OFFICIAL RECORDS
OF THE
WORLD HEALTH ORGANIZATION
No. 172

THE WORK OF WHO
1968

ANNUAL REPORT OF THE DIRECTOR-GENERAL
TO THE
WORLD HEALTH ASSEMBLY
AND TO THE
UNITED NATIONS

The Financial Report, 1 January—31 December 1968, which constitutes a supplement to this volume, is published separately as Official Records No. 175.

WORLD HEALTH ORGANIZATION
GENEVA
April 1969
The following abbreviations are used in the *Official Records of the World Health Organization*:

- **ACABQ** — Advisory Committee on Administrative and Budgetary Questions
- **ACC** — Administrative Committee on Co-ordination
- **CIOMS** — Council for International Organizations of Medical Sciences
- **ECA** — Economic Commission for Africa
- **ECAFE** — Economic Commission for Asia and the Far East
- **ECE** — Economic Commission for Europe
- **ECLA** — Economic Commission for Latin America
- **FAO** — Food and Agriculture Organization
- **IAEA** — International Atomic Energy Agency
- **ICAO** — International Civil Aviation Organization
- **ILO** — International Labour Organisation (Office)
- **IMCO** — Inter-Governmental Maritime Consultative Organization
- **ITU** — International Telecommunication Union
- **PAHO** — Pan American Health Organization
- **PASB** — Pan American Sanitary Bureau
- **UNCTAD** — United Nations Conference on Trade and Development
- **UNDP/SF** — United Nations Development Programme, Special Fund component
- **UNDP/TA** — United Nations Development Programme, Technical Assistance component
- **UNESCO** — United Nations Educational, Scientific and Cultural Organization
- **UNICEF** — United Nations Children’s Fund
- **UNRWA** — United Nations Relief and Works Agency for Palestine Refugees in the Near East
- **WFUNA** — World Federation of United Nations Associations
- **WMO** — World Meteorological Organization

© World Health Organization 1969

Publications of the World Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. Nevertheless governmental agencies or learned and professional societies may reproduce data or excerpts or illustrations from them without requesting an authorization from the World Health Organization.

For rights of reproduction or translation of WHO publications *in toto*, application should be made to the Division of Editorial and Reference Services, World Health Organization, Geneva, Switzerland. The World Health Organization welcomes such applications.

PRINTED IN SWITZERLAND
CONTENTS

<table>
<thead>
<tr>
<th>Introduction ..........................................................</th>
<th>VII</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART I — GENERAL REVIEW ............................................</td>
<td></td>
</tr>
<tr>
<td>Chapter 1. Malaria Eradication ....................................</td>
<td></td>
</tr>
<tr>
<td>Progress in Malaria Eradication ..................................</td>
<td>3</td>
</tr>
<tr>
<td>Training in Malaria Eradication ..................................</td>
<td>4</td>
</tr>
<tr>
<td>Evaluation ..................................................................</td>
<td>5</td>
</tr>
<tr>
<td>Chapter 2. Communicable Diseases ..................................</td>
<td></td>
</tr>
<tr>
<td>Epidemiological Surveillance and Quarantine .....................</td>
<td>8</td>
</tr>
<tr>
<td>Smallpox Eradication ................................................</td>
<td>9</td>
</tr>
<tr>
<td>Virus Diseases ........................................................</td>
<td>10</td>
</tr>
<tr>
<td>Parasitic Diseases ..................................................</td>
<td>13</td>
</tr>
<tr>
<td>Vector Biology and Control .........................................</td>
<td>17</td>
</tr>
<tr>
<td>Chapter 3. Health Protection and Promotion ......................</td>
<td></td>
</tr>
<tr>
<td>Cancer .....................................................................</td>
<td>33</td>
</tr>
<tr>
<td>Cardiovascular Diseases .............................................</td>
<td>34</td>
</tr>
<tr>
<td>Dental Health ..........................................................</td>
<td>36</td>
</tr>
<tr>
<td>Mental Health ..........................................................</td>
<td>36</td>
</tr>
<tr>
<td>Chapter 4. Biomedical Sciences ....................................</td>
<td></td>
</tr>
<tr>
<td>Biological Standardization .........................................</td>
<td>42</td>
</tr>
<tr>
<td>Human Genetics .........................................................</td>
<td>43</td>
</tr>
<tr>
<td>Chapter 5. Pharmacology and Toxicology .........................</td>
<td></td>
</tr>
<tr>
<td>Drug Safety and Monitoring .........................................</td>
<td>47</td>
</tr>
<tr>
<td>Drug Dependence ......................................................</td>
<td>47</td>
</tr>
<tr>
<td>Chapter 6. Public Health Services ..................................</td>
<td></td>
</tr>
<tr>
<td>National Health Planning and Public Health Administration ...</td>
<td>50</td>
</tr>
<tr>
<td>Organization of Medical Care .......................................</td>
<td>51</td>
</tr>
<tr>
<td>Health Laboratory Services .........................................</td>
<td>52</td>
</tr>
<tr>
<td>Chapter 7. Environmental Health ...................................</td>
<td></td>
</tr>
<tr>
<td>Community Water Supply .............................................</td>
<td>57</td>
</tr>
<tr>
<td>Environmental Pollution .............................................</td>
<td>58</td>
</tr>
<tr>
<td>Water Pollution ........................................................</td>
<td>59</td>
</tr>
<tr>
<td>Air Pollution ...........................................................</td>
<td>60</td>
</tr>
<tr>
<td>Chapter 8. Health Statistics .......................................</td>
<td></td>
</tr>
<tr>
<td>Collection and Use of Health Statistics .........................</td>
<td>64</td>
</tr>
<tr>
<td>International Classification of Diseases .........................</td>
<td>64</td>
</tr>
<tr>
<td>Assistance to Governments in the Development of Health .......</td>
<td>64</td>
</tr>
<tr>
<td>Statistical Publications .............................................</td>
<td>65</td>
</tr>
</tbody>
</table>
Chapter 9. Education and Training ................................................................. 67
   Fellowships, and Grants for Research Training and Exchange .................. 68
   Education in Medicine and Allied Subjects ............................................. 68
   Co-operation with other International Organizations ................................ 69

Chapter 10. Research ..................................................................................... 70
   Medical Research Programme ................................................................... 70
   Developments in Epidemiology and Communications Science .................. 70

Chapter 11. Co-operation with other Organizations .................................... 72
   United Nations Development Programme ................................................. 72
   United Nations Children's Fund ............................................................... 73
   United Nations Relief and Works Agency for Palestine Refugees in the Near East 74
   World Food Programme .......................................................................... 74
   Non-governmental Organizations ............................................................ 74
   Summary of Co-operation with other Organizations ................................ 74

Chapter 12. Public Information ..................................................................... 77

Chapter 13. Constitutional, Financial and Administrative Developments ......... 79
   Constitutional and Legal ........................................................................... 79
   The Financial Position ............................................................................. 79
   Administration ....................................................................................... 80

PART II — THE REGIONS

Chapter 14. African Region ........................................................................ 85
Chapter 15. The Americas ........................................................................... 92
Chapter 16. South-East Asia Region ............................................................ 104
Chapter 17. European Region ..................................................................... 113
Chapter 18. Eastern Mediterranean Region ............................................... 119
Chapter 19. Western Pacific Region ............................................................ 125

PART III — PROJECT LIST

Projects in Operation in 1968 ..................................................................... 134
   African Region ....................................................................................... 135
   The Americas ......................................................................................... 147
   South-East Asia Region ......................................................................... 172
   European Region ................................................................................... 184
   Eastern Mediterranean Region ............................................................... 195
   Western Pacific Region ........................................................................... 207
   Inter-regional ......................................................................................... 217
## ANNEXES

<table>
<thead>
<tr>
<th>Annex</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Members and Associate Members of the World Health Organization at 31 December 1968</td>
<td>227</td>
</tr>
<tr>
<td>2</td>
<td>Membership of the Executive Board</td>
<td>228</td>
</tr>
<tr>
<td>3</td>
<td>Organizational and related Meetings in 1968</td>
<td>229</td>
</tr>
<tr>
<td>4</td>
<td>Expert Advisory Panels and Committees</td>
<td>229</td>
</tr>
<tr>
<td>5</td>
<td>Scientific Group Meetings in 1968</td>
<td>234</td>
</tr>
<tr>
<td>6</td>
<td>Non-governmental Organizations in Official Relations with WHO</td>
<td>235</td>
</tr>
<tr>
<td>7</td>
<td>Regular Budget for 1968</td>
<td>236</td>
</tr>
<tr>
<td>8</td>
<td>Numbers and Distribution of the Staff</td>
<td>237</td>
</tr>
<tr>
<td>9</td>
<td>Composition of the Staff by Nationality</td>
<td>239</td>
</tr>
<tr>
<td>10</td>
<td>Status of Malaria Eradication</td>
<td>240</td>
</tr>
<tr>
<td>11</td>
<td>Fellowships awarded, by Subject of Study and by Region</td>
<td>241</td>
</tr>
<tr>
<td>12</td>
<td>Research Grants for Training and Exchange in 1968, by Subject and Type of Grant</td>
<td>243</td>
</tr>
<tr>
<td>13</td>
<td>WHO Collaborative Research: Contracts concluded with Institutions for Projects initiated in 1968</td>
<td>244</td>
</tr>
<tr>
<td>14</td>
<td>WHO Reference Centres</td>
<td>245</td>
</tr>
<tr>
<td>15</td>
<td>Publications issued by the World Health Organization in 1968</td>
<td>251</td>
</tr>
<tr>
<td>16</td>
<td>WHO Library Statistics, 1968</td>
<td>254</td>
</tr>
<tr>
<td>17</td>
<td>Structure of the World Health Organization</td>
<td>facing page</td>
</tr>
</tbody>
</table>

### MAP

WHO Regional Offices and the Areas they serve ........................................ 84

---

The designations employed and the presentation of the material in the *Official Records of the World Health Organization* do not imply the expression of any opinion whatsoever on the part of the Director-General concerning the legal status of any country or territory or of its authorities, or concerning the delimitation of its frontiers.
INTRODUCTION

THIS report on the work of WHO in 1968, the Organization’s twentieth anniversary year, emphasizes the trends that have been shaping its long-term policy. The most significant feature in the evolution of the health situation in the developing countries during the last decade has been the recognition that success in public health depends on the strengthening of health services at all levels, particularly the weakest lower level. The paramount importance of the latter has been demonstrated in WHO-assisted mass campaigns against communicable diseases. In the absence of adequate health services, many campaigns which were initially rather successful have failed to yield the expected dividends in measurable, long-lasting terms.

The creation or strengthening of basic health services is clearly the priority goal for most countries of the world. In Africa, for example, where international assistance in public health gained impetus later than in other parts of the world, a rapid shift in policy and practice is now taking place. During the period covered by this report, most of the communicable disease projects in the African Region have been re-grouped under the heading “Development of epidemiological services”, with the objective of including, wherever possible, public health laboratory and statistical services. The policy behind such changes is based on the principle that the strengthening of basic health services must be the main target of all WHO-assisted projects. For example, malaria eradication projects have been maintained and will be developed whenever conditions were or are ripe for them; but in the pre-eradication stage such projects have been transformed into programmes aimed at the development of basic health services. In fact, the latter are indispensable in the campaigns not only against malaria, but also against other communicable diseases. For the same reason smallpox eradication operations, which are being carried out according to plan with international assistance, require adequate basic health services under national health administrations for permanent success. The same applies to UNICEF/WHO-assisted projects for the benefit of mothers and children and UNDP/WHO-assisted environmental programmes for safeguarding the health of the population in rapidly developing urban communities.

The critical shortage of health manpower is the main handicap which the developing countries will have to overcome in order to build up their basic health services. Therefore an increasing proportion of WHO-assisted projects are devoted to the education and training of medical and allied health personnel. Progress in this respect can be illustrated by reference to Africa, a region which seriously lacks adequately trained personnel. Two meetings in that Region, held in October and November 1968 and attended respectively by professors of public health and deans of medical schools, led to a series of important recommendations in this field. These urged, inter alia, that action be taken to adapt teaching programmes to the real needs and problems of each country, to stimulate research on these needs and problems, and to incorporate the principles...
and practice of preventive and social medicine into the whole medical course. The adequate teaching of this fundamental subject to all medical students should serve to motivate them for future careers in public health. The medical schools of the developing countries must prepare their students for the multiple responsibilities which are inherent in the role they will have to play as future leaders and administrators of community health projects.

All efforts should be made to raise the output of existing medical schools in Africa, which unfortunately continues to be extremely low. Urgent attention must be given by countries to the preparation by secondary schools of many more candidates capable of undertaking undergraduate medical education successfully. Meantime, the medical schools should be prepared to make up for the deficiencies of candidates by incorporating in the curriculum complementary disciplines and subjects basic to medicine.

These problems were considered in the course of assistance WHO has been giving to Cameroon in its development of a programme aiming at educating and training locally the health personnel it needs. During 1968, at the Government's request, a joint WHO/UNDP Special Fund mission carried out a feasibility study on the creation of a medical school at Yaoundé which would incorporate education for other categories of such personnel. The mission concluded that the purpose would best be served by a University Centre for Health Sciences rather than by a traditional faculty of medicine. The primary objective would be the development of a multi-professional teaching programme combining in one institution the education of all members of the health team. Another interesting feature of the project is that the Centre would be integrated with the national health services, and would take on responsibility for the health of special areas of the country which could be used for practical teaching, through the application of the concept of community health, as opposed to individual care—an approach to be recommended for programmes of education and training of health personnel in developing countries. These innovations were welcomed not only by the Government of Cameroon but also by the deans of medical schools in the African Region who, at their first meeting (referred to above), recommended that the strongest possible support be given to the proposed Yaoundé University Centre for Health Sciences.

Innovations of this kind are essential for the success of the education of health personnel for the developing countries. It is inappropriate simply to copy foreign educational models. Rather, one should aim to create forms of teaching better adapted to national health problems and objectives. Extensive discussion and exchange of information on this problem of great urgency have been taking place in several regions.

For instance, the development of medical education in the Eastern Mediterranean Region was the subject of a special group meeting in Khartoum, Sudan, in December 1968. The meeting, attended by deans of medical schools of the Region, made recommendations on teaching methods in medical education. Traditional methods of teaching and modern teaching techniques were discussed, and much emphasis was laid on the need to utilize communities near the medical schools for field experience with the purpose of giving the student practical exposure to the problems relating to community health. Problems relating to the students themselves were also discussed, high priority being given to the question of the selection of medical students in relation to physical and mental fitness, intellectual capacity, previous education, cultural background, and motivation. The need for more adequate student-faculty communication was stressed.

In South-East Asia the National Institute of Health Administration and Education, in New Delhi, has launched a programme of applied research in health administration. This research is aimed inter alia at evolving ways and means of using the resources in men and materials to the best possible advantage. Closer collaboration between health administrations and medical faculties is needed in the planning of curricula.
During the eighteenth session of the Regional Committee for Europe the technical discussions were devoted to the theme of current trends in undergraduate medical education. Following this, a working group of highly experienced European medical educators, convened by the Regional Office in December, considered a topic of utmost immediacy: the future of medical education in Europe. After reviewing the past and present situation and the various patterns of medical education obtaining in European countries, the group produced a set of important recommendations for the study of various aspects of education in the health sciences: namely, the collection, analysis and exchange of information; the undertaking of comparative studies of teaching schemes and structures; and the promotion of teacher-training programmes through centres of excellence.

* 

In all regions, education of health personnel in the methodology of planning has been playing an essential role in enabling countries to establish comprehensive national health plans. In general, such plans need to be made within the framework of overall economic and social development.

In the Western Pacific Region, for instance, where the technical discussions at the nineteenth session of the Regional Committee were devoted to health planning, a number of senior WHO staff members followed a two-month course in this subject. In co-operation with the University of the Philippines, the Organization mapped out a series of health planning courses for national staff in the Region over a period of several years. The first such course will take place in 1969.

In the South-East Asia Region also, the Organization has already provided fellowships for training in this speciality, and preparations have been made to start a training course for health administrators at the Asian Institute for Economic Development and Planning in 1969; the faculty is being reinforced by the assignment of a WHO economist.

The training of professional personnel in health planning for services in the various countries in the Americas is one of the main functions of a centre being established in Santiago, Chile. Sponsored jointly by fourteen governments, and with a significant contribution from the United Nations Development Programme, the centre will also serve as a nucleus of research and information on health planning, with particular emphasis on methodology and on the problems of interrelationship of the factors within the health sector as well as the relationship of health with the other sectors of social and economic development.

* 

In communicable disease programmes education and training are key elements and have high priority—for example, in WHO’s assistance to malaria eradication programmes. Instruction is provided at international malaria eradication training centres staffed mainly by international personnel, and at national centres assisted by WHO experts. During the first nine months of 1968, a total of 1358 trainees participated in forty-eight courses organized at national malaria eradication training centres in several countries in Africa, the Americas, and the Eastern Mediterranean and Western Pacific Regions. The first four courses held at the Manila International Malaria Eradication Training Centre were attended by seventy-four persons. In addition, ninety-three fellowships were awarded to national malaria staff for training visits to programmes in operation in
other countries. Furthermore, in-service training is given to various categories of personnel by WHO project staff as part of their normal day-to-day work.

*

Progress in educational programmes was also achieved in other fields. In mental health, for example, WHO continued its efforts to improve teaching and the integration of mental health activities in public health practice.

In the field of radiation health, the importance of the teaching of medical physics has been emphasized, and arrangements were made jointly with the International Atomic Energy Agency for the preparation of manuals, the establishment of training courses in Latin America and the organization of training centres.

Increased emphasis was also given to the teaching of the health aspects of human reproduction and family planning. Guidelines for the assessment of current teaching methods in these fields are being formulated. A compendium of international experience in the health aspects of family planning, consisting of an analysis of the literature illustrated by selected readings, has been started.

The inter-regional conference on training of health statistical personnel organized by WHO in 1968 in Uganda indicated that much could be done to raise the level of health statistical services in the developing areas. The conference deemed it essential that WHO provide guidance and assistance in the organization of national training centres and urged WHO to take the initiative in creating inter-regional or inter-country training centres for the benefit of those countries where training cannot yet be organized because of lack of teaching staff and of adequate facilities for practical training.

*

Until mid-1968 influenza showed no change from its expected behaviour. Though outbreaks due to virus A2 occurred, they were clinically mild and not extensive. However, in mid-July an extensive epidemic due to a strain of virus A2 which differed greatly from previous strains occurred in Hong Kong and spread rapidly to Singapore, Malaysia, Viet-Nam, the Philippines, China (Taiwan), the east and west coasts of India and the northern territories of Australia.

The Hong Kong influenza centre, which forms part of the WHO network, isolated the strain at the very beginning of the epidemic there and sent it to the WHO World Influenza Centre, in London, for characterization. As soon as its antigenic dissimilarity to previous strains had been determined supplies were freeze-dried and distributed to WHO virus reference centres and to all research and vaccine production laboratories wishing to have it. Thus the first vaccine supplies became available at the earliest possible moment, that is within the four months necessary for the development of vaccines from new strains. An increasing volume of these vaccines was thereafter distributed.

In the autumn the spread of the infection appeared to have slowed down and epidemics were less widely distributed geographically than was originally expected. By the end of 1968 the United States of America was the only country to report high incidence.

*
Research in the field of vector biology and control constitutes one of the major approaches to the problem of controlling many communicable diseases of concern to the developing areas. The recent recrudescence of yellow fever in certain parts of Africa underlines the importance of the newly created East African Aedes Research Unit based in Dar es Salaam, which is to undertake in urban and peri-urban areas extensive studies on the ecology, biology and control of Aedes (Stegomyia) mosquitos.

The results of a trial in Ethiopia using the “ultra-low-volume” application of undiluted insecticides against Aedes simpsoni, the main vector of yellow fever in rural areas in that country, augur well for the fight against the disease, which has on certain occasions assumed epidemic proportions in Ethiopia.

The use of large, twin-engined aircraft, which proved successful in the “ultra-low-volume” application of undiluted malathion in Thailand, provides the assurance that entire cities can be rapidly treated should they be exposed to an outbreak of haemorrhagic fever.

Efforts continued in 1968 to find alternative insecticides to DDT, to which the populations of adult Anopheles gambiae in West Africa are becoming increasingly resistant. A number of promising compounds are under intensive study.

Education and training activities are an integral part of the Organization’s programme in vector biology and control. A good example of how WHO has been furthering this objective is provided by the seminar on vector genetics organized in 1968 in co-operation with the University of Notre Dame, Indiana, USA. While the six-week discussions covered all facets of the topic, particular emphasis was placed on the potential application of genetics in field programmes and on the possibility of using genetic manipulation. Combining lectures and practical demonstrations and operations, the seminar, attended by twenty-six participants from thirteen countries, was intended for scientists and public health workers who had had field experience and were responsible for operational programmes.

In response to resolutions adopted by recent World Health Assemblies, measures were taken to improve the quality control of drugs. Thanks to the generosity of the Government of Uruguay a regional drug institute will be established in Montevideo to give the necessary assistance to Latin American countries. The institute will provide advanced training for analysts and other technicians from the drug control agencies of those countries. In addition to furnishing those agencies with a periodical bulletin of laboratory data and other relevant information, the institute will undertake research directed at the improvement of drug-testing procedures.

A growing number of countries in other regions have expressed interest in receiving assistance from WHO in their efforts to prevent sub-standard drugs from reaching the consumer.

The World Health Assembly has also repeatedly stressed that drugs must be therapeutically effective and safe. Accordingly, the principles for toxicological, pharmacological and clinical evaluations have been formulated and published in a series of WHO reports. The series is to be continued and will be kept under review.

It is now generally recognized that, even after the most careful evaluation of its therapeutic safety during the initial stages of testing, a drug should be kept under close surveillance for possible adverse reactions. Procedures for the monitoring of adverse reactions to drugs are being developed in a WHO pilot research

—— XI ——
project which was established with the assistance of the United States of America. The work is being carried out in that country and during 1968 procedures were successfully developed for the collection, storage and retrieval of pertinent data obtained from various countries participating in the project.

*

It is pleasing to record that during 1968 Southern Yemen and Mauritius became full Members and Bahrain an Associate Member, thus bringing the total membership of the Organization to 131, including the three Associate Members.

*

The number and scope of the meetings—national, regional and international—celebrating the twentieth anniversary of the World Health Organization, and the spirit in which they were held, bear witness to the remarkably wide acceptance the idea of international co-operation in the field of health has gained during the last two decades. These meetings provided a valuable forum for the review of achievements at the national and international levels and for the analysis of the problems which will have to be faced, if the concept of world health is to become a living reality.

