single Convention on Narcotic Drugs (1961), 7.16
Sixth report on the world health situation, 13.12, 13.32
Smallpox, eradication, 13.55, 13.60, 15.97
declaration of, 1.41, 9.3
exclusion from International Health Regulations, 14.6
Global Commission, 9.3
post-eradication activities, 9.3-9.11
vaccination, 9.4, 9.7
discontinuation, 9.4, 9.12
reserves of vaccine, 9.5
Technical discussions (continued)

South-East Asia, 12.28

Western Pacific, 1.40

Terminology, 4.27, 13.46-13.48

Tetanus, 9.167

neonatal, 9.172, 15.100

vaccination and vaccine, 15.23, 15.100

see also DPT vaccine

Textbooks (medical), 12.129, 12.179

see also Nursing, textbooks


Thalassaemia, 10.62

The primary health care worker: working guide, guidelines for training, guidelines for adaptation, 12.103

The provision of care for the elderly, 8.93

The treatment and management of severe protein-energy malnutrition, 6.48

Therapeutic substances and technology, 4.27, 8.2-8.60

Thrombosis, 10.41

Tobacco, consumption and production, 10.47

Tobacco report, 10.50

Tobacco-chewing, 10.6

Togo, 6.64, 9.52

Tonga, 2.24, 9.110, 12.83, 15.130

Tourism, see Travel

Toxicologists, training, 11.25, 15.78

Toxicology, see Chemicals; Drugs, safety and efficacy; Food safety and hygiene; Pesticides, health hazards

Trachoma, 9.164

Traditional birth attendants, 5.7, 6.30, 12.20, 12.68, 12.87-12.89, 15.56

Traditional health workers, 4.33, 8.77, 12.149

training, 8.79

Traditional medicine, 1.24, 5.7, 5.43, 8.73-8.81, 12.149, 15.107

handbook for health administrators, 8.81

national programmes, 8.79

research, 8.74, 8.76, 8.79

study tours in China, 8.76

training, 8.73, 8.74, 8.76

Travel and tourism, 9.12-9.15, 9.28

Treponematoses, endemic, 9.154-9.155

Trinidad and Tobago, 5.28, 13.15

Tropical diseases, 8.75

research, 4.37


centre (Ndola), 9.265


financing, 9.225, 9.269

scientific working groups, 9.212

grants, 4.21, 9.230, 9.266, 11.105

see also Vector biology and control

Trust Territory of the Pacific Islands, 5.30, 9.110

Trypanosomiasis, 9.58-9.63

chemotherapy, 9.19


diagnostic techniques, 9.243

drug trials, 9.244

seminar, OAU/FAO/WHO, 9.223

vector control, genetic, 9.59, 9.212, 9.223

insecticides, 9.60, 9.63, 9.212, 9.246

see also Chagas’ disease


Tuberculosis, 9.98-9.116, 13.60, 15.120, 15.123


combined leprosy and tuberculosis activities, 6.60, 9.89, 9.91

integration of services in general and primary health care, 9.101, 9.114

national programmes, strengthening, 9.101, 9.110


training, 9.111, 12.167

Tumours, classification, 10.11

in animals, 9.198

Tunisia, 6.25, 9.39, 9.116

Turkey, 3.44, 5.8, 5.15, 6.25, 6.29, 6.40, 6.78, 6.80, 6.119, 8.85, 9.15, 9.33, 9.202, 9.207, 9.219, 10.22, 11.18, 12.144, 15.77