Director-General
PART 1

GENERAL REVIEW
CHAPTER 1

MALARIA ERADICATION

In compliance with the request of the Twentieth World Health Assembly, the Director-General presented to the Twenty-first World Health Assembly, in May 1968, a report on his study of "how best to carry out a re-examination of the global strategy of malaria eradication". The Assembly confirmed the need for such a re-examination, and approved the Director-General's proposals for that purpose. Teams of economists, health administrators conversant with planning, statisticians and malariologists were accordingly employed to study in a number of selected countries the socio-economic impact of malaria; the relationship of the malaria eradication programme to the national health plan and to the development plan as a whole; and the planning and implementation of the malaria eradication programme, covering the technical and non-technical aspects and the problems encountered. Protocols were developed as a basis for the studies, to ensure standardization.

The first team carried out a study in Thailand, and other teams visited Cuba, West Malaysia, Nicaragua, Niger, East Pakistan, the Philippines, Syria and Venezuela. As part of the general study, a further team, consisting of a WHO public health administrator and a malariologist, visited Jamaica, Trinidad and Tobago, and Yugoslavia, where the malaria eradication programmes are already wholly in the maintenance phase, to review the adequacy of the vigilance organization in this phase.1

Progress in Malaria Eradication

A total of 146 countries and territories are recorded as having been originally wholly or partly malarious; thirteen areas are now entered in the WHO official register of areas where malaria eradication has been achieved. In addition, twenty-three countries have claimed eradication for their whole territory. The Organization assisted forty-seven countries with malaria eradication programmes (a further six were carrying out similar programmes without direct assistance from WHO), and twenty-eight with other antimalaria programmes (see Annex 10).

1 The successive phases of a malaria eradication programme are: preparatory, attack, consolidation, maintenance (World Health Organization (1963) Terminology of malaria and of malaria eradication, Geneva, p. 82).

In the African Region, the eradication programme in Mauritius entered the maintenance phase, no indigenous cases having been reported since January 1963. WHO assistance to the only other eradication programme in the Region, in Zanzibar and Pemba, ceased in June 1968 at the request of the Government. All the pre-eradication programmes in the Region have been reorientated towards the strengthening of the basic health services.

In the Region of the Americas, the programmes in Cuba and the Dominican Republic are reaching the final stages, with the malaria programme now integrated within the general health service in Cuba. In the five Central American republics receiving increased international and bilateral assistance, antimalaria activities were intensified, with a consequent reduction in the prevalence of malaria. Similar progress was made in British Honduras. Financial and administrative difficulties hindered the programmes in Mexico, Ecuador and Peru, and in the latter two countries the national staff was reduced with a consequent increase in the number of cases of malaria. In Paraguay, where over 50,000 cases had been recorded in 1967, emergency measures reduced the incidence of falciparum malaria during 1968. Increased international and bilateral assistance was recently provided to this programme, and full-scale attack measures are being instituted in the most affected areas prior to countrywide coverage. In the large-scale programme in Brazil, a number of areas were advanced from the attack to the consolidation phase. In Venezuela there was some re-invasion of malaria into the peripheral maintenance phase areas. Medicated salt continued to be used in the difficult hinterland areas of Guyana and Surinam.

In the South-East Asia Region, a large-scale epidemic of vivax malaria, estimated at over a million cases, spread throughout most of Ceylon, and it was necessary to reinstitute attack measures throughout virtually the whole island. Considerable WHO assistance was given to this programme during the year in the form of special advisory teams and supplies. In India, too, there has been a deterioration in the northern part of the country, with the result that areas with a population of nearly 90 million have reverted to the attack phase. In both these countries the organization
for the detection of foci of infection and their prompt elimination was grossly inadequate. Advance from attack to consolidation was recorded in areas with a population of nearly two million in Nepal and more than seven million in Thailand, and progress was maintained in Afghanistan. A programme for the independent cross-checking of blood films was started in Ceylon. The malaria eradication programme in Nepal is described on page 109.

All previously malarious areas of the continent of Europe are in the maintenance or consolidation phase, with five countries already certified as having eradicated malaria. Albania entered the maintenance phase at the beginning of 1968, and the programmes in Portugal and Yugoslavia have reported no indigenous cases over the past four years. In the Asian part of Turkey further areas with a total population of more than one million entered the consolidation phase during 1968. The remaining areas in this country still in the attack phase are in the south-east, bordering on areas with similar operational and technical problems in Iraq and Syria. The preparatory phase of the malaria eradication programme in Algeria was started during the year, and in Morocco the strengthening of the basic health services was continued within the malaria pre-eradication programme.

In the Eastern Mediterranean Region, no indigenous cases of malaria were reported from Israel or Lebanon. Attack operations started in the programme in Tunisia, and such operations were expanded in Ethiopia. In Libya the situation continued to improve, and Jordan and Syria both received supplementary assistance from the Organization. In Iran, the total coverage spraying, now in progress, is expected to reduce the transmission in the south and the importation of cases into the more developed northern part of the country. In Iraq, a new carbamate insecticide, \(o\)-isopropoxyphenyl methylcarbamate, OMS-33) was introduced on an operational scale in an area with technical problems in the south of the country. Progress was made in all stages of the programme in Pakistan, where areas with a total population of two million were placed in the maintenance phase, and other areas with a population of 20 million were advanced into the consolidation phase. Progress in the pre-eradication programmes in Saudi Arabia and Somalia has been relatively slow. In Sudan the necessary basic health facilities are being built up in one of the four regions of the country.

In the Western Pacific Region, attack operations commenced in the north of West Malaysia, and some improvement in the programmes in East Malaysia (Sabah and Sarawak) was reported. In a new inter-regional project for special epidemiological studies, the habits of \(Anopheles balabacensis\), which appears to be a cause of persistence of malaria transmission in Cambodia, Laos, Thailand, the Republic of Viet-Nam, and West Malaysia, are being investigated.\(^1\)

The pre-eradication activities of the programme in the Republic of Korea consist mainly of studies on the feasibility of interrupting transmission of malaria, using case-detection as the principal attack measure. In the pre-eradication programme in Cambodia, trials were undertaken against chloroquine-resistant strains of \(Plasmodium falciparum\) using a combination of long-acting sulfones or sulfonamides with pyrimethamine, given as a single dose therapy.

Details of the epidemiological status of malaria throughout the world were reported in the \(Weekly\) \(Epidemiological\) \(Record\)\(^2\) together with information on the origin of imported cases, the official register of areas where malaria has been eradicated, a supplementary list of malaria-free areas, and a semestrial follow-up of registration of areas where malaria eradication has been achieved. Ports considered free from the risk of malaria transmission are indicated in the publication \(Ports\ \text{designated in application of the}\) \(International\) \(Sanitary\) \(Regulations\) (1968).

Assistance was provided by UNICEF in the form of supplies for twenty-three eradication programmes (sixteen of them in the Region of the Americas). In addition, UNICEF also provided assistance for the development of rural health services, which facilitates the implementation of malaria eradication programmes. The United States Agency for International Development (AID) provided assistance to eighteen eradication programmes, and to the international malaria eradication training centre in Manila; the United States Public Health Service co-operated with the Organization in these programmes, and its two research stations in El Salvador and Thailand collaborated closely in the malaria eradication programmes in those countries.

The World Food Programme continued to make food allocations to national staff of the malaria eradication programme in Turkey, making employment conditions more attractive for the lower paid staff.

Training in Malaria Eradication

With the reorientation of the emphasis in the African Region towards the strengthening of the basic health services, the international malaria eradication training centres in Lagos and Lomé have been redesignated training centres for health personnel. Courses

\(^1\) \(Bull. Wld Hlth Org., 1968, 38, 469-477.\)

\(^2\) \(Wkly\) \(epidem.\) \(Rec., 1968, 43, 74-84, 423-436.\)
were continued in Maracay for professional staff, and in Manila for both professional and other technical staff for malaria eradication programmes.

The national training centres in Brazil, Ethiopia, India, Iran, Malaysia, Mexico, Pakistan, the Philippines and Sudan continued their work in cooperation with the Organization, in some cases accepting trainees from other countries. A national malaria eradication training centre was set up in Algeria in preparation for the commencement of the attack phase of the programme in that country. In addition, training activities for malaria personnel were carried out with the assistance of the Organization's project staff in a number of countries, including Afghanistan, the British Solomon Islands Protectorate, Costa Rica, El Salvador, Honduras, Iraq, Morocco, Nepal, Nicaragua, the Republic of Korea, Saudi Arabia, Somalia, Syria, Thailand, Tunisia and Turkey, particular attention being paid to the training of microscopists and supervisors.

With the assistance of the Organization, seminars were held on malaria epidemiology (in Pakistan and Peru), on the integration of communicable disease programmes within the general health services (in Bolivia), and on teaching methodology in malaria eradication (in Pakistan). Under the scheme for exchange of malaria workers, sixty-seven national professional personnel were given facilities to study programmes in other countries.

Evaluation

With a view to improving the method of continuous assessment of projects—an essential part of every stage of implementation—a standardized methodology for the selection and processing of data for the evaluation of malaria eradication programmes was developed.

Independent evaluations by experts of international and bilateral agencies working with the public health officers of the government concerned were made in Brazil, Cuba, the Dominican Republic, Ecuador, Haiti, India, Nepal, Pakistan, Thailand and Turkey. The reports of these assessment teams not only include recommendations regarding transfer of areas within the various phases of the programme, but also draw attention to any technical and operational shortcomings in the programme.

Research

During the first ten months of 1968, twenty-four agreements were concluded between WHO and national research institutes for studies on parasitology, chemotherapy, immunology, epidemiology, entomology and methodology of attack in relation to malaria.

Two further reference centres were designated by the Organization: the International Reference Centre for Avian Malaria Parasites, at the Department of Biology of the Memorial University of Newfoundland, Canada, and the Regional Reference Centre for Screening of Potential Antimalarial Compounds, at the Department of Parasitology of the Liverpool School of Tropical Medicine, in the United Kingdom.

Emphasis during the year was on improvements in laboratory screening procedures for potential antimalarial compounds, the development and mode of employment of serodiagnostic methods as recommended in the report of the Scientific Group on the Immunology of Malaria, the improvement of microscopic diagnostic techniques, the development of anopheline sampling methods, and studies on the dry season survival of mosquitoes. Basic research on in vitro growth of parasites and on immunity was encouraged with the eventual objective of developing malaria vaccines.

In the laboratory screening of potential antimalarials, both avian and rodent malaria parasites are used, and in order to find more suitable species than those normally employed, projects were assisted in the Congo (Brazzaville), the Ivory Coast and Sierra Leone. Two new species of rodent malaria parasites were obtained from Nigeria and cyclical transmission of these through the vector host was undertaken in Belgium, France and the United Kingdom. Standardized methods of screening, using rodent malaria parasites, were developed in Belgium and at the Regional Reference Centre in Liverpool; work on the standardization of screening procedures using avian malaria parasites was continued in the Federal Republic of Germany. Studies on simian malaria parasites were undertaken in Brazil, where attempts were made to ascertain the natural mosquito vector.

Work was carried out in the United States of America to establish an in vitro technique for the cultivation of tissue forms of Plasmodium berghei in isolated livers of rodents.

With regard to the development of antimalarial compounds, the Organization assisted work in Czechoslovakia on antibiotics of fungal origin and isothiocyanates; in the Federal Republic of Germany, on 6-aminoquinolines; and in Poland, on biguanide and amidine urea derivatives of diphenylsulfide and diphenylsulfone. Compounds showing promise were tested in the Federal Republic of Germany and at the Regional Reference Centre in Liverpool.

Trials of sulfonamides or sulfones, alone or in combination with pyrimethamine, were carried out in Kenya and in Upper Volta and, in combination with long-acting 4-aminoquinolines, in Senegal. An observation made at the Regional Reference Centre in Liverpool indicated that if sulfonamides are given to mice, mosquitoes feeding on the mice are killed. Surveys of the response of P. falciparum to 4-aminoquinolines were carried out in the United Republic of Tanzania, and showed that the sensitivity of the parasites was normal even in areas where chloroquinized salt had been in use for seven years.

Basic research that might eventually lead to new methods of protection against malaria included investigations of the development of immune response in rodents, using various methods, in France, Italy and the Netherlands.

A survey using the indirect fluorescent antibody test in an area in Romania from which malaria had been eradicated twenty years previously showed complete absence of reaction in those under twenty years of age, but positive antibody titres were obtained for P. malariae in some older inhabitants. Similar studies were started in Yugoslavia. During the course of another study in Romania, the same test was used to compare the duration of positive antibody reaction in infections of quartan malaria after treatment in three groups—namely, infections acquired following blood transfusion, induced for therapeutic purposes, and acquired naturally. In Nigeria, the same technique was used to study the specificity and degree of antibody response to assess its value as a measure of malaria prevalence. The fluorescent antibody test is also being used as a means of mapping out areas of malaria endemicity in the United Arab Republic.

In an investigation in Nigeria on the relationship between the nutritional status of children and the degree of malaria infection, it was observed that well nourished children in the first few years of life appeared to be more likely to develop severe attacks of falciparum malaria than poorly nourished children. Other work in Nigeria drew attention to the close connexion between malaria infection and an often fatal haemolytic crisis which occurs in pregnant women living in hyperendemic areas. The relationship between the incidence of infections of P. malariae and the nephrotic syndrome was studied in Uganda.

The Scientific Group on the Parasitology of Malaria, which met in Teheran in September 1968, reviewed the present geographical distribution of human malaria parasites and their strains, and discussed the significance to malaria eradication of the particular behaviour of certain strains of human malaria parasites and of plasmodia of apes and monkeys. Recent advances in microscopic and serological diagnostic methods were considered, and a review was made of the new developments in basic research on the malaria parasites. On the basis of this review, the Group made recommendations on future research needs in this field.

In the field of entomology, a method by which the five members of the Anopheles gambiae complex can be rapidly identified in the laboratory is being tested in the field; the method, which was developed in Italy, uses direct examination of the larval salivary gland chromosomes. Another morphological means of identifying the species was studied in Madagascar. The separation and artificial hybridization of the species of the A. gambiae complex is finding an application as a possible method of genetic control. The expected consequences of introducing competitive sterile males into natural mosquito breeding areas were calculated in the United Kingdom, and a small-scale field experiment using this technique to control A. gambiae was started in Upper Volta (see page 21). Further work on speciation of A. funestus, A. stevensi and A. balabacensis was undertaken in India and in the United Kingdom. Studies were started in Sudan to ascertain the longevity and behaviour of A. gambiae in the dry season, and how this may affect its control. In an attempt to avoid the bias inherent in traditional sampling methods and to increase the efficiency of sampling in conditions where the vectors are scarce, field trials of light traps for sampling Anopheles were conducted in Gambia, India, Morocco and the United Republic of Tanzania.

The field research trial in Nigeria for developing a method of interrupting transmission in savanna areas of Africa using DDT and drugs has not yet produced the expected fall calculated by mathematical models on the basis of previously obtained epidemiological data. Modifications of the plans for this study are being introduced. In Guatemala, an injectable repository drug, cycloguanil embonate, was used for mass drug administration in 12,000 people. The results of this method of administration were reported to be more effective and economical than those to be expected when using standard oral mass treatment.

Articles published in the Bulletin included papers describing the results of studies on the VS Romanian strain of P. malariae, low birth-weight and malarial infection, chloroquine resistance, the dynamics of

---

malaria,\textsuperscript{1} man-vector contact in Colombia,\textsuperscript{2} and the prevalence of \textit{Plasmodium ovale} in Uganda.\textsuperscript{3}

Co-ordination

As in previous years, a number of co-ordination meetings were held. They included a WHO/UNICEF/

\textsuperscript{1} Bull. Wld Hlth Org., 1968, 38, 743-755.
\textsuperscript{3} Bull. Wld Hlth Org., 1967, 37, 665-668.

AID/United States Public Health Service malaria co-ordination meeting; an inter-regional conference on malaria in the Eastern Mediterranean and European Regions; the seventh meeting of the directors of national malaria eradication services of South America; meetings of the working group on co-ordination of the malaria eradication programmes of Central America and Panama, and ten inter-country co-ordination and border meetings.
COMMUNICABLE DISEASES

In addition to the control and research activities concerning specific communicable diseases, described under the relevant headings in this chapter, the Organization's work during the year was concerned with studies on the overall aspects of the epidemiology of communicable diseases. These studies are held to be important in view of the rapid increase of the world's population, the need for the cultivation of new areas, the uncontrolled movement of large rural populations into already overcrowded towns, the ever-increasing volume and speed of national and international traffic, and other ecological factors which have affected the epidemiological situation in the world.

Such modern developments, particularly in air transport, have also tended to accentuate the limitations of the International Sanitary Regulations, in their present form, as a means of preventing the international spread of communicable diseases, and increasing attention is therefore being paid to the development of a wider epidemiological surveillance methodology.

Advanced courses on the epidemiology of communicable diseases were again organized in Prague and New Delhi for medical officers from developing countries.

The Organization participated in the work of the Eighth International Congress on Tropical Medicine and Malaria, held in Teheran in September 1968. Meetings of the Expert Committee on Amoebiasis (see page 17) and of two scientific groups—on the parasitology of malaria, and on cholera immunology (see pages 6 and 29)—were organized in conjunction with these Congresses.

Epidemiological Surveillance and Quarantine

"National and global surveillance of communicable diseases" was the subject of the technical discussions at the Twenty-first World Health Assembly. Reports by seventy-seven Member States and Associate Members and sixteen non-governmental organizations were used as the basis for the discussions, and there were more than 180 participants, from 100 countries. The discussions indicated a general recognition of the importance of epidemiological surveillance for effective and economic control of communicable diseases.

Immunological surveys in Kenya and Mongolia were continued in co-operation with the WHO Serum Reference Bank in Prague. Antibody determinations for common infectious diseases were also carried out on serum specimens obtained by WHO treponematoses epidemiological teams. A large sample of serum aliquots was examined for yellow fever antibodies at the Regional Reference Centre for Arboviruses, in Dakar, and the Serum Reference Bank in New Haven, Conn., USA, arranged for further studies to be carried out on sera collected in the Philippines in 1963. (See also page 22.)

New studies were initiated to throw light on the role of *Bordetella parapertussis* in the pathogenesis of whooping cough in Asia and Africa, and to investigate the importance of antigenic differences between strains of *B. pertussis* found in Africa and Asia and the strains usually found in Europe.

Surveillance of dengue-haemorrhagic fever in the South-East Asia and Western Pacific Regions was reinforced by the establishment of clinical and serological definitions of the syndrome and by the introduction of standard reporting forms. In Europe, a salmonella surveillance programme started in 1967 produced data for a series of surveillance reports. The reporting system is being reorganized to give increased emphasis to epidemiological aspects related to isolation of salmonella from human and animal sources. This programme has been made possible through the co-operation of the International Salmonella Centre in Paris and several national salmonella centres.

As part of the Organization's surveillance programme for yellow fever, the survey of the distribution and population densities of *Aedes (Stegomyia)* was extended to cover East as well as West Africa (see also page 20).

The need has been felt for a review of the International Sanitary Regulations, in view of the important changes that have taken place since they were adopted fifteen years ago—in particular, the increase in volume and speed of international travel. Advances in the medical sciences and technology also have a bearing
on the possibilities of controlling the spread of communicable diseases through international traffic. A review of the Regulations was therefore undertaken by the Committee on International Quarantine, and a report was submitted to the Twenty-first World Health Assembly. The Assembly (in resolution WHA21.53) expressed the belief that an improvement of the provisions of the Regulations to make them more effective in practice was opportune, and Member States were invited to comment on the Committee's report, which is to be resubmitted to the Twenty-second World Health Assembly for its consideration, together with a report on the replies received from Member States.

Experience during recent years has shown that there has been frequent under-reporting because national health authorities feared restrictive actions affecting trade. Emphasis is therefore being placed on encouraging governments to request assistance in developing effective national surveillance of the diseases under the Regulations, so that outbreaks may be controlled more rapidly.

A revised edition of the publication Ports Designated in Application of the International Sanitary Regulations was issued during the year.

The number of cases of smallpox notified in 1968 was about half the number for 1967. Although reporting is still incomplete and in some endemic areas may not cover more than 10 per cent. of all existing cases, the situation with respect to notification is steadily improving, and there was a general decline in incidence in 1968. Almost 80 per cent. of all cases were recorded by India, Indonesia and Pakistan, and the low worldwide figure for 1968 reflects to a large extent the cyclical occurrence of smallpox in the Asian countries.

The notification of cases of imported smallpox, particularly across many land frontiers, is very incomplete. During the year reports were received of the disease having been imported into ten countries in four continents. The importation of the disease into Sudan from Ethiopia led to an outbreak lasting two months; 102 cases were reported. In Europe, a traveller from Pakistan to London, and one from the Democratic Republic of the Congo to Namur, Belgium, were found to have smallpox on landing.

The number of cholera cases reported in 1968 was considerably greater than the total in the previous year. Again, notification is still far from complete, since surveillance activities in most endemic countries are inadequate, and there is the fear of excessive measures being taken by neighbouring countries. Cholera, more than any other disease, gives rise to the introduction of measures which affect trade and travel and are in excess of those permitted under the International Sanitary Regulations. The disease was again reported in West Pakistan in April 1968, after a lapse of seven months, and a small outbreak occurred in Afghanistan. Isolated cases were reported from Malaysia and Singapore, which had been free since 1965 and 1964 respectively; and in Nepal—which reported only two cases in 1966 and none in 1967—there were five cases in July 1968.

Plague was again reported in Africa, the Americas and Asia. In Africa, the disease occurred in the Democratic Republic of the Congo, Madagascar, Lesotho and the United Republic of Tanzania. There had been no notification of the disease in the last two countries since 1955 and 1965 respectively. In the Americas, the number of countries reporting plague and the number of cases reported were both fewer than in 1967. In Asia, cases were reported from Burma, Indonesia, Nepal and the Republic of Viet-Nam. In Indonesia, where there were ninety-four cases, the outbreak was the first indication of the disease in humans there since 1960.

No cases of yellow fever were reported from Africa. However, jungle yellow fever occurred in four countries in South America (Bolivia, Brazil, Colombia and Peru), where the number of cases in 1968 was almost double that of the previous year—owing to the relatively large number reported from Bolivia, which did not report any cases in 1967.

Smallpox Eradication

The second year of the intensified programme for smallpox eradication was marked by an increase of activity in many parts of the world. By the end of 1968, eighteen of the twenty-seven smallpox endemic countries had initiated eradication programmes with assistance from WHO and bilateral sources. In addition, to prevent the spread of the disease from the endemic areas, vaccination and surveillance activities were strengthened in adjacent countries.

The incidence of smallpox declined from over 120,000 reported cases during 1967 to less than 70,000 reported cases during 1968.

In western and central Africa, although reporting had improved considerably, half as many cases were recorded during 1968 as during 1967. According to reports and field observations during the last months of the year, smallpox transmission appears to be almost terminated throughout this area. The nineteen countries in this area, with bilateral assistance provided by the United States of America and with assistance from WHO, embarked on eradication programmes during 1967, and by the end of 1968 approximately 65 million of the population of 118 million had been vaccinated (see also page 85). Intensive surveillance
and case-containment activities, developed in the context of the eradication programme, are believed to be responsible for the increasingly rapid diminution of the disease.

Many of the other countries in Africa south of the Sahara reported some increase in smallpox incidence. In most countries, WHO-supported eradication programmes were just beginning, but progress in all was considerably slower than in western Africa. The Democratic Republic of the Congo and Ethiopia were important reservoirs of smallpox. According to available information eradication programmes have not yet been initiated in Ethiopia, Mozambique or Southern Rhodesia.

In South America the reported incidence of smallpox was about the same as in 1967, although reporting had improved notably as a result of increased surveillance activities and programmes for the investigation of cases and outbreaks. Almost all cases were reported by Brazil, the only country in this region believed to be still endemic. During 1968, with technical and material assistance from WHO, more than twelve million persons were vaccinated in special vaccination programmes, in addition to the large number vaccinated in routine activities (see page 100).

In Asia decreases in smallpox incidence were reported from India and West Pakistan. In the four other endemic areas—Afghanistan, East Pakistan, Indonesia and Nepal—the incidence increased. During 1968, with technical and material assistance from WHO, more than twelve million persons were vaccinated in special vaccination programmes, in addition to the large number vaccinated in routine activities (see page 100).

In Asia decreases in smallpox incidence were reported from India and West Pakistan. In the four other endemic areas—Afghanistan, East Pakistan, Indonesia and Nepal—the incidence increased. During 1968, with technical and material assistance from WHO, more than twelve million persons were vaccinated in special vaccination programmes, in addition to the large number vaccinated in routine activities (see page 100).

In Asia decreases in smallpox incidence were reported from India and West Pakistan. In the four other endemic areas—Afghanistan, East Pakistan, Indonesia and Nepal—the incidence increased. During 1968, with technical and material assistance from WHO, more than twelve million persons were vaccinated in special vaccination programmes, in addition to the large number vaccinated in routine activities (see page 100).

In Asia decreases in smallpox incidence were reported from India and West Pakistan. In the four other endemic areas—Afghanistan, East Pakistan, Indonesia and Nepal—the incidence increased. During 1968, with technical and material assistance from WHO, more than twelve million persons were vaccinated in special vaccination programmes, in addition to the large number vaccinated in routine activities (see page 100).

In Asia decreases in smallpox incidence were reported from India and West Pakistan. In the four other endemic areas—Afghanistan, East Pakistan, Indonesia and Nepal—the incidence increased. During 1968, with technical and material assistance from WHO, more than twelve million persons were vaccinated in special vaccination programmes, in addition to the large number vaccinated in routine activities (see page 100).

In Asia decreases in smallpox incidence were reported from India and West Pakistan. In the four other endemic areas—Afghanistan, East Pakistan, Indonesia and Nepal—the incidence increased. During 1968, with technical and material assistance from WHO, more than twelve million persons were vaccinated in special vaccination programmes, in addition to the large number vaccinated in routine activities (see page 100).
countries, and one of the main objectives of WHO's programme is to bring their assistance and expertise to help in the solution of problems in the developing countries—particularly in the tropics and sub-tropics, where over large areas very little is known about which virus diseases are prevalent and of public health importance. National laboratories in these areas have at their disposal the ready assistance of the WHO virus reference centres. Information on the nature and extent of the technical assistance available to these and to other national laboratories is contained in a publication issued during 1968.1

Following the meeting held in 1967 in the Regional Reference Centre at the National Communicable Disease Center, Atlanta, Ga., USA, a second meeting on joint activities of WHO virus reference centres and national virus laboratories was held in 1968 at the Regional Reference Centre for Respiratory Virus Diseases, in Prague; the participants came from twelve countries in the southern and eastern parts of Europe and the Eastern Mediterranean Region.

In addition to the WHO virus reference centres (see Annex 14), fifteen laboratories which have been working closely with WHO on virus diseases have so far been designated as WHO virus collaborating laboratories.2

The following are examples of the varied work carried out by the reference centres in co-operation with WHO during 1968.

The International Reference Centre for Enteroviruses, at Houston, Texas, USA, continued to be responsible for planning and organizing the testing of enterovirus antisera prepared in horses—a collaborative effort in which laboratories in Czechoslovakia, Denmark, France, Japan, Singapore, the United Kingdom, the United States of America and the USSR are participating. This centre also co-operated with WHO in the collaborative studies on rubella (see below).

The Regional Reference Centre for Enteroviruses, in Copenhagen, distributed prototype strains of viruses to laboratories in twenty countries, and rabbit cornea cell lines for tissue cultures to fifteen countries; it received several enterovirus strains for study and identification.

The International Reference Centre for Respiratory Virus Diseases, in Salisbury, England, distributed 630 ampoules of prototype strains of respiratory viruses, and fifty-six of types of mycoplasmas.

The International Influenza Centre for the Americas and the Regional Reference Centre for Respiratory Virus Diseases, both located at the National Communicable Disease Center, Atlanta, Ga., USA, provided fifty-four shipments of viral reagents to laboratories throughout the Americas, including ten strains of prototype viruses, 134 antisera and thirty-six antigens. Reference diagnostic services included serological tests on 496 paired sera and attempted virus isolations on 297 specimens. In addition, forty-one virus or mycoplasma isolates were identified or confirmed. This centre also prepared and tested 200 kits of influenza reagents for distribution to laboratories participating in the WHO influenza programme; prior to distribution these reagents were also tested at the World Influenza Centre, in London.

The International Reference Centre for Arboviruses, in New Haven, Conn., USA, distributed strains of arboviruses and large numbers of ampoules of group- and type-specific immune fluids to more than twenty laboratories throughout the world. It also assisted regional reference centres and collaborating laboratories in identifying and characterizing new viruses.

The scheme for the collection and dissemination of information on virus infections other than arboviruses was further extended during 1968, when laboratories in the Federal Republic of Germany, Israel and Italy agreed to participate, increasing the total number of participating laboratories to forty-one, in thirty countries. Some of these laboratories centralize and transmit to WHO information received from other laboratories in their own or other countries. The results of the first five years of this reporting system, which has provided more than 74,500 reports, are being analysed.

Laboratories in the following countries are now participating in a similar scheme on arbovirus infections, both human and animal: Australia, Brazil, Czechoslovakia, France, India, Italy, Japan, Poland, Senegal, Thailand, Uganda and the United States of America.

Reagents Programme

The provision and testing of reagents continued as a main activity. A further twenty-one enterovirus antisera prepared in horses at the International Reference Centre for Enteroviruses at Houston, Texas, USA, were distributed to the reference centres and collaborating laboratories for tests with homologous, homotypic and heterotypic viruses. Both respiratory virus and enterovirus antisera were distributed as in previous years to national laboratories for reference purposes.

WHO also supplied working antisera and antigens for laboratories participating in the collaborative

---

1 World Health Organization (1968) The work of WHO virus reference centres and the services they provide, Geneva.
3 See Off. Rec. Wild Hlth Org., 147, 16.
months of 1968, the isolation from Argentina, Bulgaria, Canada, Chile, Czecho-

slovakia, Denmark, Eastern Germany, the Federal Republic of Germany, the Fiji Islands, Finland, France, Greece, Hungary, Ireland, Italy, Jamaica, Japan, the Netherlands, Norway, Panama, Portugal, Romania, Spain, Sweden, the United Kingdom, the United States of America, the USSR and Yugoslavia. Until July, there were no large epidemics, and the disease was clinically mild—except in Chile, where a fairly severe epidemic occurred in March in Santiago, and Easter Island. Laboratory investigation proved that most outbreaks were due to virus A2, but those in Denmark, the Fiji Islands and Japan were due to virus B. In Canada, Hungary and Jamaica both virus A2 and virus B were responsible, although virus A2 was more frequent. The antigenic characteristics of the A2 viruses investigated, though differing significantly from those of the original 1957 strains, showed a fair degree of similarity to those of the strains isolated in recent years. In June and July 1968 outbreaks due to strains closely related to the strains isolated earlier in the northern hemisphere occurred in Australia, New Zealand, South Africa. However, the large outbreak which occurred in Hong Kong in July 1968, and later spread to China (Taiwan), Singapore, and then to other parts of the world, was due to a strain of virus A2 which differed considerably from any previous strains of this type. Preliminary studies have shown that, though some people have antibody to this strain, the level is low and it is doubtful whether vaccines containing earlier strains will provide protection against it. The first strains were isolated at the national influenza centre in Hong Kong at the outset of the epidemic, and within two weeks they were analysed at the World Influenza Centre, in London. They were distributed to numerous research and production laboratories for further studies and possible incorporation in vaccines.

The network of WHO influenza centres, in addition to the two international centres in London and Atlanta, Ga., USA, referred to on page 11, now comprises eighty national centres in fifty-five countries. Every year WHO provides each centre with a complete set of the influenza reagents to assist them in the identification of strains and to ensure similarity of results between laboratories.

Other Respiratory Viruses

A report was published on the first (serological) phase of the study organized by WHO, in collaboration with the International Reference Centre for Respiratory Virus Diseases other than Influenza, at Bethesda, Md., USA, to define the viral etiology of severe respiratory infections in children, particularly in tropical areas. Good progress was made in the second phase, which includes the isolation of viruses, and two more laboratories, in Portugal and Romania, joined the twelve already participating in the study, which has been extended for two or three more years so that additional data may be collected, particularly on the incidence of the respiratory viruses and mycoplasmas.

Rubella

The WHO collaborative study on the sero-epidemiology of rubella in women of different age-groups was continued in Central and South America. In this study, which follows an earlier survey, sera from each age-group, in both urban and rural areas, were tested by haemagglutination-inhibition techniques, and the same antigen was used by participating laboratories in Argentina, Brazil, Chile, Jamaica, Mexico, Panama, Trinidad and Uruguay. Preliminary results from urban areas in Montevideo and Sao Paulo showed that in the group of women of child-bearing age more than 80 per cent. had antibodies to rubella. Some laboratories experienced difficulties in obtaining sufficient numbers of sera from rural areas—a problem that might well delay the completion of the study. Similar studies were started in Europe—in Poland, Portugal and Romania—and WHO is drawing the attention of national virus laboratories to the need for epidemiological studies and for the development of laboratory facilities to diagnose rubella infections.

Enteroviruses

In discussions on poliomyelitis vaccination in tropical areas which took place in Helsinki in July, following the First International Congress of Virology, research workers reviewed the global incidence of poliomyelitis as shown in statistics for the years

1951-1966, with particular regard to the increasing incidence in tropical and semi-tropical areas and the problems of poliomyelitis control in countries where health services are still developing. Proposals were made for studies to be carried out along two main lines: a comprehensive investigation of the minimum requirements—in terms of numbers of doses of vaccine, etc.—for effective vaccination of communities (as distinct from individuals); and an investigation of the significance and practical importance of the lower seroconversion rates often obtained in children in tropical countries.

In Europe and North America the incidence of poliomyelitis remained at a very low level, and it was particularly low in countries where effective regular immunization programmes had been established. Continuous surveillance of poliomyelitis is, however, still needed.

A paper summarizing the results of WHO collaborative studies on enterovirus reference antisera appeared in the Bulletin.1

Arboviruses

Assistance was given to Ethiopia, where yellow fever constitutes a serious danger, in planning and organizing studies to determine the presence of yellow fever in certain areas and to evaluate the importance of the problem, and papers describing the previous WHO-assisted investigations of the 1960-1962 epidemic were published in the Bulletin.2 In view of the geographical situation and the economic importance of the Rift Valley, a serological survey was started in this area to establish whether yellow fever virus is present and has infected human populations. Serological studies in monkeys were also started with a view to delimiting the forest areas where the virus is active.

The Regional Reference Centre for Arboviruses at Entebbe, Uganda, collaborated in serological surveys carried out in northern Kenya and Somalia to ascertain whether human populations in those areas had experienced infection by yellow fever or other arboviruses.

A meeting of investigators on arboviruses in southern Europe and the Mediterranean area was held in Rome in December 1967; the participants came from Bulgaria, Czechoslovakia, France, Israel, Italy, Hungary, Portugal, Romania and Yugoslavia. Plans were made for collaborative work to be carried out by the institutes represented at the meeting.

The Regional Reference Centre for Arboviruses in Paris collaborated in serological studies in Tunisia on the human population and in studies on the possible dissemination of arboviruses by migrating birds.

Following the outbreaks in 1967 of a serious and sometimes fatal disease in laboratory workers handling tissues from Cercopithecus monkeys, studies were made with a view to establishing effective and practical measures for the transport and handling of monkeys (see also page 32).

Trachoma

The failure of vaccination so far to provide effective protection against trachoma has drawn attention to the need both for better knowledge of the basic properties of the agent (in order to make possible the development of new immunological and therapeutic approaches), and for uniform epidemiological data (in order to establish priorities and assess changes occurring as a consequence of or parallel with control measures).

WHO continued to support studies in Jerusalem on the antigenic and biochemical properties of the agent, and research in Tunis and at the International Reference Centre for Trachoma, in San Francisco, USA, on the agent's sensitivity to antibiotics and on the possible existence and significance of extraocular reservoirs of the agent in endemic areas.

A collaborative study was started in several countries with a view to determining the role that laboratory tests may have in ascertaining the degree of endemicity of the disease, as an adjunct to clinical diagnosis. This study is being carried out in the various laboratories with uniform techniques, using reagents provided or controlled by the International Reference Centre.

The final evaluation of the long-term effect of antibiotic treatment was started in the WHO-assisted project in China (Taiwan). The results of a small-scale interim evaluation3 have shown a maintained favourable response to antibiotic treatment. This is particularly significant in the light of the conflicting results obtained elsewhere, which seem to indicate a need for a more uniform definition of criteria.

WHO-assisted national control programmes were continued in twelve Member States.

In addition to supporting research at the International Reference Centre, the Organization continued to assist the centre in developing its reference services and training activities.

Parasitic Diseases

Many of the requests for technical advice on the control of parasitic diseases concern the risk that may result from water and agricultural development schemes, such as those carried out under the Special

---

1 Bull. Wld Hlth Org., 1968, 38, 577-593.
Fund component of the United Nations Development Programme. In connexion with man-made lakes in Africa, for example, WHO is participating in research projects on the effects of ecological changes on the transmission of parasitic infections. Better means are needed for assessing the economic importance of parasitic diseases for the community and studies have been started on the development of a methodology for this purpose.

**Schistosomiasis**

In Gabon, investigations carried out in the *Schistosoma intercalatum* foci discovered in 1967 in the Libreville and Ogowé river basin areas led to the identification of the main intermediate snail host, *Bulinus forskalii*. Surveys also revealed a high prevalence of schistosomiasis in the Yaoundé area in Cameroon, where *B. forskalii* occurs in small drains or streams with moderate flow. In Nigeria, investigations confirmed that intestinal and vesical schistosomiasis exist concurrently in the Ibadan area, where the intermediate host *Biomphalaria camerunensis* was found for the first time.

Epidemiological work was continued as part of the various WHO-assisted pilot projects and field research activities. In a study in the west of Nigeria, where *S. haematobium* infection rates among schoolchildren on single examination are as high as 45 per cent., the schistosomiasis research team completed its malacological survey, including the mapping of all types of watercourses, and began an ecological study on *Bulinus globosus*, the snail host of *S. haematobium*.

The area of the pilot and training project in the United Republic of Tanzania was broadened to include, in addition to the rural district of Misungwi where vesical schistosomiasis is endemic (affecting 80 per cent. of schoolchildren in some localities), the township of Mwanza and its vicinity, where *S. mansoni* is endemic. Work was started on the planning of control operations. The WHO-assisted schistosomiasis control project based at Wa in northwestern Ghana entered into its second phase (control operation) during 1968. Follow-up studies were continued in the schistosomiasis control project in Iran, and in the schistosomiasis control and training project jointly assisted by UNICEF and WHO in the United Arab Republic.

Studies carried out in Nigeria as part of a collaborative programme of research on the pathogenicity of *S. haematobium* demonstrated a close correlation between egg output and frequency of abnormal radiological findings in the renal tract. A WHO-assisted study of 500 pyelograms at University College Hospital, Ibadan, indicated that urological lesions improved after treatment with niridazole (which seems to establish that obstructive uropathy in children is not necessarily irreversible), while untreated patients showed more severe lesions when followed up after one year. Post-mortem studies were continued in an attempt to correlate pathological findings with egg output and egg load. A tentative protocol of radiological criteria for the measurement of lesions of possible schistosomal origin in the urinary tract and cardiopulmonary system was drawn up, to permit the tabulation of findings from different countries.

Serum samples from confirmed cases of schistosomiasis, collected under optimal conditions, were stored by the University of Geneva for distribution upon request to investigators engaged in the study of the immunology of schistosomiasis.

WHO supported parallel serological studies in France, Sweden and the United Kingdom on the application of the complement-fixation test using the WHO reference schistosome antigen. The results obtained indicate a significant correlation between parasitological examination and serological testing.

Investigations on the significance of raised levels of immunoglobulins in schistosomiasis patients were begun in Brazil; an attempt is being made to establish immunoglobulin profiles throughout the evolution of the disease, particularly in cases with hepatosplenic involvement. A large number of people are being examined in Bahia, and preliminary results using a purified *S. mansoni* antigen indicated that most of the antibodies detected in hepatosplenic cases of schistosomiasis were of the 19S type of IgM.

WHO-assisted studies in France and the United Kingdom on the immunity of experimental schistosomiasis provided evidence suggesting that heterologous immunity (zoo prophylaxis) might be a factor in limiting the severity of schistosomiasis in man in parts of Africa where bovine and other animal schistosomes are prevalent.

The Organization also supported studies with a view to developing methods of collecting and cultivating in vitro schistosomula.

WHO-assisted work on the mapping of the distribution of intermediate hosts, and research on snail physiology and ecology continued. Morphological variations have always been a source of difficulties in determining the identity of certain snail hosts, and in this connexion studies were started in London with a view to exploring the possibilities of using the enzyme systems of snails as a means of identification.

Work continued on the evaluation of molluscicides in laboratory and field trials, including studies on the effect of environmental factors such as suspended organic material, inorganic colloidal particles and pH. A large field trial using continuous dosing with N-tritylmorpholine was started in the schistosomiasis
control pilot project in the State of Minas Gerais, Brazil. Field tests of new formulations of molluscsides in elastomeric matrices were also started, in the hope that they will provide valuable additions to the current list of preparations toxic to snail vectors.

Discussions took place in Geneva to establish to what extent environmental control measures could contribute to the prevention of schistosomiasis, particularly in view of recent developments in irrigation and agricultural practices. Measures applicable to irrigation schemes and to other snail habitats were proposed. It was emphasized that control measures were now available to cover most situations, and that WHO might assist by studying the performance of various schemes over a period of years.

Papers describing studies on various aspects of schistosomiasis were published in the Bulletin.\(^1\)

**Filarial Infections**

In the pilot project for filariasis control in Western Samoa, jointly assisted by UNICEF and WHO, the assessment of the first total coverage of mass drug administration with diethylcarbamazine was completed. It showed a reduction in the rate of microfilarial infection from approximately 19 per cent. to 1.6 per cent., while the average density of microfilariae declined from 58 to 13.3 per 20 mm\(^3\) of blood per infected person. WHO continued to advise on filariasis control in Ceylon, and also provided advice in the assessment of the filariasis control project in West Malaysia.

Most of the WHO-sponsored research on filariasis is of a long-term nature. During the year emphasis was placed on promoting new projects for the study of the host-parasite and vector-parasite relationship, particularly in regard to the transmission potential of various *Culex pipiens fatigans* strains as vectors of *Wuchereria bancrofti*. The WHO-supported study on the immunization of monkeys against *Brugia malayi* infections by using attenuated infective stage larvae was continued at an institute in Kuala Lumpur. Studies on the practical use of diethylcarbamazine-medicated salt as a means of controlling filariasis were begun at the Bilharziasis Chemotherapy Centre, Tanga, which is sponsored by the Government of the United Republic of Tanzania, the Medical Research Council, London, and WHO.

In order to obtain reliable information on the value, for epidemiological surveys, of the skin test antigen prepared in Japan from *Dirofilaria immitis*, a uniform technique for performing the skin test was adopted, and a comprehensive study for the assessment of the specificity of the antigen and the sensitivity of the test was initiated in several endemic and non-endemic areas.

Studies were made on the epidemiological situation with regard to filariasis due to *Wuchereria bancrofti* in endemic areas in four countries of Central and South America with a view to selecting a suitable place for the establishment of the filarial diseases research team.

A second seminar on filariasis control organized by the South Pacific Commission and WHO was held in August 1968 at Apia, Western Samoa, for countries of the Western Pacific Region. Filarial control projects and trials in the Region were reviewed, and emphasis was laid on the need for adequate drug dosage and the value of repeated total mass drug administration.

The technical, economic and administrative aspects of onchocerciasis control were considered at a technical meeting sponsored jointly by the Organization for Co-ordination and Co-operation in the Control of Major Endemic Diseases, the United States Agency for International Development and WHO, in Tunis, in July. The meeting came to the conclusion that onchocerciasis control was feasible with the control method at present available, which consists in attacking the breeding sites of the vector with insecticides. An area in the savanna zone of West Africa consisting mainly of the Volta river basin was selected for a priority large-scale control project: it was chosen for epidemiological and economic reasons, and also because onchocerciasis control services and operations already existed there.

Because a better understanding is needed of the economic impact of parasitic diseases in general, and of onchocerciasis in particular, advice on the principles involved and the method to be adopted in studies on this subject was sought through a consultation, in Geneva, between economists, sociologists and medical experts. Since previous experience in this field is very limited, it was suggested that one specific parasitic disease should be studied in a circumscribed area and, accordingly, a working programme for an investigation on onchocerciasis was outlined.

The WHO onchocerciasis advisory team collaborated with the national onchocerciasis control services in Ghana and Upper Volta in the preparation of a detailed programme for an inter-country pilot control project in the area of the White and Red Volta. More accurate knowledge of the bionomics of *Simulium damnosum* is needed for the planning of onchocerciasis control, and in this connexion the team co-operated in field investigations on the longevity and flight range of the vector, and in control experiments carried out in Ghana on dry-season breeding sites.

WHO continued to support studies at several institutes in Africa on strain differences in *Onchocerca volvulus* with regard to parasite-vector relationship, pathogenicity and chemotherapeutic response. Progress was made in research aimed at establishing a much-needed laboratory model of onchocerciasis transmission, and work on the preparation of a specific onchocercal antigen to be extracted from human nodules was started in France, Japan and Mali. Studies to develop culture methods for setting up *Simulium* colonies were continued, and the results of earlier research in this field were published in the *Bulletin.* Several papers on various other aspects of onchocerciasis also appeared in this publication.

**Trypanosomiasis**

Epidemiological and entomological investigations were carried out in the operational research project aiming at the eradication of human and animal trypanosomiasis from the Western and Nyanza Provinces of Kenya. WHO is the executing agency for this project, which is being financed under the Special Fund component of the United Nations Development Programme.