Tuvalu, 6.65

Typhoid fever, 9.75

Typhus, 9.213

Uganda, 3.5, 3.41, 9.42, 9.58

UNCTAD, see United Nations Conference on Trade and Development

UNDP, see United Nations Development Programme

UNDRO, see United Nations Disaster Relief Coordinator

Unemployment, 1.8, 5.35, 15.65

UNEP, see United Nations Environment Programme

UNESCO, see United Nations Educational, Scientific and Cultural Organization

UNFDAC, see United Nations Fund for Drug Abuse Control

UNFPA, see United Nations Fund for Population Activities

UNHCR, see United Nations High Commissioner for Refugees

UNICEF, see United Nations Children’s Fund
Vaccination, see Immunization, and under individual diseases
Vaccination certificate requirements for international travel, 9.12-9.13
Vaccination certificates, 9.4, 9.12, 13.33, 14.6
projection of requirements, 9.170
training, 8.41, 8.43
regional and local production, 8.36, 8.42
storage, 9.5
supplies, 14.23, 14.26
see also under individual diseases
Vanuatu (formerly New Hebrides), 9.110, 12.33, 12.73, 14.7
Variola virus, survey of laboratory stocks, 9.6, 9.9
environmental control, 9.208, 9.218-9.220
joint WHO/FAO/UNEP panel of experts, 9.218
genetic control, 9.205, 9.209, 9.211
research units, 9.205, 9.207, 9.211
Veneral diseases, see Sexually transmitted diseases
Venezuela, 5.27, 5.42, 6.80, 7.46, 9.46, 9.63, 9.122, 9.203, 10.92
Veterinary public health 8.32, 9.178-9.200
training, 9.190-9.192, 12.95, 12.168-12.169
Viet Nam, 5.46, 8.27, 8.49, 8.76, 9.110, 9.137, 12.78, 14.7, 14.22, 15.121, 15.125
Village health workers, see Community health workers
Virus diseases, 9.3-9.11, 9.120, 9.127-9.145, 9.181, 15.120, 15.122
chemotherapy 9.144
vaccines, 8.43
WHO reporting system, 9.145
Visual impairment, 9.161, 15.75
Vitamin A deficiency, 6.53-6.54
Volta River basin area, onchocerciasis control programme, see under Onchocerciasis
Voluntary Fund for Health Promotion, 3.2, 9.158, 9.163, 9.168, 10.69, 13.7, 14.26

Wastes disposal, 11.6, 11.19, 15.20, 15.77
management of solid wastes, 11.18, 11.34, 15.33
radioactive waste, 11.31
Water pollution, 11.21, 11.28, 11.29, 11.34, 15.51
see also Coastal pollution; Marine pollution

Water quality control, 11.17, 11.20, 11.27, 11.34
Water resources and river basin development projects, health aspects, 3.28, 9.36, 9.41, 9.222
see also Onchocerciasis, Volta River basin area, control programme
information systems, 11.15, 11.17
information transfer, 11.8, 11.9, 11.15
integration in primary health care, 11.2
national programmes, support, 11.2, 11.3, 11.4, 11.12, 11.15, 11.16, 11.17, 15.18
Water-associated diseases, 11.13, 11.25, 11.29, 11.34, 11.58
Blue Nile health project, 9.44, 9.219, 15.98
Weaning and weaning foods, 6.10, 6.45, 6.47
Weekly Epidemiological Record, 9.38, 9.85, 9.175
Regional Centre for Promotion of Environmental Planning and Applied Studies, 11.26, 11.30, 15.128
WFP, see World Food Programme
WHO Chronicle, 12.7, 13.30
WHO guidelines for drinking-water, 11.29
Women in health and development, 6.10
World Association of Veterinary Food Hygienists, 9.187
World Bank, 7.97, 9.157, 9.269, 10.82, 11.9, 15.77
cooperative programme with WHO, 3.20, 8.30, 11.3, 11.8, 11.9, 11.14, 11.16, 11.19
World Communications Year (1983), preparations, 3.15
World Congress on Acupuncture, Seventh (1981), 8.79
World Congress on Biological Psychiatry, Third (1981), 7.54
World Congress on Neurology, Twelfth (1981), 7.59
World Congress of Women (1981), 6.11
World directory of medical schools, 12.85
World Federation for Medical Education, 12.14, 12.110
World Federation of Proprietary Medicine Manufacturers, 8.2
World Federation of Societies of Anaesthesiologists, 8.83
INDEX

World Fertility Survey, 6.6
World Food Council, 6.12
World Food Programme (WFP), 3.25-3.29
World Health, 9.116, 13.62
World Health Assembly, 1.18, 1.19, 1.30, 1.31, 1.37, 1.38,
1.39, 1.40, 1.41, 1.42, 1.43, 1.45, 1.46, 1.47
duration and periodicity of sessions, 1.43-1.44, 1.45
method of work, 1.43-1.44
technical discussions, 1.38, 3.11, 5.19
World health forum, 13.29-13.30
World health situation, sixth report, 13.12, 13.32
World Health Statistics Annual, 13.13
World Health Statistics Quarterly, 13.14
World Medical Association, 12.100

X-ray equipment, 8.52, 8.54
training of X-ray technicians, 8.52, 12.180
Xerophthalmia, 6.53, 6.54

Yaws, 9.154
Yellow fever, 9.136

vaccine, 8.34, 9.136
vector biology and control, 9.202, 9.210
Yemen, 2.22, 2.23, 3.45, 4.33, 6.60, 8.54, 9.38, 9.110,
10.76, 11.19, 12.77, 12.133, 12.140, 15.93
Youth and adolescence, 15.114
drug abuse, 7.32
maturation and reproductive health, 6.38-6.40, 13.15,
15.114
noncommunicable diseases, 10.36
smoking, 10.49
Yugoslavia, 3.44, 5.52, 11.27, 12.23, 15.77

Zaire, 3.41, 9.8
Zambia, 2.10, 5.5, 5.27, 6.64, 7.4, 8.86, 9.38, 9.59, 9.40,
9.43, 9.234, 9.243, 9.261, 10.64, 10.76, 12.43
Zimbabwe, 1.45, 5.41, 5.5, 5.5, 9.39, 9.43, 10.76, 12.71,
14.1, 14.7, 15.13
Zoonoses, 9.178-9.186, 15.47
centres, 9.179-9.181
Mediterranean, 9.180
Pan American, 9.179
research, 9.179, 9.184
training, 9.190, 12.168, 12.169, 15.47
LAO PEOPLE'S DEMOCRATIC REPUBLIC: The WHO Programme Coordinator, P.O. Box 343, Vientiane.