In Botswana WHO completed investigations on the extent of human and animal trypanosomiasis in N'gamiland, and provided assistance in establishing the necessary control measures (see page 89).

Close contact was maintained with countries where human trypanosomiasis is active and dangerous pockets of infection exist. The WHO international reference centres for immunoglobulins, in Lausanne, Switzerland, and for trypanosomiasis, in Tororo, Uganda, and the Pasteur Institute, in Dakar, played an important part in studies to determine the value of IgM estimations as a screening test in mass diagnosis of human trypanosomiasis. In Senegal a detailed field survey using the IgM estimation was carried out in an old endemic focus of Gambian sleeping sickness; the various groups with raised IgM levels in serum and cerebrospinal fluid have now been followed up for two years. There is little doubt that in this particular area, and under the prevailing local conditions, IgM estimation made it possible to identify positive cases that would have been missed by conventional methods of diagnosis. Further investigations were started on factors other than trypanosomiasis which may bring about a significantly raised IgM level only.

WHO continued to support research on trypanosomiasis in various laboratories in Africa. Progress was made in studies on methods of separation and storage of individual trypanosome isolates from a wide range of human and animal hosts. WHO-assisted investigations on the antigenic structure and variation of different trypanosome species were continued at the International Reference Centre for Trypanosomiasis at Tororo, and in a collaborating laboratory at Kaduna, Nigeria. Of particular importance is the study of the range of antigens of the *Trypanosoma brucei* group of trypanosomes, not only because of its application to epidemiological studies, but also on account of its bearing upon the possible development of a practical method of immunization.

The Organization also continued to support research on the laboratory rearing of *Glossina morsitans*, one of the most important vectors of Rhodesian sleeping sickness and also of animal trypanosomiasis. The need for mass production of this species in the laboratory has become more urgent in the light of recent research on biological methods of control.

WHO-sponsored basic research on the tsetse vectors, and on the biochemical and physical conditions affecting the development of the trypanosomes within the flies, was carried out in Belgium.

The studies on immunity which were continued with WHO assistance in Edinburgh showed that an effective immunity in mice against a single antigenic type could be induced by a very small single dose of disrupted trypanosome antigen contained in a water-in-oil emulsion. The immunity is slow in developing, but is of long duration.

Further research was sponsored by WHO at two laboratories, one in Belgium and one in France, on a detailed microbiological study of the trypanosomes. Such research is fundamental to a better understanding of the ultrastructure and functional processes of the organism, and could thus throw new light on the nature of drug action upon the trypanosome. With the increasing degree of resistance to practically all the conventional drugs in some areas, it has become urgent that new drugs, perhaps of a completely different chemical structure, be developed.

The Joint FAO/WHO Expert Committee on African Trypanosomiasis met in November 1968 to review the present situation.

In South America, the Organization assisted further investigations in Brazil on the sylvatic hosts of Chagas' disease and on the vectors involved both in the sylvatic cycle and in the transfer of infection from the wild animal host to man and to the domestic cycle (see also pages 18 and 21).
Leishmaniasis

Strains of human and animal Leishmania were identified, maintained and distributed, upon request, as a service to research laboratories, by the International Reference Centre for Leishmaniasis, in Jerusalem, and institutes in Belo Horizonte, Brazil, and in Moscow. These institutes, together with one in London, also carried out WHO-supported investigations on some basic immunological aspects, such as the antigenic characteristics of different strains, with the prospect of carrying out immunizations with heterologous or attenuated forms of Leishmania species. A collaborative programme of research on delayed-type hypersensitivity was started with the participation of institutes in Ethiopia, Israel, Uganda, the United Kingdom and the United States of America.

With a view to furthering knowledge of the dynamics of leishmaniasis transmission—a basic requirement in the planning of any control programme—WHO provided assistance for studies in Brazil on the cycle of L. braziliensis in phlebotomine species in Belo Horizonte, and also in connexion with studies on reservoirs of infection and vectors in Belém.

Amoebiasis

It is estimated that amoebiasis affects 10 per cent of the world's population. In September 1968, at the first WHO Expert Committee on Amoebiasis, which met in Teheran, the amoebae of man were defined, and strains of Entamoeba histolytica were described in the light of up-to-date information on their immunology and biochemistry, in which axenic cultivation, recently achieved, is a very important element. The following classification of amoebiasis was proposed: asymptomatic amoebiasis; intestinal amoebiasis (dysentery, non-dysenteric colitis and other bowel manifestations); hepatic amoebiasis (acute non-suppurative, liver abscesses and complications); cutaneous amoebiasis; and the involvement of other organs. Up-to-date information on epidemiological and diagnostic techniques was reviewed, including the recently developed serological procedures.

The Committee recommended that procedures be developed for the assessment of the public health and economic significance of amoebiasis, account being taken of frequent misdiagnosis of the disease; it considered that the new serological procedures applicable to groups of populations and the data provided by medical autopsies could contribute valuable information in this connexion. Stress was laid on the need for an assessment of the impact on amoebiasis of practicable environmental methods of control, and of the possibility of using mass chemoprophylaxis as a complementary measure.

In WHO-assisted studies being carried out in France with a view to improving the serological diagnosis of amoebiasis, preliminary results with antigens obtained from axenic cultures of amoebae were encouraging.

Other Parasitic Infections

The Organization assisted investigations in Peru to determine the biological cycle and transmission pattern of Diphyllobothrium pacificum, a newly identified helminth species found in the coastal area of Trujillo, and apparently the first cestode to be transmitted to man by infected sea fish.

WHO-assisted trials of drugs for the treatment of intestinal helminthiasis were carried out in Brazil, and the Organization provided advisory assistance in connexion with the ascariasis control programme in China (Taiwan).

WHO also supported studies on the ecology of mycetoma. A strain resembling Madurella mycetomi was recovered from soil samples from Senegal, and further investigations were started on the natural history of this fungus in soil.

Vector Biology and Control

Developments during the year in the Organization's work on vector biology and control included the establishment of a field research unit to investigate East African Aedes (Stegomyia) mosquitos and the testing of a new technique for spraying low volumes of highly concentrated insecticides from aircraft as an emergency measure in outbreaks of yellow fever and haemorrhagic fever. Studies on the main malaria vectors in Africa were undertaken in Kenya as a preliminary to field testing of a recently developed insecticide.

The Twenty-first World Health Assembly approved the use of a vapour disinsection system for large aircraft.

In the evaluation of new insecticides, the health risks were assessed in detail, particular importance being attached to the development of safe techniques for indoor spraying. The search for effective compounds for the control of vectors of onchocerciasis and Chagas' disease was intensified.

A collaborative project was started to investigate possible health effects on people subjected to prolonged and intense exposure to insecticides.

Studies on the ecology of the vectors and the application of the findings to control programmes were intensified—in particular, with regard to Aedes and Anopheles mosquitos and reviduid bugs.

Details of this work will be found below, under the appropriate headings.
Resistance to Insecticides, and Genetics

With a view to ascertaining the effect of resistance on vector and disease control, the worldwide survey of the current status of resistance of insects of public health importance was continued.

Until recently, the use of insecticides in public health was largely based on three exceptionally useful chlorinated compounds: DDT, HCH and dieldrin. Resistance to one or all of these insecticides resulted in failure to control malaria in certain regions—notably in parts of Mexico, Central America and the Persian Gulf. DDT-resistance in *Aedes aegypti* in the Caribbean area, followed by the development of double resistance (to both DDT and dieldrin) is seriously jeopardizing the *Aedes aegypti* eradication programme in the Region of the Americas. Widespread resistance to DDT and dieldrin in *Culex pipiens fatigans* makes it impossible to rely on these insecticides to control filarial infection due to *Wuchereria bancrofti*. DDT-resistance exists in body lice and plague fleas, and in many places the latter are also resistant to both HCH and dieldrin. It has become impossible to maintain housefly control with chlorinated hydrocarbon residual insecticides, and it is also becoming difficult to control bedbug and cockroach infestations.

A significant development was the appearance of DDT-resistance in *Anopheles gambiae* A in Bobo-Dioulasso, Upper Volta, and in *Anopheles gambiae* B near Thiès, Senegal. A certain degree of resistance to DDT was also apparent in two further localities in the immediate neighbourhood of Thiès. These were the first substantiated reports of DDT-resistance in this important malaria vector in Africa, although it has been known for some years to be highly resistant to dieldrin in West Africa and other areas.

So far, few or no instances of resistance have been reported for tsetse flies, blackflies, sandflies, triatomid bugs and ticks or mites that are vectors of human disease. However, this is not a matter for complacency, since it seems possible that extensive use of these insecticides on a national scale might provoke resistance, particularly with regard to blackflies and triatomid bugs.

Because of the importance of Chagas' disease in South America, the Organization initiated a survey on the vector's resistance to insecticides. More than twenty collaborating laboratories were provided with test kits to carry out susceptibility tests on reduvid bugs in as many areas as possible in their respective countries, and thus obtain up-to-date information on this important vector.

A collaborating laboratory in France continued to carry out susceptibility tests on *Aedes aegypti*, and the results of 416 tests were processed during the year. In addition, the results of 121 tests on *Culex pipiens fatigans*, forty-nine on houseflies, thirty-nine on lice, seventeen on fleas and fourteen on bedbugs were received from different parts of the world.

At a meeting in November the Expert Committee on Insecticides discussed the problem of resistance. A critical review was made of all the WHO standard resistance test methods and recommended methods for vector control.

Papers describing WHO-assisted studies on the effects of DDT on the reproduction and susceptibility of *Culex pipiens fatigans* and of analogues of DDT on susceptible and resistant houseflies and mosquitoes were published in the *Bulletin*.3

The report of a scientific group on the cytogenetics of vectors of disease of man, which met in November 1967, was published.2 The group discussed a number of basic and applied problems relating to vector genetics (including chromosomes and gamete formation), a subject relevant to the identification of sibling species of some of the vectors of malaria and onchocerciasis. It also considered the role of cytogenetic factors in sterility and their manipulation for vector control.

The first maps of salivary gland chromosomes of *Culex pipiens fatigans* were prepared. There were considerable technical difficulties in preparing suitable slides for these chromosomes—difficulties that had not arisen in the case of anopheline mosquitoes. Work was also started on the preparation of maps of *Aedes aegypti* chromosomes.

In view of the shortage of trained research workers in the rapidly developing field of vector genetics, WHO organized an inter-regional seminar at the University of Notre Dame, Indiana, USA, in June 1968; it included visits to laboratories for practical demonstration of vector control techniques.

Evaluation of New Insecticides

The collaborative programme for the testing and evaluation of new insecticides was continued.3 Of

---

1 *Bull. WHO.,* 1968, 38, 459-467; 633-647.
3 There are seven stages of testing: Stage I—initial laboratory screening; Stage II—preliminary laboratory evaluation, toxicity and residual effectiveness; Stage III—advanced laboratory and preliminary field evaluation; Stage IV—advanced field evaluation (including formulation properties and experimental hut trials); Stage V—small-scale field trials (including protective measures and storage stability); and Stage VI—pilot field trials, which are designed to provide a large-scale evaluation of the insecticide so that the procedure and protocol for operational testing (Stage VII) may be obtained.
the six International Reference Centres for the Evaluation and Testing of New Insecticides designated in 1967, the three in the United States of America, as well as those in Porton Down, England, and in Bobo-Dioulasso, Upper Volta, carried out standardized testing of insecticides for the measurement of comparative insect toxicity. The International Reference Centre in Carshalton, England, tested new compounds for toxicity to laboratory mammals and for an initial assessment of the hazard of toxicity to man and domestic animals.

During 1968, fifty-nine new compounds were tested in Stage I, and twenty of these were active enough to be considered for testing at one or more higher stages. These new compounds were supplied by ten pesticide manufacturers in four countries.

Stage II and III evaluations were made on some of these compounds, and on some submitted previously. Tests were made with forty-five compounds as residues on adult mosquitoes, forty-two compounds on mosquito larvae (fourteen as residues), fifty-six on houseflies and ninety-eight on bedbugs, body lice, rat fleas and ticks. Testing for comparative toxicity to mammals and evaluation of hazard was made on twenty-three compounds.

Electronic data-processing techniques were used in connexion with the storage, retrieval and comparison of the large number of the Stages I, II and III test results that have accumulated since this programme was begun in 1960. Summary data sheets were prepared by the computer for compounds for which new data had been received, and these were provided periodically to all collaborating laboratories and to the suppliers of the compounds. A complete set of tabular data and index catalogues for all the accumulated information was also prepared by the computer, and was used at the meeting of directors of collaborating laboratories held in Geneva in August, when a detailed review was made of the progress of testing at all stages.

Experimental hut trials at Stage IV were made with fourteen compounds on *Anopheles* in Nigeria, the United Republic of Tanzania, and Upper Volta, as well as in Arkansas, USA. Stage IV evaluations were made of five compounds as larvicides in natural breeding sites of *Culex pipiens fatigans*, and of four compounds as larvicides in drinking-water containers—one of the breeding sites of *Aedes aegypti* in Africa, South-East Asia and the Caribbean area of Central America. Stage IV evaluations were also made of two insecticides and a new formulation of DDT on *Simulium* larvae in Upper Volta.

Village-scale trials at Stage V were carried out with two new insecticides, OMS-214 and OMS-708, by the Organization’s Anopheles Control Research Unit in Kaduna, Nigeria. Under the African savanna conditions there, the organophosphorus compound OMS-214 was effective for about six weeks, and the carbamate OMS-708 for over three months. Chemical assay of the formulations was carried out, and observations were made on the safety of the compounds (see page 20).

The extended village trial with the carbamate insecticide OMS-33, carried out by the WHO Anopheles Control Research Unit in south-west Iran, was completed; the results showed that this insecticide controlled *Anopheles stephensi* for three to four months and *Anopheles d’halii* for two-and-a-half months. This unit was then transferred to the Kisumu area in Kenya, where it initiated biological and ecological studies on the main malaria vectors in Africa, *Anopheles gambiae* and *Anopheles funestus*, in order to obtain baseline data for a Stage VI trial of another new insecticide in this area. A detailed summary of the evaluation of the insecticide OMS-33 was issued, giving the results of the assessment at various stages of the insecticide as a residual spray on adult *Anopheles* mosquitoes and an account of safety evaluation, based on experience in handling 30 tons of the powder formulation during spraying operations in the past few years. The results of a study on the safety of OMS-33 during field trials in Iran were published in the *Bulletin.*

The WHO Research Unit for the Control of Mosquito Vectors of Filariasis, in Rangoon, carried out Stage VI evaluation of OMS-2 (fenthion) as a larvicide on *Culex pipiens fatigans*, in addition to continuing the established control of culicine breeding by larviciding with fenthion in the Kemmendine area. The intense pressure on the mosquito population of this larviciding operation gave no indication that resistance would occur. However, evaluation of new compounds during the year showed that an alternative insecticide, OMS-971, was available, should the need arise. The study on the effect of this high level of control of the culicine mosquito on filariasis transmission was continued, and plans were prepared for a full-scale epidemiological evaluation in 1969.

The WHO Aedes Research Unit in Bangkok initiated a large pilot trial on the control of *Aedes aegypti* with the larvicide OMS-786. This safe organophosphorus compound, applied primarily in freshwater containers, has given very good control results. The Unit also carried out an evaluation of the effectiveness of ultra-low volume application of OMS-1 (malathion) on the adult population of the *Aedes aegypti* mosquito (see page 22).

A detailed summary of work carried out in the programme for the collaborative evaluation of insecticides was largely completed, and the first two parts, on compounds evaluated from 1960 to 1967, and on problems in the evaluation of insecticides, were issued.

Safe Use of Pesticides

During the Stage V entomological evaluation of the insecticides OMS-214 and OMS-708 at the Anopheles Control Research Unit in Kaduna, Nigeria, concurrent investigations were made to assess possible adverse effects on spraymen and villagers when the insecticide formulations were applied indoors. Precautionary measures similar to those taken in all the trials with OMS-33 were used, and clinical observations showed both these compounds to be safe enough for use in a more extended field trial evaluation.

The Organization co-operated with FAO, the executing agency, in connexion with a project in Brazil for the expansion of work on pesticides, financed under the Special Fund component of the United Nations Development Programme. WHO, as participating agency, has the technical responsibility for aspects relating to the safe use of pesticides in both agriculture and public health.

WHO-supported multi-generation studies on the potential carcinogenicity of DDT in rodents were started in four laboratories in France, Italy and the USSR, together with the International Agency for Research on Cancer. Studies on the distribution of DDT levels in human fat and other tissues in selected populations were started at two institutes, in Israel and in the United States of America. The latter studies constitute the first stage of a long-term investigation to discover whether heavy and prolonged exposure to DDT might raise the incidence of disease, especially cancer.

Further details of work on pesticide toxicity are given on page 48.

Aircraft Disinsection

The disinsection of large international aircraft by a vapour system, as recommended by the Committee on International Quarantine,1 was approved by the Twenty-first World Health Assembly, which recommended to Member States that the system be used for in-flight disinsection of large pressurized aircraft in international passenger and freight traffic, and that all such aircraft be equipped with the system by 31 December 1970.

The Organization was instrumental in installing prototypes of vapour disinsection equipment using dichlorvos in the Douglas DC-6B, Boeing 707 and Boeing 720 aircraft, and prepared specifications and descriptions of installation, operation and inspection systems for the equipment.

Specifications for Pesticides and Equipment

Specifications for new insecticides are developed concurrently with the evaluation of the materials at the higher stages in the testing programme. Interim specifications for five new compounds tested during the past several years were prepared and used to guide formulation of these compounds; in particular, the specification for OMS-33 was used for guidance in the procurement of this compound for Stage VI tests.

The problems encountered in the use of the specifications detailed in the third edition of Specifications for Pesticides used in Public Health,a means of improving the specifications, and the problems arising in developing new ones, were considered in July, in discussions with experts on the chemistry and specifications of pesticides.

In a laboratory in the United States of America, WHO supported research with a view to establishing the basic principles of formulating new insecticides and determining how these are related to the transport, storage and application of the formulations in the field. The first specific subject to be studied was the problem of ensuring that a stable reproducible formulation of the organophosphorus insecticide OMS-43 can be made.

The modifications and improvements made in recent years in the equipment used for the application of pesticides and for vector control were discussed during a consultation with experts in Geneva in July, when the basis was established for a revision of the manual Equipment for Vector Control,b published in 1964.

The Organization co-operated with FAO and the Collaborative International Pesticides Analytical Committee regarding the standardization of analytical methods and specification requirements for pesticides and formulations of common interest.

Ecology

The Organization’s programme on the ecology of vectors was expanded during the year with the establishment in Dar es Salaam of the East African Aedes Research Unit, which began studies on the ecology, behaviour and distribution of Aedes aegypti and the related Aedes (Stegomyia) species and the various potential vectors of yellow fever in urban and peri-urban areas of East Africa. Research on the

---


genetics and speciation of the various vectors is a major part of the study, which aims ultimately to relate ecological and genetic differences. Results so far show a pattern of distribution and behaviour for the East African *Aedes* mosquitoes which differs from that found for the *Aedes* mosquito in Bangkok.

Work on the ecology and biology of *Aedes aegypti* and *Aedes albopictus* and on the improvement of measures for the control of these mosquitoes was continued at the WHO Aedes Research Unit in Bangkok.

In Rangoon, the WHO Research Unit for the Control of Mosquito Vectors of Filariasis continued observations on *Culex pipiens fatigans*. As most of the basic ecological studies have been completed, its activities were concentrated on control and evaluation, using methods based on its earlier ecological work.

Following outbreaks of yellow fever during recent years, notably in West Africa and Ethiopia, the Organization continued studies on the speciation, distribution, ecology and insecticide susceptibility of *Aedes* vectors in West Africa, with the collaboration of the International Reference Centre for the Evaluation and Testing of New Insecticides, at Bobo-Dioulasso.

WHO-supported ecological studies and research for the evaluation of new insecticides on both laboratory strains and field populations of reduviid bugs were started in three laboratories in South America. This research is being pursued with a view to devising new methods for the study of the population dynamics of reduviid bugs, the vector of Chagas' disease in South America, and, particularly, in order to develop new techniques for the evaluation of insecticides in control programmes.

An accurate knowledge of the distribution of vectors and reservoirs of disease is essential for the planning of effective control measures. The importance of mapping the geographical distribution and population densities of the major vectors of human disease and the zoonoses has been frequently emphasized, and a programme along these lines was started during 1968. A series of comprehensive papers is being prepared, each one dealing with a specific species, with summaries of all available information on the distribution, biology and vectorial capacity. Material for the first such paper—dealing with six tick species—was prepared in 1968. Similar information is being gathered on the most important mosquito vectors of virus diseases, in particular, *Aedes aegypti* and the closely related *Aedes* (Stegomyia) species.

**Biological and Genetic Control**

In the programme of research on the biological control of vectors, more than 800 pocket kits for the collection of parasitized arthropods have now been dispatched, and the WHO International Reference Centre for the Diagnosis of Diseases of Vectors, at Columbus, Ohio, USA, continued the identification of material received. In a laboratory in Czechoslovakia, WHO-supported small-scale trials were begun on possible biological control agents against *Simulium*; as promising agents are found they will be tested in Africa against *Simulium damnosum*, the major vector of onchocerciasis. WHO-supported studies on parasitic fungi and insect viruses were continued; the long-term objectives of this research are to find and develop biological agents which might be introduced into field populations of vectors.

Fish are among the main predators of mosquito larvae, and experiments were continued on the use of one species, *Lebistes reticulatus*—which tolerates a high level of pollution—to control *Culex pipiens fatigans* in Rangoon.

The Organization is following with interest plans for the introduction of weasels into small Pacific islands where rats are a major problem: they not only cause economic damage but also, through gnawing holes in coconuts, create mosquito larval habitats. The results of WHO-assisted preliminary experimental work in the Ryukyu Islands showed that in the given conditions weasels could successfully be used to control rat populations.1

With the collaboration of the International Reference Centre for the Evaluation and Testing of New Insecticides, at Bobo-Dioulasso, an experiment was started on the genetic control of *Anopheles gambiae* in a small village in Upper Volta; instead of adult hybrid sterile males being released, pupae were placed in the breeding sites—a method which should greatly simplify the release procedure.

Following the completion in 1967 of a successful small-scale experiment in Burma on the genetic control of *Culex pipiens fatigans* by cytoplasmic incompatibility, plans were prepared for a large-scale investigation in another country on the use of this method for the control of *Culex pipiens fatigans* and *Aedes aegypti*.

A paper concerning the genetic control of insects of public health importance was published in the *Bulletin.*2

**Rodents and Rodenticides**

The appearance in several areas of resistance in rodents to the anticoagulant rodenticides and the steadily increasing spread of this resistance have made it imperative to develop new rodenticides, especially ones selective in their action to rodents. The Organi-
zation's programme for the evaluation of new compounds and development of new techniques of rodent control was pursued during the year along similar lines to the programme of insecticide evaluation, with emphasis on the development of new, acute rodenticides, highly specific but safe.

With a view to improving the effectiveness of existing rodenticides and food baits, a WHO-supported study was started in collaboration with a laboratory in California, USA, for the evaluation of rodent repellents, attractants and anticoagulant baits, their formulations and methods of use.

Emergency Assistance

Rapid control of the adult mosquito population would be a means of combating outbreaks of vector-borne diseases, such as yellow fever and haemorrhagic fever. The most promising and rapid control method developed so far is the ultra-low-volume application of insecticides by aircraft—that is, the application of extremely small quantities of high concentrate insecticide. Although this provides little persistent effect, it can in certain circumstances reduce the adult mosquito population for a sufficient period of time to permit interruption of transmission of the virus. In a field trial carried out by the Aedes Research Unit in Bangkok, using malathion sprayed as a concentrate from the air over an urban area, a very high measure of control of *Aedes aegypti* was obtained, the biting rate was reduced by 98 per cent., and all oviposition ceased for several days. The results were so promising that more extensive trials were started in a large town in Thailand and in a rural area of Ethiopia. The latter trial is for the control of *A. simpsoni*, the local vector of yellow fever.

The Organization continued to provide emergency assistance in cases of foodstuffs contaminated by insecticides and arranged for the chemical analysis of samples for one incident. The contamination of foodstuffs with pesticides during shipment was considered at several meetings convened by IMCO in which WHO participated, and a paper on the subject was published in the *Bulletin*. It was agreed that the definition and classification of pesticides needed to be more explicit, and amendments to the International Maritime Dangerous Goods Code were therefore proposed in this respect.

Services to Research

The Organization continued to provide material assistance to laboratories and research workers to further research on vectors and various aspects of their control. Samples of the following were provided to laboratories in India, Pakistan, the United King-
Epidemiological studies of yaws in Brazil, Haiti and Indonesia, and of pinta in Mexico, were also completed during the year. Following assessment by WHO of recrudescent endemic childhood syphilis among the nomadic Fulani and Tuareg people in Mali, Niger and Upper Volta, renewed attention was given to treponematoses by the health administrations concerned. There was also a recrudescence of endemic syphilis among the Peuls and Tukulor in Senegal, and of venereal syphilis among the Djerma-Songhai and Hausa in Niger, and the Wolofs in Senegal. Work was started on an extensive sero-epidemiological study in Niger.

Immunological findings in studies on endemic treponematoses confirm that the community-wide application of long-acting penicillin, resulting in abrupt regression of the incidence of endemic treponematoses, has brought about profound quantitative changes in the extent of the disease. On the other hand, there is evidence of continued low-level transmission of infection in several areas, indicating that many circumstances are necessary if infection is to be completely eliminated—in particular, the improvement of local health services, sanitary standards and hygiene. Studies have also shown that qualitative changes have taken place in clinical manifestations. However, it seems that specific serological reactivity can develop without the appearance of concomitant lesions (subclinical infection) in children who have no past history of disease. In the light of these findings, projects were prepared during the year with a view to establishing, in limited areas, whether both disease and infection could actually be made to disappear as a result of intensive environmental measures. Observations so far emphasize the need for epidemiological evaluation and for surveillance and control measures to be maintained by health administrations in areas where mass campaigns against endemic treponematoses have previously been carried out.

The field operations phase of the sero-epidemiological follow-up study of endemic syphilis twenty years after the mass campaign in the Republic of Bosnia-Hercegovina, Yugoslavia, was completed during the year. The study, undertaken by WHO in collaboration with the health administration, covered 12,000 people, in twenty-eight villages. No evidence of continued transmission was found in children under fifteen years of age in this study on “disappearing disease” undertaken in an environment where rapid economic and social development had taken place during the mass campaign years and the subsequent surveillance period. Some 7000 aliquots of the representative serum collection obtained were provided in the inert state (shipped by the method developed by WHO, frozen in liquid nitrogen at —200°C) to the Serological Reference Centre for Treponematoses in Copenhagen, and the International Reference Centre for Endemic Treponematoses in Paris, and were also sent for multipurpose investigations at the Serum Reference Bank in Prague (in connexion with diphtheria, pertussis and antistreptolysin), and at institutes in Moscow (tetanus), Sarajevo (rickettsial infections) and Zagreb, Yugoslavia (arboviruses), London (malaria), and Rouen, France (immunohaematology).

Venereal Infections

The reported upward incidence trend of early syphilis continued in 1968 in several countries, but ceased in others. A marked further rise was observed in the incidence of gonococcal infections; in one country reported incidence increased by 74 per cent. as compared with a decade ago, and in another it reached the rate of three new cases of gonorrhoea per 1000 inhabitants. This situation is mainly due to non-medical aspects, and is only to a limited extent attributable to increasing resistance of some circulating strains of Neisseria gonorrhoeae to antibiotics. In three countries, as much as 50 per cent. of the syphilis and gonorrhoea cases originated abroad, and spread of the disease through large-scale tourism and international travel is becoming a factor of increasing epidemiological importance. Venereal infections are now the leading causes of reported morbidity in some countries. WHO-sponsored studies have also shown that, contrary to previous experience, there is now an almost equal proportion of infected females and males in certain age groups, suggesting both more extensive sexual activity and increased risk of “behavioural” disease. The changing environment was the theme of the annual conference of the Royal Institute of Public Health and Hygiene, in the United Kingdom, and the possible epidemiological importance of the widening use of new contraceptive methods was among the subjects discussed at the meeting, in which WHO participated.
There is a need for better and up-to-date national and international surveillance and reporting concerning venereal infections, avoiding the delays which hinder effective case- and contact-finding. In this connexion, plans were prepared for a WHO-sponsored pilot project in collaboration with the health administrations of France and Sweden.

Surveillance of antibiotic sensitivity patterns of *N. gonorrhoeae* continued, and the International Reference Centre for Gonococci, in Copenhagen, completed a study on patterns of increased resistance of circulating gonococcal strains in the South-East Asia and Western Pacific Regions. These subjects were discussed at the second regional seminar on venereal disease control in the Western Pacific, held in Manila in December 1968. Problems of diagnosis, treatment, health education and epidemiology, and possible measures for combating the international spread of syphilis and gonorrhoea in the Region were considered at that seminar.

**Research**

The reference centres in Copenhagen and Paris made 118 shipments of reagents and control sera to national and other laboratories during the year. A study was started, with the collaboration of five laboratories, on the replacement of the third international reference preparations of cardiolipin and lecithin, the basic elements in the lipoidal antigens used in flocculation tests. The second collaborative study of the antigen quality, test performance and reproducibility of the fluorescent treponemal antibody method (FTA) was completed by the Serological Reference Centre for Treponematoses in Copenhagen. Some 10,000 sera were examined for endemic treponematoses at the International Reference Centre for Endemic Treponematoses in Paris, and the Public Health Laboratory Services' Venereal Disease Reference Centre in London, working in co-operation with field projects. At both these centres, as well as at a collaborating laboratory in Sweden, cryogenic studies were continued on globulin tolerance to extremely low temperatures, demonstrating the usefulness of the deep-freeze liquid nitrogen method for transport and long-term preservation of sera in the inert state. Significant differences in flocculation test reactivity in sera from treponematoses patients were observed in warm, as contrasted to temperate, climates; this further emphasized the unreliability of lipoidal antigen tests for prevalence studies in tropical countries, unless appropriate laboratory precautions are taken.

Further microbiological and immunological knowledge was sought, with a view to the eventual development of an immunizing agent against syphilis. Research at one collaborating laboratory led to the definition of a protein component of *Treponema pallidum* which appears to be the carrier of immunogenicity. Immunization studies in the experimental animal at another laboratory were based on the use of adjuvants plus antigenic fractions from pathogenic and non-pathogenic treponemal organisms. Furthermore, at a third collaborating laboratory, protective immunity against virulent challenge was confirmed to result from the use of gamma-irradiated pathogenic treponemes in rabbits.

As mentioned above, the recently discovered latent treponeme reservoir in certain wild monkeys in Africa appears to be unrelated to the continuing low-level transmission of yaws observed in sero-epidemiological studies after mass campaigns. However, the treponeme/host relationship in such monkeys has produced an animal model for immunological cross-protection investigations in treponematoses, since these animals are shown to be immune against inoculation with *T. pallidum*. Another animal model has become available following the establishment for the first time of the pinta organism (*T. carateum*) in chimpanzees, at the Serological Reference Centre for Treponematoses, in Atlanta, Ga., USA. It has already been established that late pinta in man gives cross-protection against infection with *T. pallidum*. Further studies are being pursued in these areas.

**Tuberculosis**

Regional teaching and training activities in tuberculosis have continued to expand, and it has been possible to develop further the practice of demonstrating realistic methods of tuberculosis control in socio-economic, cultural and administrative conditions similar to those in the trainees' own countries. The inter-regional courses on the epidemiology and control of tuberculosis, held annually in Prague and Rome in English and French respectively, were extended by periods of practical field training conducted in India and Kenya, through the participation of the Governments of those countries. The third course for countries of the Western Pacific Region was held in Tokyo, and an agreement was concluded between the Organization and the Government of Venezuela for the starting of a course for the Latin American countries. Training will also be an important part of the work of the newly designated WHO Regional Reference Centre for Tuberculosis, at the National Tuberculosis Institute, Caracas.

The Organization assisted fifty-eight countries in their national tuberculosis control efforts. Assistance was of various kinds, covering both multipurpose vaccination campaigns and comprehensive programmes in which all the aspects of tuberculosis control
on a national scale—immunization, case-finding and treatment—were implemented, but the underlying concept in all the programmes was the establishment of country-wide and permanent services (avoiding patchy or sporadic efforts), and their integration into the countries' developing health services.

It has been claimed that natural infection with mycobacteria other than those commonly believed to cause tuberculosis in man may have an immunogenic effect, and in order to find out if this phenomenon interacts with the artificially induced protective effect of BCG vaccination a large-scale WHO-assisted controlled trial was launched in India in 1968. The feasibility of such a trial had been shown by a series of studies undertaken on the spot, as well as by the results of a number of special research activities conducted during a prolonged preparatory phase (e.g. the standardization of sensitins, and the assay of the protective potency of BCG products in animals). Animal experiments have provided evidence that interaction may exist. The trial, during the first phase of which a population of 300,000 will be screened by means of tuberculin testing, chest X-ray and bacteriological examination, is expected to yield results of considerable epidemiological interest and practical value.

During 1968 epidemiological models were used for the first time as research instruments on a service basis. In the field of epidemiology it was not known how much the early detection of infectious sources and their suppression by chemotherapy would reduce the need for systematic BCG vaccination of the newborn. The construction of a mathematical model depicting the variables in the control of tuberculosis and simulating control conditions in the computer made it possible to quantify the reduction in tuberculosis incidence, over a given number of years, resulting from BCG vaccination—for example, in a situation when 90 per cent. of all newborn were vaccinated and 90 per cent. of the total population underwent an annual examination for infectious tuberculosis. The practical results of such simulations are that they permit optimum use of resources under given epidemiological situations. Similarly, operational models were used to describe the functioning of an integrated tuberculosis programme so as to identify the changes in the variables that would have the greatest impact on the system—for instance, to establish to what extent total coverage with an inexpensive but less effective treatment regimen was more important than partial coverage with an expensive but more effective treatment regimen. In the decision model developed by WHO the inputs are data on tuberculosis control activities (tuberculin testing, X-ray examination, smear, culture, chemotherapy, chemotherapy and BCG vaccination), and the output consists of details of health and economic benefits accruing to the individual and the community. The model thus involves parameters of a demographic, epidemiological, technical, operational, economic and social nature, estimated on the basis of WHO-assisted projects. It has demonstrated that the traditional allocation of resources in tuberculosis control is often unbalanced in that the percentage of the budget allocated to equipment and supplies by no means permits the optimum utilization of available manpower.

The need for standardization of tuberculins, which are produced in many countries and are used extensively as a diagnostic aid, for epidemiological research and for the assay of the potency of BCG preparations, led to the formulation of requirements for tuberculins. These were published during the year after their adoption in 1967 by the Expert Committee on Biological Standardization.1

A special number of the Bulletin devoted to tuberculosis 2 contained papers dealing with the problem of the distribution in Africa of non-tuberculosis mycobacteria. The examination of sputa collected in WHO-assisted projects in various parts of the continent showed that all mycobacteria in the various groups of Runyon's classification, as well as saprophytes, many of them evidently pathogenic, were encountered quite frequently. This situation influences the validity of the results of tuberculin surveys, throws doubt on the reliability of standard diagnostic laboratory methods, and may very well be the reason for treatment failures, since typical and atypical mycobacteria show completely different patterns of susceptibility to bacteriostatic drugs. With a view to improving classification of mycobacteria, a number of laboratory methods—phage-typing, immuno-diffusion precipitation, haemagglutination and fluorescent antibody techniques—were studied with regard to their specificity and sensitivity for distinguishing between the many species of the genus Mycobacterium. Though the protective value of BCG is generally accepted, there are certain shortcomings inherent in vaccination with this living, attenuated strain—a major-one being the artificial induced allergy which vitiates the use of tuberculin for diagnostic and epidemiological purposes. Research was therefore undertaken to fractionate the bacillus and to investigate the immunogenic power of its constituents. So far, none of the fractions has come close to the protective value of BCG.

The epidemiological situation in countries with a small and declining tuberculosis problem was the

subject of several publications. A four-year follow-up of the epidemiological study in Czechoslovakia showed that, in a population covered by systematic X-ray screening every two years, and with excellent treatment of all in need of it, the overall prevalence of infectious tuberculosis dropped markedly, whereas the prevalence of the smear-positive, highly infectious cases declined only slightly. This finding has obvious implications for the emphasis given to mass X-ray investigations in many developed countries. Material available in the Danish Tuberculosis Index permitted an analysis of the mortality among patients in whom tuberculosis was diagnosed between 1925 and 1954. The prognosis and curability of a case depend on age, on the extent of X-ray lesions at diagnosis, and on the bacteriological status. Mortality showed a consistent decline over the years, and this phenomenon was already demonstrable before the advent of chemotherapy.

Investigations on the efficacy and applicability of various chemotherapeutic regimens were assisted by WHO at a number of institutions in developing and developed countries, in the search for regimens that provide the maximum benefits for the minimum expenditure in personnel, time and money. It appears that the optimum length of initial daily treatment, when followed by intermittent treatment, can be as short as two to four weeks. With regard to the relative merits of institutional and domiciliary treatment, controlled trials demonstrated that the former could be greatly reduced in most developed countries. Studies were also made with a view to developing inexpensive regimens covering both sensitive and resistant bacilli.

A number of WHO-assisted studies conducted in developing countries dealt mainly with the operational aspects of tuberculosis control in integrated national tuberculosis control programmes. It was shown that microscopic examination of sputa from persons seeking help on account of persistent symptoms yielded a high proportion of positive results, and that auxiliary personnel in peripheral health units could reasonably be expected to undertake sputum microscopy in addition to their routine work, thus making reliable diagnoses for tuberculosis available to the total population covered by basic health services. A three-year follow-up of patients receiving domiciliary treatment showed that treatment default was considerably less among infectious patients than among those not excreting bacilli—an inverse relationship which might be construed as an endorsement of the practicability and effectiveness of non-institutional treatment for tuberculosis. Trials were made with jet-injection equipment, because of the operational gains that would result from the introduction of an efficient and speedy method of mass vaccination which could be applied by unspecialized health workers after only a brief training. The trials showed that jet injection, in spite of certain disadvantages—for example, the fact that it results in a greater variation in the diameter of both the post-vaccination tuberculin reactions and the local lesions as compared with intradermal injection by needle—could be used in mass campaigns.

**Leprosy**

In leprosy control WHO continued its assistance to countries and provided technical advice for UNICEF-assisted projects. Case-finding proceeded satisfactorily in many projects with regard to the total number of cases detected. Over 90 per cent. of infectious cases had been registered and treated in some projects. However, because of the long duration of therapy, poor attendance of out-patients for regular treatment continued to be a problem.

The recommendations made in 1965 by the Expert Committee on Leprosy with regard to priorities and the planning of leprosy control programmes were reflected in the emphasis placed on the treatment of infectious cases and surveillance of their contacts, and on releasing from control those tuberculoid and indeterminate patients who had already completed the required period of disease inactivity and treatment.

The training of personnel continued to play an important part in WHO's work on leprosy. Administrative methods for leprosy control programmes was the subject of a seminar held in Guadalajara, Mexico, for countries of the Region of the Americas.

The Organization's assistance to research included a "double-blind" trial, in Venezuela, which showed the action of thalidomide on the acute lepra reaction. In a further study the first results were confirmed, and the drug is considered effective in suppressing acute lepra reaction. Cases of acute polyneuritis incidental to lepra reaction were also controlled rapidly and completely with thalidomide. "Double-blind" co-ordinated trials of this drug were also carried out in India, Mali, Somalia and Spain, using a uniform methodology studied by the Organization. Preliminary appraisal of the reports so far received—on eighty-seven cases—also seem to show favourable results.

A WHO-assisted trial was started to compare the results of diaphenylsulfone (DDS) therapy in lepromatous patients, using the conventional dose (10 mg/kg

---

weekly) and one-third of this amount (3.3 mg/kg weekly).

In the long-term chemoprophylaxis trial with DDS in India, after five years' observation forty-eight leprosy cases had been detected among 360 contacts in the control group and twenty-two among 358 contacts in the "prophylaxis" group. The degree of protection was estimated to be 54.5 per cent. for the "prophylaxis" group, but seemed significant only for children below ten years of age, and was much higher for males. A chemoprophylaxis trial with DDS started in the Philippines in 1966 was continued. At the end of the first year, twelve cases had been detected in the control group of 275 child contacts and three in the "prophylaxis" group (numbering 274); in the second year the number of cases was eleven and ten respectively.

In WHO-assisted collaborative studies in the United States of America, a growth of acid-fast organisms was observed with certain isolates in mouse macrophage cultures; all organisms in the culture maintained a solid appearance for a period of between six and twenty weeks with a limited increase in bacillary number. Studies were made on the growth of Mycobacterium leprae by employing macrophages harvested from animals. Further WHO-assisted studies in the United States showed that the consequences of leakiness and of slow synthesis of nutritional factors could be alleviated by the simultaneous use of two devices: by impounding the inoculum in gelatin, and by including in the growth medium the supernates derived from other mycobacterial cultures. In studies in India, further attempts were made to cultivate M. leprae in fresh fibroblastic cultures derived from human foetal spinal ganglia. Immunological studies were made out to establish the identity or otherwise of the so-called ICRC bacilli (isolated in the laboratory of the Indian Cancer Research Centre) with M. leprae. In Japan, a suspension of M. leprae was placed in a diffusion chamber and implanted intraperitoneally in the mouse; no bacterial proliferation was observed after ten months.

Other WHO-assisted studies in Japan were carried out in Osaka, with a view to establishing a mouse-adapted strain of M. leprae, and in Sendai, where positive results were reported in the inoculation of M. leprae in the footpads of mice and earlobes of hamsters. Studies in the USSR on transmission to mice, chimpanzees and wild rodents were made in Moscow and Astrakhan.

In a WHO-assisted comparative study in Brazil on "standard" lepromin (160 million bacilli/ml) and diluted antigens containing 80, 40 and 10 million bacilli/ml, the lepromin containing 40 million bacilli/ml seemed to be completely satisfactory for the Mitsuda reaction. A similar study was carried out in Japan. In the United States of America, a new method was developed for the preparation of non-sedimenting lepromin which could be used for production in regional laboratories. It permits control of disruption of the leprosy bacilli, accurate numerical standardization and the injection of reproducible aliquots. Research was carried out in Tokyo to assess the period of potency of stored lepromin. Both standard and freeze-dried antigen were stored in a refrigerator for a period of three to five years, and comparative tests were made with these lepromins and counts of bacilli performed. It was concluded that lepromin can be preserved in a refrigerator for three years but that freeze-drying should be recommended for storage over longer periods.

In another WHO-assisted study in Brazil, an analysis was made of a random sample of 111 affected sib-pairs belonging to different sibships with polar forms of leprosy; the observed distribution suggested a family pattern of the two types of leprosy.

An International Reference Centre for the Serology of Leprosy was established at the Ribeirão Preto Faculty of Medicine, São Paulo, Brazil.

A review of WHO-assisted research on leprosy and genetics was published in the Bulletin. In the USSR, electron microscopy studies of pathological changes developed in the liver of lepromatous patients revealed that ultrastructure of leprosy cells in the liver and skin is similar, with greater severity of the leprosy process in the latter. The differences in ultrastructure of hepatocytes were not specific, and indirectly point to disturbance of normal synthesis of proteins in these cells.

A study of serum protein alterations was made in about 300 sera from patients with different forms of leprosy. The levels of the different immunoglobulins (IgG, IgA and IgM) were estimated by immunological methods. During the course of this investigation, the occurrence of hypergammaglobulinaemia and macroglobulinaemia in lepromatous leprosy was noted.

In Burma the WHO leprosy/BCG team continued the trial started in 1964 to ascertain the value of BCG vaccination in the prevention of leprosy in children. General surveys of the population in the operational area and intake of children into the trial groups were completed during 1968. Of a population of over 75,000, 68,865 were examined, including 33,124 children (97.1 per cent. of all children); 26,858 children were included in the trial. Preliminary results were reported at the Ninth International Leprosy Congress, held in London in September 1968. By November, 138 cases had been detected in the

control group and 121 in the prophylaxis group. There is thus no evidence that BCG vaccination confers significant protection, whatever the status of tuberculin allergy prior to vaccination, either in household contacts (who might reasonably be assumed to be at greater risk of infection prior to vaccination) or in children who are not exposed to M. leprae at home but might be so exposed elsewhere. There is no evidence so far that natural tuberculosis infection or infections with acid-fast organisms antigenically related to M. tuberculosis confer protection against leprosy.

**Bacterial Diseases**

During 1968 WHO assisted twenty-one laboratory and field study projects in ten countries on microbiological, epidemiological, clinical and immunological aspects of some of the acute bacterial diseases. Cholera and plague—both quarantinable diseases—continued to be a threat to international health.

**Cholera** (see also page 9)

The total number of cholera cases reported to the Organization in 1968 was considerably greater than in the previous year. Moreover, it is disconcerting to note that cholera has become endemic in several more countries in Asia, reaffirming its presence during 1968 in some countries which had been free from the disease for a number of years. Classical *Vibrio cholerae*, which was replaced by El Tor vibrios in India but persisted in East Pakistan, invaded West Pakistan and caused a severe epidemic. WHO provided assistance to several countries in the procurement of cholera vaccines, rehydration fluid and diagnostic media during cholera outbreaks.

The WHO International Reference Centre for Vibrio Phage-Typing, in Calcutta, succeeded in obtaining pure El Tor vibrio phages for phage-typing. This procedure is a useful epidemiological tool for tracing infection, and WHO-assisted studies are being carried out in order to develop a new method for typing both cholera and non-agglutinable vibrios.