LEBANON: The Levant Distributors Co S.A.R.L., Box 1181, MakadiYa Street, Hamra Bldg, Beirut.

LUXEMBOURG: Service Public, 1004, Luxembourg.

MALAYSIA: The WHO Programme Coordinator, Jalan Raja Chulan, Kuala Lumpur 50000, Malaysia (Book Store Ltd., 97 Jalan Tunku Abdul Rahman, P.O. Box 629, Kuala Lumpur 01-08 — Parry’s Book Center, K. L. Hilton Hotel, Jalan Tun Perak, Kuala Lumpur 01-06, MALAYSIA).


MONGOLIA: see India, WHO Regional Office.

MOROCCO: see India, WHO Regional Office.

NETHERLANDS: Medical Books Europe BV, Noordwijk 38, 7241 BI, Loechem.

NEW ZEALAND: Government Printing Office, Government Stationery Office, Private Bag, Wellington 1, Walter Scott, Wellington, World Trade Building, Cubacade, Cuba Street, Wellington, Government Bookshops at Hennaford Burton Building, Rutland Street, Private Bag, Auckland, 159 Hereford Street, Private Bag, Christchurch, Alexander Street, P.O. Box 857, Hamilton, T & G Building, Princes Street, P.O. Box 1104, Dunedin — R. Hill & Son Ltd., Ideal House, Car Gilley Avenue & Eden St, Newmarket, Auckland 1.

NIGERIA: University Bookshop Nigeria Ltd, University of Ibadan.

NORWAY: J.G. Tanum A/S, P.O. Box 1177 Sentrum, Oslo 1.

PAKISTAN: Mirza Book Agency, 65 Shahrah-E-Quaid-E-Azam, P.O. Box 729, Lahore 5.

PAPUA NEW GUINEA: The WHO Programme Coordinator, P.O. Box 3588, Port Moresby.

PHILIPPINES: World Health Organization, Regional Office for the Western Pacific, P.O. Box 2932, Manila — The Modern Book Company Inc, P.O. Box 652, Rizal Avenue, Manila 2000.

PORTUGAL: Sindudr, Rua da Mafra 23, 2000 Warsaw (except periodicals) — BKWZ Buch, ul Wrona 20, 06840 Warsaw (periodicals only).

PORTUGAL: Livraria Rodrigues, 186 Rua dooutro, Lisbon 2.

SIERRA LEONE: Nala University College Bookshop (University of Sierra Leone), Private Bag, Freetown.

SINGAPORE: The WHO Programme Coordinator, 144 Moulmein Road, P.O. Box 3457, Singapore 1 — Select Books (Pte) Ltd, 19 Tanglin Shopping Centre, 2/F, 19 Tanglin Road, Singapore 10.

SOUTH AFRICA: Van Schilk’s Bookstore (Pty) Ltd, P.O. Box 724, 268 Church Street, Pretoria 0001.


SRI LANKA: see India, WHO Regional Office.


SWITZERLAND: Medienverlag Verlag Hans Huber, Langgassstrasse 76, 3012 Bern 9.

SYRIAN ARAB REPUBLIC: M Farras Kehka, P.O. Box 5221, Aleppo.

THAILAND: see India, WHO Regional Office.

TUNISIA: Société Tunusienne de Diffusion, 5 Avenue de Carthage, Tunis.


UNITED KINGDOM: H.M. Stationery Office 49 High Holborn, LONDON WC1V 6HB. 13a Castle Street, EDINBURGH EH2 2AR, 41, The Hayez, Cadre CF1 1UE, 23, Avenue de Fribourg 43Y, Brazenose Street, MANCHESTER M60 8AS, 258 Broad Street, BIRMINGHAM B1 2HE, Southfield House, West Street, BRIXTON B29.

UNited States of America: Simple and bulk copies of individual publications (not subscriptions) who指标 towards the WHO Regional Office.


ISRAEL: HaUpir, Co 3, Nathan Strauss Street, JERUSALEM.

ITALY: Edizioni Minerva Medica, Corso Bramante 85-83, 10126 TURIN, Via Lamarmora 3, 20100 MILAN.

JAPAN: Maruzen Co Ltd, P.O. Box 5050, Tokyo International, 100-31.

KOREA, REPUBLIC OF: The WHO Programme Coordinator, Central Library, P.O. Box 240, Seoul.

KUWAIT: The Kuwait Bookshops Co Ltd, Thunayan Al-Khameen Bldg, P.O. Box 2942, Kuwait.

Price: Swf 18. — Prices are subject to change without notice.