An inter-regional travelling seminar on cholera control, organized by WHO in Moscow and Calcutta in June and July, enabled participants from the South-East Asia, European and Eastern Mediterranean Regions to review the latest information on the diagnostic, epidemiological and clinical aspects of cholera. In addition, as in previous years, the Organization provided assistance for national training courses in India.

At the Cholera Research Centre in Calcutta, studies made by the WHO inter-regional cholera control team, in co-operation with the Indian Council of Medical Research and the Government of West Bengal, demonstrated the presence in the community of a large number of infected individuals without overt disease. Longitudinal studies of families confirmed that carriers played an important role in intra-domiciliary transmission, and that infection could therefore persist within households for very long periods. Studies carried out by the WHO inter-regional team in the Philippines, working in collaboration with the Governments of the Philippines and Japan, showed that treatment of close contacts with tetracycline resulted in a significant reduction in the number of vibrio excretors among them. After biochemical studies, the treatment of cholera in children has been further improved, reducing the case fatality rate to less than 5 per cent. Members of the two WHO teams also visited Bulgaria, Cambodia, Iran, Laos, Pakistan, Thailand and the Republic of Viet-Nam to give assistance and advice on specific problems, such as the production of vaccine.

Governments were assisted in initiating surveillance programmes. In Afghanistan, carefully timed surveillance activities detected and controlled a small outbreak and prevented further spread. Continuous surveillance was maintained for the emergence of drug-resistant strains of *V. cholerae* in certain endemic areas.

The results of the joint Philippines/Japan/WHO research studies during the years 1964 and 1965 were the subject of a special issue of the *Bulletin*. Other papers published in the *Bulletin* included one describing a controlled field trial of the effectiveness of various doses of cholera El Tor vaccine in the Philippines. No statistically significant difference in the protection conferred by the different dosages and strengths could be detected; all of them conferred more than 50 per cent. protection in this endemic area for at least six months.

Non-agglutinable vibrios were found in two cholera-free countries—Bulgaria and the Netherlands—and their relation to diarrhoea was studied. WHO assisted in the investigation and control of an outbreak of gastro-enteritis closely resembling cholera, caused by non-agglutinable vibrios, in El Gedaref, Sudan. This outbreak occurred under exceptional circumstances, among a gathering of weak and debilitated people seeking a miraculous cure in well-water which was grossly contaminated with an organism generally considered to be non-pathogenic or only slightly so.

1 *Bull. Wld Hlth Org.*, 1967, 37, No. 5.
TRYPANOSOMIASIS IN AFRICA

Collection of tsetse flies, the vectors of trypanosomiasis, to determine the extent and density of tsetse infestation.

In some countries of Africa there has been a considerable increase in the number of cases of trypanosomiasis in recent years. These photographs show work in the N’gamiland district of Botswana, where WHO has been helping with investigations on the extent of human and animal trypanosomiasis and with the training of field workers.

Painted fly-traps show which surfaces attract the most insects, thus helping to improve survey techniques.

A field worker taking a blood sample which will be analysed for evidence of infection with the trypanosomes causing the disease known as sleeping sickness.
MALARIA ERADICATION: SOUTH-EAST ASIA AND THE AMERICAS

In Afghanistan teams are shown how to spray the walls of dwellings and other resting places of the anopheline mosquito.

In Nepal a spraying team navigates the Rapti River.

Conditions in the Maldives Islands appear favourable for malaria eradication after a successful DDT spraying campaign in Male Atoll. Sanitarians continue the search for mosquito larvae in Male.

The malaria eradication programme has shown advances in many countries throughout the world in spite of setbacks in some areas. Campaigns still rely principally on control of the mosquito vector through spraying their resting and breeding places with residual insecticides. The photographs illustrate aspects of the work in countries of South-East Asia and the Americas to provide full coverage in operations against malaria, and some of the technical and practical problems encountered by the spraying teams.

In Paraguay regular courses are held to train spraymen in the techniques to be used in the attack phase of malaria eradication.

1. In Guyana spraying must include all places where stagnant water collects, as these are potential breeding grounds for mosquitoes.
3. Maintenance measures in coastal areas include the taking of blood samples from passengers arriving at Georgetown Airport from the malarious hinterland.
WHO laboratory centres engaged in collaborative medical research include the serum reference banks in Prague and at Yale University, USA. The reference banks prepare and store serum collections made by WHO epidemiological teams during field surveys in different countries, and also contribute to knowledge of epidemiology in those countries. Through examination of the large numbers of sera collected, disease patterns can be established and genetic factors evaluated. Major health problems can thus be identified as a basis for planning by health administrations of campaigns against communicable diseases and in other fields.

Preparation of a batch of serum samples at the reference bank in the Department of Epidemiology and Public Health, Yale University School of Medicine.

Processing of freeze-dried serum at the reference bank in the Institute of Epidemiology and Microbiology, Prague.

Several hundred thousand aliquots of sera from different countries in Africa, Asia and Europe in storage at the Prague reference bank.
At its meeting in Teheran in September, the Scientific Group on Cholera Immunology reviewed current knowledge of immunology in relation to enteric infections, particularly cholera. Emphasis was placed on the need for further studies on the mechanism of immunity in the lumen of the gut, using modern immunological and serological techniques. With regard to the development of an effective immunizing agent, the Group considered the results of the controlled field trials with currently available immunizing agents and made recommendations for investigation of the usefulness of different adjuvants, toxoid and toxoid-cum-bacterial vaccines, live attenuated parenteral vaccine, and also live or killed oral vaccines. WHO-supported studies on cholera immunology were carried out at various laboratories. The WHO International Reference Centre for Immunoglobulins, in Lausanne, Switzerland, prepared immunoglobulins which were made available to workers in cholera immunology. Investigations in non-human primates have thrown light on immunologically active cells and the function of different types of immunoglobulins in cholera, and studies on experimental animals and also on cholera cases and carriers have indicated the importance of anti-toxic immunity. Work is in progress on the purification and stability of the toxin for the development of a toxoid or toxoid-cum-bacterial vaccine against cholera. A crude, cell-free supernatant of a liquid culture of V. cholerae has been found to induce antibacterial and anti-toxic immunity and to offer much better protection than generally available cholera vaccine against experimental cholera in dogs. Vegetable oils have shown promise as an adjuvant with fractionated antigens of cholera vibrios. An avirulent strain of El Tor vibrio isolated from water, an avirulent laboratory mutant of Vibrio cholerae, and a hybrid strain between V. cholerae and Proteus species are now available for possible use as live oral or live parenteral vaccines. However, further laboratory studies will have to be made before these are tested in the field.

A world map of natural foci of plague was prepared, and assistance was given to countries in establishing national surveillance programmes.

A third inter-regional travelling seminar on plague was held in the Union of Soviet Socialist Republics in order to enable medical personnel from countries with natural foci of plague to study modern epidemiological and bacteriological methods of prevention.

Enteric Infections

The WHO International Salmonella Centre, in Paris, continued to co-operate in the European salmonella surveillance programme (see page 8), and also reported on new serotypes found in two African countries.

Support was given to the development and testing of live oral vaccine against typhoid fever, and also to immunological studies on local intestinal immunity. Killed oral typhoid vaccine was tested in a controlled field trial in India on about 16,000 persons, who will be followed up for at least two years. Oral vaccine, if proved effective, will simplify mass vaccination campaigns considerably. Parenteral immunization with live temperature-dependent mutants of salmonella has offered a very high degree of protection against experimental infection in mice.

Results of the controlled field trial carried out on about 30,000 persons in Tonga in 1967, using acetone-killed, dried typhoid vaccine, indicated that there is no significant difference in the immunity conferred by one or two doses of this vaccine. The population is still under surveillance.

International collaborative laboratory studies on typhoid and paratyphoid B vaccines were continued, but have so far failed to establish a reliable potency test for evaluation of these vaccines.

Diphtheria, Pertussis and Tetanus

In Tonga, studies on combined diphtheria/pertussis/tetanus/typhoid vaccine indicated that it caused more frequent reactions than the triple diphtheria/pertussis/tetanus vaccine, though not to a very disturbing degree. On the other hand, no such difference was noted in a similar study in Yugoslavia.

Meningococcal Meningitis

There were no serious outbreaks of meningococcal meningitis during the year on the African continent, but vigilance was continued and the depots of sulphonamides established in Africa with the assistance of UNICEF were maintained for use in possible emergencies.

At the first inter-regional seminar on cerebrospinal meningitis control—held in French in Niamey and Bobo-Dioulasso during February—emphasis was laid
on the need for better surveillance of cerebrospinal meningitis, and for further studies to improve control methods.

The controlled field trial of two meningococcal meningitis vaccines started in 1967 in Upper Volta was continued, but it is doubtful whether statistically significant results can be obtained, in view of the low incidence of the disease.

Immunological studies were initiated in the same country, with the collaboration of the WHO immunology research and training centre in Ibadan, Nigeria, in order to ascertain whether cerebrospinal meningitis infection is influenced by low levels of immunoglobulin M (IgM).

Also in Upper Volta, a study carried out in rural and urban districts showed a very high number of airborne bacteria in African houses, indicating that housing conditions in Africa are particularly conducive to the spread of airborne infections. The study is being pursued during different seasons of the year, to determine any possible fluctuations.

**Streptococcal and Staphylococcal Infections**

Following the recommendations made by the Expert Committee on Streptococcal and Staphylococcal Infections at its meeting in November 1967, preliminary plans were made for an international co-operative study to be carried out in several selected countries in the African, South-East Asia and Eastern Mediterranean Regions, in order to compare incidence and epidemiological patterns in areas with different ecological situations and, accordingly, to establish an effective control system for these infections. Thus, the Organization assisted in planning a study in Nigeria on the prevalence of streptococcal infections and their sequelae, particularly rheumatic fever and rheumatic heart disease.

With the assistance of the Organization, a study was undertaken in Jamaica to develop methods for measuring the prevalence of streptococcal cutaneous lesions in the population.

**Veterinary Public Health and Zoonoses**

Through its veterinary public health programme WHO continued, in collaboration with FAO, to provide assistance and advice in the control of zoonoses and to promote and co-ordinate research on unsolved problems in this field at reference centres and other collaborating laboratories. It also continued its work under the joint FAO/WHO food standards programme and assisted individual countries in matters related to the hygiene of foods of animal origin (see page 48). In addition, the programme in veterinary public health included comparative studies on chronic diseases such as neoplastic and vascular diseases (see pages 33 and 36).

**Brucellosis**

With a view to improving the diagnosis of human brucellosis, studies on sero-agglutinins were carried out with WHO assistance at a collaborating laboratory in Bari, Italy. They revealed that only the presence and titre of incomplete antibodies were useful in establishing the diagnosis of very recent infection, complete agglutinins being absent in most cases. A molecular pattern of the brucella antibodies appears to exist in the different clinical forms. In acute cases the agglutinins belong mainly to the macroglobulin (IgM) class, while in the chronic forms the 7S microglobulin (IgG) agglutinins predominate. The incomplete antibodies show the same pattern of distribution in the acute and chronic forms. The existence of cellular hypersensitivity towards the *Brucella melitensis* antigens in patients has been demonstrated by the intradermal test and by methods of *in vivo* culture of the lymphocytes, a technique applied to brucellosis for the first time. Some aspects of liver damage have been related to the hypersensitivity mechanisms.

Vaccine experiments in heifers were carried out at a collaborating laboratory in Tour-l’Orfèrière, France. They indicated that heifers, following immunization with the killed H.38 vaccine, eliminate the specific post-vaccinal antibodies in a period of from three to five months; and that immunization of gestating females with the H.38 vaccine does not result in abortion.

A number of studies started in Mongolia were connected with the possible establishment of a brucella vaccine production laboratory in Ulan Bator to meet national needs for human and animal vaccines—estimated at about three to three-and-a-half million doses of Rev. 1 vaccine annually. These studies were part of a WHO-assisted project on communicable disease control. A further study was designed to show whether the kumiss (fermented mares’ milk) which is widely consumed in Mongolia is a source of brucellosis infection in humans.

A field trial of Rev. 1 vaccine in sheep and goats was started in Peru to determine whether that vaccine is as effective there as it has been found to be in Iran, Israel, Mongolia, Turkey and other countries.

A joint FAO/WHO inter-regional seminar was held at the FAO/WHO Brucellosis Centre in Pendik, Istanbul, for the discussion of recent advances in the bacteriology, epidemiology, field control and therapy of brucellosis in man and animals. It was attended by physicians, veterinarians and microbiologists from fifteen countries.

---

Rabies

The spread of rabies in Europe since the Second World War has made the disease a disturbing problem from both the medical and economic points of view in Austria, Belgium, Czechoslovakia, Denmark, the Federal Republic of Germany, the Netherlands, Poland, Switzerland, and latterly in France. The heaviest focus of infection was situated in central and eastern Europe, from where the disease spread in all directions into neighbouring countries. The principal reservoir is the common fox, although badgers and some other wildlife have also been indicted, and rabies has been introduced into areas where these animals are numerous. In order to develop more effective control methods, a conference was held (see page 116) and studies have been arranged in an infected, a transitional and an uninfected area of the European Region.

Institutes in India, Iran, Philippines and Thailand were asked to provide WHO with serum specimens from human beings dying from rabies (whether or not they had been vaccinated or treated with antirabies serum) for experimental analysis at the WHO International Reference Centre for Rabies, Philadelphia, Pa., USA, with a view to determining the lytic activity of the sera.

A study was undertaken at the WHO Regional Reference Centre for Rabies in the Americas in Atlanta, Ga., USA, to compare the effectiveness of seven rabies vaccines in monkeys before and after challenge with virulent rabies virus. Three of these vaccines have been developed recently and consist of purified and concentrated rabies antigen derived from nervous tissue and tissue culture. At the WHO International Reference Centre in Philadelphia, research has been carried out on basic properties of the rabies virus, purification of antigens, the development of a more potent vaccine for man and improved immunological techniques. A review of the work undertaken at the International Reference Centre was published in the Bulletin. A further International Reference Centre was established at the Institute of Poliomyelitis and Viral Encephalitides, in Moscow.

The Pan American Zoonoses Centre, in Buenos Aires, continued epidemiological and vaccine studies, consisting of trials of vaccines in cattle, investigation of vaccination complications in man, and studies on bat rabies in South America.

An important advance in rabies diagnosis has been reported from a laboratory in the Federal Republic of Germany which has been collaborating with WHO. This advance concerns the use of corneal impression smears stained with fluorescent conjugated antirabies serum. A high correlation of salivary excretion of rabies virus has been demonstrated with positive reactions observed in the corneal epithelial cells in mice. The procedure is now being tested in dogs and foxes.

The ninth annual world survey of rabies (for the year 1967) was completed. It included information on the current national regulations governing the importation of species considered to be potential vectors of rabies.

Leptospirosis

A medical and zoological survey of two districts along the middle course of the Volga river, carried out by the WHO Leptospirosis Reference Laboratory in Moscow, showed that natural foci exist in root voles, house-mice and striped field-mice. It was demonstrated that the reservoirs of infection in the forest-steppe zones are wild animals, and it was also found that pig leptospires carriers are a very important source of human infection.

Cysticercosis

In accordance with recommendations of the Joint FAO/WHO Expert Committee on Zoonoses, a programme of research in cysticercosis was drawn up in consultations with experts. Government departments, institutes and laboratories in Kenya, Nigeria, Uganda and the United Republic of Tanzania, and research laboratories in the Federal Republic of Germany and in the United States of America have agreed to take part in studies on the pathogenesis and transmission of infection, serological and allergic methods of diagnosis, particularly for identification of light infections liable to be missed in routine meat inspection, and active as well as passive immunization of intermediate hosts. In Kenya and the United States of America work was started on antibody profiles of infection in young calves, the possible effectiveness of different vaccines and antisera administered to calves soon after birth, and longevity of cysts in animals infected during the first month of life. In addition, the preparation of standard antigens was begun, in order to make the diagnostic procedures in cysticercosis more sensitive and specific. To determine if wild and domesticated animals other than cattle can act as intermediate hosts of Taenia saginata, tapeworm cysts have been collected from such animals also.

Toxoplasmosis

With a view to improving the laboratory diagnosis of toxoplasmosis, trials were carried out on a collaborative basis to compare the dye test with an indirect

---

1 Bull. Wld Hlth Org., 1968, 38, 373-381.
haemagglutination test and complement-fixation and microagglutination tests employing a purified antigen.

Discussions on toxoplasmosis research took place in Geneva in November, when current research and problems in the biology, immunology, pathogenesis, epidemiology and therapy of toxoplasmosis were reviewed as well as laboratory management of the parasite.

**Hydatidosis**

Further work in WHO-supported studies in Australia on *in vitro* culture of the adult *Echinococcus* has shown that scolices will grow in a biphasic medium with the liquid medium replenished through a dialysing membrane which permits growth to the adult stage, but that fertile eggs are not produced. This technique promises to make screening of anthelminthic drugs and physiological studies much easier.

A special number of the *Bulletin* was devoted to current research on different aspects of echinococcosis.¹

**Other Zoonoses**

Following the outbreak of disease in the Federal Republic of Germany and Romania among people in contact with African green monkeys (vervets), government departments and institutes in Belgium, Canada, Czechoslovakia, France, Italy, Japan, the Netherlands, Sweden, the United Kingdom of Great Britain and Northern Ireland, the United States of America, USSR and Yugoslavia were requested by the Organization to provide information on the current regulations, recommendations and practices concerning the importation and handling of non-human primates. This information was summarized and circulated to the nine countries that had co-operated in this inquiry. The agent involved in the September 1967 outbreak has been studied in laboratories in the Federal Republic of Germany, the United Kingdom and the United States of America: it is considered to be a RNA virus and shows very elongated and unusual shapes in the electron microscope. Thus far the agent has shown no relation to a large number of other viruses tested.

Draft recommendations designed to improve the health standards of monkeys used in the manufacture and testing of biological products and medical research, and to reduce the hazard of zoonoses to personnel handling these animals and their tissues, were prepared for submission to members of the Expert Advisory Panel on Biological Standardization and other experts for comment. A revised draft incorporating their suggestions will be submitted to the Expert Committee on Biological Standardization in 1969.

Preliminary studies with the newly emerged influenza A2/Hong Kong/68 virus have shown that it cross-reacts in serological tests with several strains of animal origin (equine, duck, quail). A group of advisers met in Geneva in November and planned studies on more detailed antigenic analysis of this strain in relation to animal strains and on its infectivity for various animal species.

**Comparative Virology**

Further stages in the WHO-supported work on the characterization of animal viruses were discussed at a meeting arranged in London by WHO of the chairmen of the Western and Eastern Hemisphere Committees on Animal Virus Characterization, and other virologists.

Agreement was reached on the definitions and standards for reference viruses and reference antisera, on the establishment of eleven working teams for different animal virus groups, and on the technical details of collaboration. Several of these teams were set up during the year and work was started on the preparation of different reference sera and the comparison of human and animal strains of various viruses which preliminary tests have shown to be interrelated.

CHAPTER 3

HEALTH PROTECTION AND PROMOTION

Cancer

The Organization’s main activities with regard to cancer during 1968 were in the fields of histopathological classification, clinical cancer studies, and pilot demonstration of cancer control services.

There were a number of further developments in the programme on histopathological classification. The first classification—Histological Typing of Lung Tumours—was very favourably received, and over 2000 sets of the booklet and colour slides had been sold by the end of 1968. It has also been made available free of charge to all professors of pathology in medical schools and to national societies of pathology. The second volume in the series—on the histological typing of breast tumours—was prepared by the International Reference Centre for the Histopathology of Mammary Tumours, in London, and published in 1968; it was distributed to medical schools and, through the International Council of Societies of Pathology, to national pathological societies. Two further classifications—for soft tissue tumours and for oropharyngeal tumours—were prepared for publication.

At a meeting of investigators agreement was reached on the final classification for leukaemias and other neoplastic conditions of the haematopoietic cells, and other meetings were held during the year to review proposed classifications for thyroid, salivary gland, skin and urinary bladder tumours.

During 1968, international reference centres were established for the histopathology of gastro-oesophageal tumours (at the Cancer Research Institute of Kyushu University in Fukuoka, Japan), and for the histopathology of intestinal tumours (at St Mark’s Hospital, London).

A meeting of investigators considered a proposed tentative nomenclature in cytology. Attention had been drawn by the International Academy of Cytology to the need for the development of a standardized, internationally acceptable nomenclature. The Centre de Cytologie et de Dépistage du Cancer des Poli-

cliniques universitaires, in Geneva, was designated by WHO as an international reference centre for nomenclature in cytology with special reference to the female genital tract; it works with twelve collaborating centres.

In addition to the WHO international reference centres (listed in Annex 14), there are 150 collaborating laboratories in forty-four countries.

A meeting of investigators on comparative oncology was held at the International Reference Centre for Comparative Oncology, in Washington, D.C., in August; it was attended by the heads of collaborating centres on tumours of domestic animals, as well as by representatives of international reference centres for the histopathological classification of various cancer sites.

With regard to the clinical cancer control study programme, the feasibility of establishing international reference centres for clinical cancer control of selected sites was discussed in Geneva with experts, in July and December. Following these discussions, two international reference centres were established for the evaluation of methods of diagnosis and treatment—of breast cancer (at the Institut Gustave Roussy, in Villejuif, France), and of melanoma (at the National Institute for the Study and Treatment of Tumours, in Milan, Italy).

At a meeting in November the Expert Committee on the Early Detection of Cancer reviewed the results of mass screening programmes. It was confirmed that exfoliative cytology was a very reliable tool for the early detection of cervical cancer. The survival rate after treatment is correlated with the extent of the tumour, the best results being obtained when the cancer has been treated in the early clinical stages. Pre-malignant conditions can, in many instances, be detected through mass screening, and the removal of such lesions prevents the subsequent development of cancer. A major proportion of all cancers are accessible, and in a number of countries reliable procedures are available for their detection through periodic surveys. Clinical cancer control should be an integral part of the general health services.

Screening for various cancers is discussed in Principles and Practice of Screening for Disease,

--- 33 ---

issued during the year in the Public Health Papers series.1

Pilot projects for cancer control were assisted by WHO with a view to developing methods for early detection and follow-up treatment. One such project—in Madras State, India—is based on the detection and treatment of cancer of the cervix uteri and oropharyngeal cancer, the two major types of cancer in that area. The aims of this project, which is being assisted by the Norwegian Agency for International Development, are the development of methods for an adequate coverage and follow-up system within the framework of the existing health services and the socio-economic and cultural characteristics of the area, and the training of personnel in these techniques.

The results of an earlier WHO-sponsored epidemiological study of oral and oropharyngeal cancer in India were published in the Bulletin.5

Reference is made on page 39 to the international collaborative investigations on the incidence of leukaemia in patients treated with ionizing radiation for cancer of the cervix uteri and on page 47 to the meeting of a scientific group on principles for the testing and evaluation of drugs for carcinogenicity.

The Organization maintained close collaboration with the International Union against Cancer, the International Council of Societies of Pathology, the International Federation of Gynecology and Obstetrics, and the International Dental Federation.

International Agency for Research on Cancer

The programme of the International Agency for Research on Cancer, which was established in 1966, is mainly concerned with the identification of environmental carcinogens in man, through both epidemiological and laboratory studies carried out in collaboration with more than thirty national cancer institutes.

Together with WHO and the International Union against Cancer, the Agency has begun work on the classification of cancer morbidity rates in seventy different centres, certain registries in key areas receiving partial financial support from the Agency. A programme has been started with the aim of establishing the causes of tumours of the digestive system in man, with particular reference to cancer of the oesophagus, especially in areas where extensive alcohol ingestion does not appear to be an important etiological factor. A team is being established in order to extend the study early in 1969 to include the stomach, colon and rectum, and attention is being given to building up the necessary facilities for laboratory analysis.

With regard to liver cancer, studies on aflatoxin have been extended, and the Agency's laboratory in Kenya is investigating the ingestion of aflatoxin in a population with a moderate incidence of liver cancer. Samples of the diets of 4000 individuals have been analysed, and the study has been integrated with those in three other geographical regions. Preliminary investigations of the effects of aflatoxin in primates have been made, in order to obtain baseline data for similar studies in man.

Reference is made on page 20 to research on the potential carcinogenicity of DDT.

A programme of research is being developed in order to clarify the role of small doses of carcinogens and transplacental carcinogens, and priorities are being established for the identification and quantification of environmental carcinogens in areas with different cancer patterns. Special emphasis is being given to the role of the nitrosamines, asbestos and polycyclic hydrocarbons.

Studies on the role of viruses in human cancer have demonstrated for the first time a virus in cultures from nasopharyngeal tumours; it appears to be closely related to that associated with Burkitt's tumour. Collaborative research is being carried out by laboratories in Hong Kong, Singapore, Sweden and the United States of America.

The first of a series of training courses was held in Lyons in July.

Cardiovascular Diseases

Among epidemiological studies of cardiovascular diseases, the WHO-assisted survey of Polynesian populations in New Zealand and the South Pacific is of particular interest. During 1968 anthropometric, physiological and biochemical data, medical histories and dietary habits were examined in different Polynesian groups and were related to prevalence of ischaemic heart disease and hypertension, and pulse rate. Preliminary data showed that in population groups leading a more modern way of life ischaemic heart disease, atherosclerosis, rheumatic heart disease and streptococcal infections leading to this disease are more prevalent, and that pulse rate and blood pressure are higher (particularly in the male) than in populations living in a more isolated and traditional way, at a lower stage of material development.

The WHO-assisted study on blood pressure in Norway, where 10 per cent. of the population in Bergen is being followed up, was continued, and a second

---

examination of the group was started, following the first one carried out in 1966 and 1967.

The Organization continued to assist investigations on the effect of high altitude on cardiovascular function in populations living in the Peruvian Andes. A survey amongst those born and living at high altitudes showed low levels of systolic blood pressure and blood lipids, and infrequent arterial hypertension and ischaemic heart disease. Further studies are planned to clarify the role of hypoxia and other possible environmental factors, the blood pressure regulation at lower altitudes, and the reasons for the absence of ischaemic heart disease.

A monograph 1 on cardiovascular survey methods published by the Organization during the year should serve to promote the comparability of different epidemiological studies. It gives practical information for guidance in the design and planning of population studies, and outlines examination techniques.

Studies on rheumatic fever were continued in Iran and at the WHO Research and Training Centre for Cardiovascular Diseases in Kampala, Uganda. In the latter country, studies were carried out on antibody response to streptococcal infection, the typing of streptococci, carrier rates, the prevalence of rheumatic heart disease and of renal diseases, and the immunological status of newborn infants.

Co-operative research on cardiomyopathies was continued in two areas in Brazil, and in India, Israel, Jamaica, Nigeria, Uganda, and Venezuela. In the latter country, studies were carried out on antibody response to streptococcal infection, the typing of streptococci, carrier rates, the prevalence of rheumatic heart disease and of renal diseases, and the immunological status of newborn infants.

A meeting of investigators was held in Moscow in September, in order to formulate a classification and diagnostic criteria for cerebrovascular diseases in populations of the USSR (Moscow, Kishinev and Riga). A meeting of investigators was held in Budapest in November, when a modified protocol was adopted and future activities were outlined. The reasons for ischaemic heart disease in subjects without coronary thrombosis are being investigated by a collaborating laboratory in São Paulo. Preliminary results point to the possibility that myocardial ischaemia and necrosis are actually caused by paralytic vasodilatation and congestion of the small coronary vessels.

A WHO-assisted project on exercise tests in the assessment of cardiovascular status was started, and comparative studies were carried out in Toronto (Canada), Washington, D.C., Oslo, Aberdeen (Scotland) and Göteborg (Sweden) in order to standardize the procedures and the evaluation of results. Habitual physical activity is being assessed on a population basis in Aberdeen in an attempt to correlate with cardiovascular function the degree of daily physical activity and emotional stress, the type of work, and physical fitness. A paper describing previous WHO-assisted work on the standardization of submaximal exercise tests was published in the Bulletin.

There is clinical and statistical evidence that minerals may influence cardiovascular function. In order to assess the etiological significance of trace elements in cardiovascular diseases and to co-ordinate the investigations currently being carried out in several laboratories throughout the world, a collaborative research project was started towards the end of 1967 in co-operation with the International Atomic Energy Agency. The project, still on a pilot scale, involves the collection of autopsy specimens of the heart and aorta wall from co-operating hospitals in Czechoslovakia and Israel, and subsequent analysis of their mineral.

---


content by neutron activation techniques in an IAEA laboratory.

The second eight-month advanced course on the diagnosis, treatment and prevention of cardiovascular diseases, organized by WHO in Copenhagen for physicians from developing countries, finished in June 1968, and the third course began in November.

In the Western Pacific Region, the seminar on the prevention and control of cardiovascular diseases due to infection was the first to be sponsored by the Organization for the countries of that region (see page 126).

Comparative Studies on Cardiovascular and Cerebrovascular Diseases

Following the WHO-co-ordinated studies on atherosclerosis in swine, the results of which indicated that soft water might be a factor in increased atherosclerotic lesions, the Organization is assisting comparative studies on monkeys under carefully controlled conditions in a laboratory in the United Kingdom.

The Organization also supported a programme of research to ascertain whether the small vessel disease of the myocardium, which has been found in several species of animals, is a problem in man.

Dental Health

In 1968 the dental research programme was mainly directed towards the development of a standard international methodology for field surveys of major dental and oral diseases. In this connexion, two manuals were prepared. One describes proposed standard methods, which were tested in five field centres. The other concerns the application of the International Classification of Diseases to dentistry and stomatology, with detailed classification of diseases affecting dental and oral tissues; following trial use in the field, the manual was reviewed in detail during a consultation in November, and the data obtained in the trials and comments on both draft manuals, as well as the Organization's proposed dental epidemiology programme, were considered during a further consultation in December.

WHO provided assistance to several countries in the organization of dental schools and programmes for the training of auxiliary dental personnel, and in the development of dental education services—for example, in India (see page 105), and in Senegal, where the Organization provided advice in connexion with the development of a dental institute to serve the French-speaking countries of the African Region.

As part of the programme for improving the teaching and practice of dentistry for children, the fourth inter-regional course for training teachers of child dentistry was held in Copenhagen, with participants from the six regions.

Close co-operation was maintained with the International Dental Federation, and co-ordination of programmes in fields of common interest to the Federation and WHO was discussed at the Federation's annual session, held in Varna, Bulgaria, in September.

Mental Health

Epidemiological research has indicated that, in certain age groups, severely disabling mental disorders may have the same high prevalence in developing countries as in developed areas. Moreover, the mental health problems accompanying old age are likely to grow in importance as the effect of public health measures increases the expectation of life. In most countries, however, low priority is accorded to mental health services—partly because there are not enough trained personnel to deal with the problems involved.

The Organization is concentrating on two approaches to the improvement of training in mental health. One is to prepare staff in basic health services for the carrying out of mental health tasks along with their other public health duties. The Organization has explored the practical implications of this method and drawn up principles and guidelines for establishing pilot projects (see also page 51). The second approach is the promotion of psychiatric training as an integral part of the medical curriculum. In this connexion WHO organized a regional seminar in Agra, India, in March, on the place of psychiatry in medical education (see page 107. Training in mental health was also among subjects dealt with at the Seventh International Congress of the World Federation for Mental Health, held in London in August, and at an Asian seminar sponsored by the Federation in Hong Kong in April; WHO co-operated in the organization of both these meetings.

The major advances in recent years in psychopharmacology and social therapy have changed the outlook on mental illness, and a fundamental reorientation of mental health services may be required in many countries. The subject was discussed at a conference on the planning of mental health services, held in Madrid in April for countries of the European Region (see page 114).

The collaboration of WHO with the United Nations in work on the prevention of crime and treatment of

---

offenders was continued this year in the planning of the programme for the United Nations Social Defence Research Institute which was established in Rome in January.

Many public health authorities are now recognizing the urgent need for attention to problems of dependence on alcohol and on other drugs. The abuse of central nervous system depressants and stimulants and certain tranquilizers, hallucinogens and analgesics has greatly increased, and in many parts of the world it constitutes a problem vastly overshadowing the abuse of narcotics. The considerable impact of the report of the Expert Committee on Mental Health, which discussed these topics in 1966, was apparent at international meetings sponsored by the International Council on Alcohol and Addictions, which was admitted into official relations with WHO during 1968. The Organization, which participated in these meetings, has drawn up plans for stimulating national surveys of problems of dependence on alcohol and other drugs, with a view to evaluating national responses to these problems.

A study on the prevention of suicide, prepared with the collaboration of experts in several countries, was published during the year in the Public Health Papers series. It considers epidemiological, ecological and clinical research, and discusses preventive measures (including the identification and care of high-risk groups, and the organization of suicide-prevention services) and programmes for the education and training of both health personnel and the general public. It also discusses means of improving the reliability and international comparability of statistics — which at present do not reflect the true incidence of suicide, since under-reporting is general. In this connexion, WHO initiated investigations during the year on present procedures in reporting and certification.

Plans were drawn up for operational research to evaluate the different means of caring for the severely retarded. This action follows recommendations made by the Expert Committee on Mental Health at its meeting in 1967.

As part of a ten-year mental health research programme, the fourth annual seminar on the standardization of psychiatric diagnosis, classification and statistics was held in Moscow in October. The topic of the meeting was mental disorders in the aged and it was attended by the twelve experts from different countries who are collaborating in the whole pro-

prevalence and control of epilepsy, particularly in developing areas.

**Nutrition**

Periodic anthropometric surveys are a possible means of obtaining more systematic information on the nutritional situation in the world, particularly on protein-calorie malnutrition in age groups in which the problem is most critical. During 1968 a manual outlining a proposed methodology for such surveys was prepared. The methodology was tested in a field trial in Yugoslavia, and in December a meeting of investigators reviewed the manual in the light of data obtained during the trial.

Special attention was given to the problem of the shortage of proteins in developing countries, particularly the question of how to meet the protein requirements of children during the weaning period; and a review of the world food supply and new protein resources was published in the *WHO Chronicle*.1

The FAO/UNICEF/WHO Protein Advisory Group was reorganized during the year to give more emphasis to the economic, technological and marketing aspects of the new protein foods; administrative responsibility for the Group's secretariat was therefore transferred from WHO to FAO, but without any change being made in the Group's tripartite character.

At its meeting in Rome in September, the Group reviewed the work in Africa with regard to protein-rich foods, and considered the amino acid fortification of staple foods, proteins of single-cell origin, and the marketing of new protein-rich food mixtures.

A number of newly developed protein-rich foods were tested on children, and the workload of the five centres co-operating with WHO in this field—in Chile, China (Taiwan), Ethiopia, Guatemala and India—has increased considerably. Most of the products so far tested—made of cereals, pulses and oil seed protein concentrates—have proved satisfactory.

Together with FAO and UNICEF, WHO assisted the United Nations in the preparation of a report reviewing the problem of protein supply in the world.

A WHO-sponsored study on protein requirements in children was started by the Institute of Nutrition of Central America and Panama, in Guatemala. The aim of the project is to study the effects on children of pre-school age of various levels of protein intake.

The results of earlier WHO-assisted laboratory studies on certain effects of protein deficiency were published in the *Bulletin*.2

The interaction of nutrition and infection was the subject of a monograph published during the year.3 The Organization assisted research carried out in Ghana to assess the importance of infectious diseases as etiological factors in the development of protein-calorie malnutrition in peri-urban areas where overcrowding and poor sanitary conditions are especially acute. A similar project was conducted in a rural area of India with assistance from WHO.

With regard to nutritional anaemias, WHO-assisted trials were undertaken in India to assess the effects of the administration of iron combined with folic acid and vitamin B₁₂ on the haemoglobin level during pregnancy, and on children's health and physical development. Information collected in the inter-American study on nutritional anaemias was reviewed at a meeting of investigators in Caracas, and recommendations were made concerning the future programme. It was noted that considerable progress had been made in the standardization of laboratory procedures used in the diagnosis of iron, folate and vitamin B₁₂ deficiencies, and that the establishment of WHO reference centres had been of great assistance in this connexion.

Guidelines for nutrition work in the local health services in the Region of the Americas were drawn up by a technical group at a meeting held in Washington, D.C. in June.

In co-operation with FAO and UNICEF, the Organization continued to assist the development of applied nutrition programmes within the health services. Methods of organizing nutrition activities in urban areas were outlined, and pilot projects are to be started with the co-operation of the three organizations.

After reviewing the nutritional status of children living in UNRWA camps, and on the basis of the results of clinical and anthropometric examinations, WHO made recommendations concerning the organization of services and supplementary feeding programmes.

The publication in 1968 of a revised edition of the WHO monograph on infant nutrition in the subtropics

---

and tropics should facilitate the task of health workers and assist training programmes.

In co-operation with FAO, work was done on the preparation of a glossary of definitions and terms in the field of nutrition.

WHO continued to provide assistance for training centres and seminars in various parts of the world. In the South-East Asia Region, the scope of the WHO-assisted training programme at the Nutrition Research Laboratories in Hyderabad, India, was expanded (see page 105).

Work on food safety is described on page 48.

Radiation Health

The WHO collaborative investigation on the possible higher incidence of leukaemia in patients treated with ionizing radiation for cancer of the cervix uteri continued. The study began in 1960 under a research agreement between WHO and the Harvard University School of Public Health, and 60,000 patient-years at risk have been observed by thirty-one clinics in nine countries. Comparisons with accumulated 6,000 patient-years of women with cervical cancer who did not receive radiotherapy made it possible to conclude that, in the interval from four to eight years after exposure, although there might be a significant increase in risk of leukaemia, a five-fold or greater increase could be excluded. For patients exposed to combined external therapy plus intracavitary radium a three-fold or greater increase in risk could be excluded. However, the significance of these observations on the leukaemogenic effect of radiation in general is still unclear, as some investigations have shown in the past that local irradiation with high doses can have less effect than whole body irradiation with lower local doses but the same integral dose. Further studies on this problem are therefore being undertaken.

Applied research in the field of radiation health was started with the establishment of two WHO regional reference centres for radiation dosimetry—one in Argentina, at the National Atomic Energy Commission's Laboratory for Dosimetry, in Buenos Aires, and the other in Romania, at the Radiation Hygiene Laboratory of the Institute of Hygiene, in Bucharest. The aim is to improve dosimetry in the medical use of radiation by maintaining and applying secondary standard radiation dosimeters for checking the calibration of radiation measurement instruments used for clinical dosimetry and radiation protection purposes, and to provide advice on radiation dosimetry in clinical work and in radiation protection.

The Organization provided advice and assistance to a number of countries in connexion with the organization of radiation protection programmes within the framework of public health services, with special reference to health legislation—for example, Iran and Malaysia and, on a regional basis, several countries in the Region of the Americas and in the South-East Asia and Western Pacific Regions.

The WHO-assisted project in Indonesia for the training of technicians in the maintenance of electromedical equipment was continued, and a similar project was started in India, where WHO also continued to assist the training of radiographers. A project of assistance to the School of Radiography in Nigeria was started, and in Singapore WHO provided advice on the organization of an isotope service in the General Hospital, and on the training of physicists and technicians for this service. In Thailand, the Organization continued to assist a project for the development of radiation protection services, and in Peru a similar project was started.

Close collaboration was maintained with the International Atomic Energy Agency on various problems of common interest. Thus, the Organization participated in meetings sponsored by IAEA on the problems of bone marrow transplantation (in Moscow, in July), and on the special problems of South American countries with regard to the use of medical physics and the promotion of medical dosimetry (in Caracas, in April). It also collaborated with IAEA in the organization—in Bombay, in December—of a course on radiation protection, at which particular attention was given to the problems of monitoring dosimetry and personnel dosimetry, and the application of the recommendations of the International Commission on Radiological Protection and of the IAEA basic safety standards.

WHO was represented at the eighteenth session of the United Nations Scientific Committee on the Effects of Atomic Radiation, held in New York in April. The Committee discussed the evaluation and further measurement of the strontium-90 content of human bones, especially in countries of the southern hemisphere where the diet of the inhabitants is based on rice and other cereals; at the request of UNSCEAR, WHO is undertaking research in this connexion.

Following the field trial of general-purpose X-ray units—jointly assisted by UNICEF and WHO—specifications for these units were revised and certain...
Occupational Health

The development of occupational and industrial pursuits is often accompanied by occupational hazards. Many workers are required to handle potentially toxic substances utilized in production. In some manufacturing processes chemical reactions may liberate toxic gases. Acute poisonings or more insidious damage may occur with adverse effects on the health of the individual and on the productivity of the enterprise.

The criteria and procedures for assessing occupational exposure to toxic substances and present approaches to permissible limits of such substances in the working environment were discussed by the Joint ILO/WHO Committee on Occupational Health at a meeting in June.

The Committee noted that removal of the hazard at source—a control method commonly used—is not always possible, and that accordingly, where exposure to toxic substances is unavoidable, there has been increasing reliance on the concept of "permissible limits". It drew up categories of biological response in respect of occupational exposure to airborne substances. Such a classification should stimulate further scientific and epidemiological research, and the collection of data will help to make possible the establishment of internationally acceptable guidelines for levels of emergency exposure. A survey of existing national legislation and practice concerning permissible limits revealed a significant measure of international agreement regarding twenty-four industrial and agricultural chemicals, and the Committee considered that safe concentration zones of these chemicals could be recommended. The lack of uniformity in permissible limits as between one country and another was discussed by the Committee, which stressed the need for investigation in order to acquire further information on the reasons for such differences.

In December ILO and WHO held a joint consultation in order to explore the possibility of producing standard forms for recording the medical and scientific data on which national values are based.

A six-week inter-regional course on occupational health in agriculture was held during October and November at the University of Dundee, Scotland, mainly for medical graduates from developing countries. The course was designed to stimulate interest in occupational health problems in agriculture and to promote programmes in this important field of public health.

In accordance with the recommendations of the Nineteenth World Health Assembly on the establishment of pilot health centres for seafarers, visits were made late in 1967 and during 1968 to certain ports in countries in Africa, Latin America, South-East Asia and Europe which had shown interest in the establishment of pilot health centres. A final report, with specific recommendations, is to be submitted to the Twenty-second World Health Assembly.

The "Guiding principles in the medical examination of applicants for motor vehicle driving permits", first issued by WHO and circulated to governments in 1956, were revised at the request of the Economic Commission for Europe (ECE). The revised version brings the original principles up to date, takes into account certain medical matters not previously dealt with, and includes additions and amendments received from seventeen European countries in answer to a request for information circulated by ECE. The revised draft, which was finalized by a group of experts convened by WHO in January 1968, is to be discussed at an ECE meeting on road traffic safety early in 1969.

The optimal level of physical performance capacity for adults was considered by a scientific group which met in Geneva in October. The group reviewed the different physiological parameters that can be used in evaluating physical performance capacity, discussed methods of improving them, and established which of the parameters were the most informative and reliable. It was emphasized that further studies were required before an optimal level could be determined for people of different age, sex, physique, profession and cultural background and it was recommended that, meanwhile, the average level of physical performance capacity should be established for each population, and this average should be considered as the desirable level from the point of view of health.

A scheme was developed by WHO for the sampling and processing of data for use in connexion with occupational anthropometry. The aim is to utilize the anthropometric data obtained in studies on the nutritional status of different populations. The data will be made available to industrial designers so that these may adapt work space, tools and equipment to the physique of the worker, thus improving safety and health as well as productivity. With a similar objective, the preparation was undertaken of a manual on the teaching of ergonomics. The manual, particularly
adapted to the needs of developing countries, presents the principles of ergonomics graphically, and is for the use of industrial physicians, nurses and hygienists, as well as engineers and other technical employees in industry.

Collaboration with ILO continued on several occupational health matters, and the two organizations co-operated in exploring the possibility of establishing an East African occupational health institute.

An international seminar on occupational health in developing countries was organized in Lagos, Nigeria, in April, by the Permanent Commission and International Association on Occupational Health, with the assistance of ILO and WHO.

The Organization supported research on the effect of extreme climatic environments—such as altitude (in Ethiopia) and heat (in Israel and Nigeria)—on human adaptive responses and working capacity. This work was undertaken in collaboration with the Human Adaptability section of the International Biological Programme, which was set up by the International Council of Scientific Unions in order to promote research on the biological basis of productivity and human welfare.

On the occasion of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space, held in Vienna in August, WHO presented a background paper dealing with those aspects of space research relevant to biological and medical problems. With WHO's support the third international symposium on basic environmental problems of man in space was organized in Geneva during November by the International Academy of Astronautics and the International Astronautical Federation.
CHAPTER 4

BIOMEDICAL SCIENCES

Biological Standardization

The establishment of international standards and reference preparations—the original function of WHO's programme in the field of biological standardization—was continued under the supervision of the Expert Committee on Biological Standardization, and preparations were made for the establishment of standards for certain substances at present primarily of interest for research and scientific purposes, but which may later prove suitable for practical application. Further international requirements for biological substances were formulated and published.

The Expert Committee on Biological Standardization, at its meeting in September 1968, considered a number of antibiotics and established international standards for colistin and for rolitetracycline; it also established international reference preparations of colistin methane sulfonate, gentamycin and lymecycline. Stocks of the international standards for penicillin and for phenoxymethylpenicillin, established many years ago, have been exhausted, and since these substances, like the semi-synthetic penicillins, can be assayed by chemical and physical means, their replacement as international biological standards was considered unnecessary.

The Committee noted reports on studies being carried out in different laboratories on international reference preparations of the antibiotics viomycin, chlortetracycline, polymyxin B and methacycline. Possible international reference preparations of a number of other antibiotics were also considered, including neomycin B, many members of the heptaene-type and other anti-fungal antibiotics (candidin, hamycin, levorin, trichomycin and pecilocin) as well as some anti/protozoal and amoebicidal antibiotics (anisomycin, fumagillin and puromycin) and nisin (an antibiotic mainly used in the food industry).

The Committee also considered the work done in relation to the standardization of a number of enzymes and hormones of importance in human medicine. The international reference preparation of urokinase was established. Other materials in this category of biological substances, considered for possible standards or reference preparations, included lysine vasopressin, angiotensin, human insulin, renins and certain blood coagulation and fibrinolytic substances, such as heparin of mucosal origin and anti-haemophilic factor (factor VIII). Problems of great complexity concerning the provision and possible establishment of standards or other reference materials for hormones of human (or animal) origin for use in the newly developed immunoassay methods were discussed. The Committee established the international reference preparation of human growth hormone for use in immunoassays, and renamed the current international biological standards and reference preparations for hormones according to their species of origin and the use for which they are intended. It also discussed the progress made in the preparation of purified human urinary erythropoietin for replacement of the international reference preparation of erythropoietin.

In the antigen group of immunological substances, the Committee established an international reference preparation of Newcastle-disease vaccine (live), on the basis of the results of additional stability studies. Studies on the international reference preparations of typhoid vaccines and influenza virus haemagglutinin (type A), and on the long-term stability of the international reference preparation of rabies vaccine were discussed. Other studies on materials of anthrax vaccines and rubella haemagglutinin for suitability as international standards or reference preparations were reported. Proposals relating to the international reference preparations of cholera vaccines and also to specific cholera agglutinating sera were dealt with. The Committee discontinued the international reference preparations of cholera antigen (Ogawa) and of cholera antigen (Inaba).

In the antibodies group, the Committee replaced the international standard for anti-Brucella abortus serum (first established in 1952). It noted the studies reported on the international standard for antitoxoplasma serum, and on the international reference preparations of anti-Newcastle-disease serum and of rheumatoid arthritis serum. Other preparatory work undertaken with a view to establishing international standards or reference preparations included anti-Mycoplasma gallisepticum serum. In addition to the existing standards for blood-typing sera, international standards for further components are needed, and the Committee noted the studies of
a preparation of anti-Rh₀ (anti-D) complete blood-typing serum. It also noted reports on work on a number of other antibodies of primarily diagnostic and research interest, especially on various autoimmune antibody preparations, and the work in progress on the group of substances known as interferons, for possible use as prophylactic or therapeutic agents against virus diseases.

In the group of international biological reference reagents (diagnostic reagents), the Committee established the international reference reagents of anti-trichinella (human) serum, of respiratory virus antiserum and of _Mycoplasma pneumoniae_ antiserum, and considered a number of other reagents including anti-Leptospira sera and cholera agglutinating sera of various specificities.

The Expert Committee on Biological Standardization also adopted two sets of international requirements for biological substances: the Requirements for Immune Sera of Animal Origin, and revised Requirements for Cholera Vaccine. The latter were originally formulated in 1959 and have been brought up to date in the light of new experience and knowledge.

The Committee made proposals for the formulation of further requirements, including recommendations for international use, to safeguard the health of personnel handling non-human primates and the tissues of such primates in research, production and control laboratories.

The purposes served by the establishment of international standards and the formulation and publication by WHO of international requirements for biological substances were reviewed in consultation with experts in Geneva in May 1968. Some outstanding problems in the formulation of requirements for biological substances were considered and the need for research studies to allow more specific requirements to be formulated for safety and potency testing was discussed. Suggestions were made for the establishment of a reference and research group of laboratories, to undertake research initially on pertussis vaccine and on diphtheria and tetanus toxoids.

An inter-regional course on biological standardization was held in Zagreb, Yugoslavia, in October 1968. Instruction was given, chiefly on a practical level, on various aspects of biological assays and other procedures which could be applied in the control of immunological products used in diagnostic, prophylactic and therapeutic medicine.

During the year further attempts were made to promote closer liaison between WHO and national control laboratories for biological substances, by speeding up the flow of information from the Organization to national control laboratories and the collection by WHO of information on difficulties and problems encountered by those laboratories.

**Human Genetics**

WHO's activities in the field of congenital haemolytic anaemias—such as the haemoglobinopathies, thalassaemias and glucose-6-phosphate dehydrogenase (G6PD) deficiencies—were intensified in 1966, when surveys of these conditions were started in areas with indications of high frequency, particularly tropical Africa. In 1968 assistance was given to Ghana in the establishment of diagnostic facilities in nine regional hospitals, and incidence surveys of sickle-cell haemoglobin are being initiated in the United Republic of Tanzania.

One of the inherited abnormalities of the blood at present attracting much attention is alpha-thalassaemia major. In eastern and south-eastern Asia it is known to result in hydrops foetalis and thus virtually always in intra-uterine death. Little information is available regarding the incidence of the condition, and WHO is therefore assisting studies in Malaysia and Senegal on the frequency of the alpha-thalassaemia gene.

Research into congenital haemolytic anaemias is, however, being extended to include both their treatment and, in the case of the ill-understood thalassaemias particularly, clarification of the basic molecular defect. WHO is supporting research into the clinical management of patients with sickle-cell anaemia, and also into the natural history of the disease and its frequency in Uganda.

At the basic research level, some interesting findings have emerged from a WHO-assisted study in Senegal in which a new abnormal haemoglobin variant was discovered. In a WHO-sponsored study, in Nigeria, on the enzymic properties of different types of glucose-6-phosphate dehydrogenase, two new variants of this enzyme were detected during the screening of male blood donors, and fully characterized. A new G6PD variant was also discovered by the WHO Regional Reference Centre for Glucose-6-Phosphate Dehydrogenase, in Tel-Hashomer, Israel, which has also been carrying out research on the relation between G6PD deficiency and hyperbilirubinaemia.

A collaborative research project begun in 1967 with WHO assistance between institutions in Thailand and the United Kingdom has significantly advanced understanding of the basic molecular defect underlying the faulty haemoglobin synthesis in thalassaemias. Preliminary results indicate that the disease results from a deficiency of messenger RNA. Collaboration between the two institutions was extended in 1968.
to include the introduction of clinical trials of chelating agents for the removal of iron overload in hyper-transfused thalassaemic patients. Haemoglobin synthesis is also being studied in Nigeria in patients carrying the gene for one of the abnormal haemoglobins, such as S or C.

The defective mechanisms in another group of inborn errors of metabolism are being investigated in the USSR in WHO-supported research into phenylketonuria, muscular dystrophy and exfoliative dermatitis. The hypothesis being tested is that inherited metabolic disorders may arise not only from disturbances in the activity of a single enzyme, but also from defects in the inter-relation between several enzymes.

The rapid advances made recently in the understanding of inherited metabolic defects were noted by an expert committee on genetic counselling which met in Geneva in September 1968. The practical implications of this knowledge, not only for treatment and prevention, but also for carrier-detection, greatly facilitate the genetic counsellor's task and developments in cytogenetics have provided another useful diagnostic tool. The committee estimated that in all countries probably 4 per cent. of the population suffer from some genetic or partly genetic condition requiring genetic counsel, while in some parts of the world the proportion is much higher. The committee therefore recommended the provision of adequate counselling services, as well as the development of suitable medical facilities for those so afflicted, and made suggestions on the organization of such services.

The etiology of many of the commoner congenital malformations is still ill understood, but a high family incidence points to a significant genetic component in their causation. When advising on the chances of recurrence of such conditions in future offspring, the genetic counsellor has to rely on empirical risk figures, usually drawn from large-scale surveys. The Scientific Group on Genetic Factors in Congenital Malformations, which met in October 1968, reviewed the present state of understanding of the genetic contribution to some of the commoner malformations, such as pyloric stenosis, cleft lip and cleft palate, anencephalus, spina bifida, dislocation of the hip, and talipes equinovarus. It considered a mathematical model for discriminating between genetic and environmental factors in their etiology, and proposed methodologies for testing such a model.

An addition was made to the WHO reference centres in human genetics by the designation of the Department of Genetics of the University of Hawaii School of Medicine as the WHO International Reference Centre for the Processing of Human Genetics Data. The centre will make available the genetic expertise, specific computer programmes and facilities for advanced-level analysis of data in human population genetics.

Assistance to research during 1968 also included support for an investigation in Israel on genetic factors affecting disease susceptibility; studies in Moscow on the mutagenic effects of various chemicals, and on the genetics of schizophrenia; and population genetic studies of the Babinga pygmies.

Human Reproduction

WHO continued to advise Member States, at their request, on the development of family planning activities as part of general health services, and on the medical aspects of fertility control (see page 56). It also continued to support research and collect and analyse information on various aspects of human reproduction.

A compendium on family planning in the context of health services was compiled, in order to provide assistance in training programmes. An analysis was made of the available literature on the teaching of the health aspects of human reproduction in medical schools, guidelines were prepared for the assessment of such teaching, and programmes were formulated for inclusion in the curricula of schools of medicine. In addition to the course for WHO country representatives (see page 80), a programme was developed for the short-term training of WHO staff; it includes clinical and field work, and will serve as a model for similar programmes for the training of personnel in Member States.

Epidemiological field studies were continued as part of the WHO-supported research programme on various aspects of reproduction. The investigation of population dynamics in the coastal area of Peru was extended to include a second community. WHO assisted in the computer analysis of data for the prospective study on abortion, in Brazil, and a computer programme was developed for the classification and correlation of data in an epidemiological field study of human reproduction in Senegal. A WHO-supported field study was started in India, to consider how the combination of family planning with preventive health services for mothers and children affects the acceptance and practice of family planning.

Assistance was given to research on the development of simple methods for the detection and prediction of ovulation; investigations on the possibilities of using new species for laboratory research on reproductive phenomena; the analysis of plant materials, to establish their effects on fertility; immunological and biochemical studies of the reproductive function in the male; and studies on problems associated with the use of modern contraceptives by Indian
women, and on the endocrinological aspects of reproduction in Nigerian women.

Basic documentation regarding the effectiveness, safety and acceptability of fertility regulating agents was prepared for use in the formulation of guidelines for clinical trials.

Specific aspects of human reproduction were considered at meetings of two scientific groups held in Geneva during 1968. The first group, which met in November, reviewed recent developments in fertility control by methods other than hormonal steroids and intra-uterine devices, and made proposals for future research. Most of the current work in this field is still at the stage of animal experimentation or, at best, in the clinical trial stages. Few, if any, of the methods discussed have immediate clinical application, mainly because of toxic side-effects. The second group, which met in December, discussed the methodology to be used, under a variety of field conditions, in studies on variation in the biological components of human reproduction. The group noted the variation between different population groups, and reviewed available knowledge on social and other environmental factors believed to be associated with this variation. It discussed the methodology for studying the mechanisms whereby any causal relationships might operate, and stressed the urgent need to study the secular trends in variations in these phenomena, and the factors responsible for the trends observed.

The Organization helped to co-ordinate activities of scientists working on the immunology of human reproduction, and provided assistance in connexion with a meeting of the International Co-ordination Committee for the Immunology of Human Reproduction, held in Geneva during September.

The past and present activities of the Organization with regard to health aspects of reproduction were reviewed during discussions in March with outside experts, who made suggestions for the future programme.

During the year, the first international reference centre in the field of human reproduction was set up, with the establishment of the WHO International Reference Centre for the Biology of Spermatozoa at New York Medical College, USA.

The Organization participated in the fourth inter-agency meeting on programmes in the field of population, held in Geneva in February, and in the first meeting of the Sub-Committee on Population of the Administrative Committee on Co-ordination, in October. It also contributed a paper to the ninth session of the United Nations Advisory Committee on the Application of Science and Technology to Development, which discussed population questions, and participated in a joint mission with the United Nations to evaluate the family planning programme in Pakistan.

The first half of a contribution from the Swedish International Development Authority was received for the Voluntary Fund for Health Promotion, to assist the Organization in developing its programme on the health aspects of family planning.

**Immunology**

During 1968 the Organization’s work in immunology was concerned chiefly with the promotion of research and the provision of training in immunology and immunological research. An expert committee was convened in October to consider the WHO immunology research and training programme, and amplify the recommendations made by the Expert Committee on Teaching of Immunology in the Medical Curriculum at its meeting in 1966. The committee evaluated the Organization’s present programme, and made suggestions for the further development of the work of the WHO immunology research and training centres.

A four-month training course was organized at the WHO Immunology Research and Training Centre in Ibadan, Nigeria. In the Centre’s research programme, which deals mainly with the immunology of malaria and trypanosomiasis, and with immunoglobulins, the preliminary results of a study of the malarial nephrotic syndrome in children have revealed the presence of immune complexes in renal biopsy specimens. At the Immunology Research and Training Centre in São Paulo, Brazil, an eight-month course was organized, and research was carried out on *pemphigus foliaceus*, and on the characterization of venoms of local snakes, with a view to preparing an improved antivenom. The Centre in Lausanne, Switzerland, continued to provide advice and training and to supply reagents to the above-mentioned centres. Arrangements were made for the opening of further immunology research and training centres in Mexico City and in Singapore.

In the South-East Asia Region, WHO provided assistance in connexion with the organization of a seminar on the cellular and molecular basis of the immune response. The purpose of the seminar, which was held in New Delhi, was to provide an insight into the theory and practice of immunological research, with emphasis on the immunology of leprosy and other diseases of public health importance in the Region.

Antinuclear factor serum, antithyroglobulin serum and antithyroid microsome serum were prepared, with assistance from WHO, by the National Institute for Medical Research in London, with a view to

---

their eventual establishment as international standards. Similarly, work proceeded on the preparation of other auto-antibodies for diagnostic use, with a view to their standardization.

During discussions held at the WHO International Reference Centre for Immunoglobulins, in Lausanne, Switzerland, during February, a new class of human immunoglobulin—identified in studies on antibodies associated with isologous skin-sensitizing activity—was designated IgE, and future research in this field was considered. The services of the WHO International Reference Centre for the Use of Immunoglobulin Anti-D in the Prevention of Rh Sensitization during 1968—the first full year since this centre was initiated—enabled several countries to undertake programmes for the prevention of haemolytic disease of the newborn.

The work of the WHO International Reference Centre for Immunoglobulins was mainly concerned with the production of reference preparations for the measurement of human serum immunoglobulin of IgG, IgA and IgM classes. At a meeting of investigators, convened with support from the United States National Institutes of Health, present knowledge on the structure, genetics and biological function of immunoglobulin G subclasses was reviewed, and possible further studies in this field were discussed. Agreement was reached during the year on a revised and unified nomenclature for human complement.

The Walter and Eliza Hall Institute of Medical Research at Melbourne University, in Australia, was designated WHO Regional Reference Centre for the Serology of Autoimmune Disorders.

The Organization continued to support research on criteria for the monospecificity of antibodies to leukocyte antigens and on the significance of histocompatibility for organ transplantation. It also provided assistance in connexion with a course on tissue typing techniques, organized by Leiden University, in the Netherlands.

A unified nomenclature for leukocyte antigens was drawn up which it is hoped will be internationally accepted and will replace the different terminologies that have resulted from simultaneous research in different countries.

A scientific group on cell-mediated immune responses met in Geneva in October. The group discussed the extensive and often conflicting data recently obtained as a result of increased research on cell-mediated immunity, following the description of new techniques. There is increasing recognition of the important role played by cell-mediated immunity both in resistance to and recovery from many bacterial, fungal, viral and parasitic diseases, and in resistance to neoplasms. The application of recent advances in knowledge and methodology to the diagnosis and further understanding of these diseases should contribute to their control, and the group recommended that WHO make available to interested scientists and clinicians information on new knowledge acquired and techniques developed, and encourage the organization of training courses in these techniques.

Reference is made on pages 29 to the meeting of the Scientific Group on Cholera Immunology.

---

1 Bull. Wld Hlth Org., 1968, 38, 151-152.
CHAPTER 5

PHARMACOLOGY AND TOXICOLOGY

The Organization's work in pharmacology and toxicology, which was further consolidated in 1968, is designed to minimize the risks that may be connected with substances currently used for the maintenance of normal states and functions or the correction of pathological conditions. The work entails the assessment of these risks, so that they may be weighed against the benefits expected from the products in question.

Drug Safety and Monitoring

In view of the development of more potent and specific therapeutic agents and the concomitant increased risks of drug-induced diseases, the Organization's programme to promote the safety of drugs was further developed.

In compliance with resolution WHA16.36 of the Sixteenth World Health Assembly, governments communicated to WHO their decisions to prohibit or limit the availability of drugs for reasons of safety, and the Organization transmitted this information to Member States.

As part of the Organization's programme for drawing up internationally recognized principles for the safety and efficacy of drugs, a meeting of a scientific group on principles for the testing and evaluation of drugs for carcinogenicity was held in December. The group made a critical review of existing methods, devoted special attention to the question of priorities for the testing of different types of drugs, and stressed the desirability of relating the results of animal experimentation to clinical observations, and supplementing these investigations by epidemiological studies.

Further progress was made in the pilot research project for the development of an international system of monitoring adverse reactions to drugs; case reports of adverse reactions received from national monitoring centres in several countries were analysed with the assistance of data-processing facilities provided by the Government of the United States of America.

With a view to promoting increased participation of hospitals in drug monitoring programmes, a meeting of experts was held in Geneva in November to discuss international drug monitoring and the role of the hospital in surveillance of adverse reactions to drugs.

Assistance was given by WHO to drug monitoring projects in several countries, including studies in a group of hospitals in the United Kingdom on the development of a system for recording and retrieving information obtained from hospital case histories regarding adverse reactions.

The Organization continued to support research aimed at improving procedures for testing the toxicity of drugs—for example, basic experimental studies on the relationship between the duration of chronic toxicity testing and the effects observed.

A bibliography on the influence of environmental and hereditary factors on drug responses in laboratory animals was compiled.

Drug Dependence

At its meeting in October, the Expert Committee on Drug Dependence recommended the appropriate status of international narcotics control for a number of additional drugs of the morphine type, and the Secretary-General of the United Nations was notified accordingly. It also reviewed the situation in respect of psychotropic drugs of depressant, stimulant and hallucinogenic types not now under international control, the abuse of which constitutes a growing public health problem—a danger reiterated by the Twenty-first World Health Assembly. The Committee developed criteria for the evaluation of the dependence-producing capacity of such drugs and the consequent likelihood of their abuse; the uniform application of such criteria is essential for meaningful international co-ordination of national controls.

Also in pursuance of the resolution on the subject adopted by the Twenty-first World Health Assembly, the Organization advised the Secretary-General of the United Nations on the elaboration of a draft treaty instrument for the international control of psychotropic substances.

WHO continued to co-operate closely with the United Nations Commission on Narcotic Drugs and the International Narcotics Control Board, and provided guidance and technical assistance in connexion with a United Nations study tour in South-
East Asia on the treatment and rehabilitation of drug-dependent persons.

Food Safety

In work under the joint FAO/WHO food standards programme, WHO continued to concern itself with matters relating to the health of the consumer, guidance on these aspects being provided through individual experts or such expert committees as those on food additives, pesticide residues, food hygiene or nutrition.

At its meeting in July, the Joint FAO/WHO Expert Committee on Food Additives evaluated the possible direct and indirect health hazards that might result from the use of a number of antibiotics which are being increasingly used as food preservatives and to promote growth and prevent or treat infectious diseases in animals raised for human food. The antibiotics considered by the Committee had been proposed for study by the Codex Alimentarius Commission's Committee on Food Additives. The Expert Committee established acceptable levels of residues in human food, and proposed appropriate methods of analysis to facilitate control. It also recommended discontinuance of certain uses of antibiotics, and made general recommendations on their use as direct food additives, as additives to animal feed, and in veterinary medicine.

As part of a programme for the systematic evaluation of pesticide residues, a joint meeting of the FAO Working Party of Experts and the WHO Expert Committee on Pesticide Residues was held in December; toxicological data for twenty widely used pesticides were evaluated, and tolerances for residues in food were recommended.

Preliminary results in a WHO-assisted study on the relationship between the nutritional state and the toxicity of pesticides suggest that certain chemical compounds may be of higher toxicity when ingested by persons suffering from malnutrition. A paper describing earlier WHO-assisted studies on the relationship between protein deficiency and DDT toxicity was published in the Bulletin.¹

Emergency assistance in connexion with the contamination of foodstuffs with pesticides is referred to on page 22.

A computerized programme was developed to assess actual intakes of food additives in order to ascertain whether the food additive provisions elaborated under the joint FAO/WHO food standards programme are acceptable from a public health point of view (see also page 66).

At the fifth session of the joint FAO/WHO Codex Alimentarius Commission, held in February 1968, reports were received from the Co-ordinating Committee for Europe, the two Joint ECE/Codex Alimentarius Groups of Experts, the ECE Working Party on Standardization of Perishable Foodstuffs, and the various Codex committees. The Commission studied the progress made in the elaboration of universal standards for cocoa, cocoa products and chocolate, fats and oils, fish and fishery products, meat, meat products and poultry, fresh fruit and vegetables, processed fruit and vegetables, fruit juices, quick (deep) frozen foods, sugars, milk and milk products, and regional standards for natural mineral waters, foods for special dietary uses, honey and ices. The progress made by the Codex committees on food additives, sampling and analysis, general principles, hygiene, labelling and pesticide residues was also reviewed, and the Commission made recommendations for work to be undertaken in 1969.

Of the many standards elaborated by the Codex Alimentarius Commission with the Organization's assistance, nineteen on milk and milk products have been accepted by a large number of Member States, and ten on sugars and processed fruits and vegetables have been finalized for acceptance by governments.

In the joint FAO/WHO work on the standards of food hygiene being undertaken in connexion with the Codex Alimentarius, research was fostered on the following aspects: the development of standard procedures for the microbiological examination of foodstuffs; the detection and enumeration of pathogenic viral agents in various foods; and the effect of different technological processes on the microbiological flora in food products.

Emphasis was laid on specialized training in the field of food hygiene, particularly for developing countries—for example, inter-regional courses were organized jointly with FAO on meat inspection (in Kenya), and on abattoir management and operation (in Denmark).

The importance of milk hygiene is still widely underestimated, and WHO has therefore been paying special attention to this problem. The Organization co-operated with FAO and UNICEF in an inter-agency working group on milk and milk products which met in Rome in June to review the situation, and make suggestions for future work; special stress was laid on improving the instruction of food handlers in milk hygiene.

Pharmaceuticals

Because of the large and growing number of drugs used in medicine and moving in international com-
merce, intensified national efforts and international co-operation are necessary to ensure proper control of the identity, purity and stability of drugs. In this connexion, further progress has been made in the formulation of principles and requirements for good practices in the manufacture and quality control of drugs. The draft requirements, which were considered and favourably received by the Twenty-first World Health Assembly in 1968, were revised on the basis of comments received from Member States and the experts to whom they had been circulated. A revised version was reviewed and adopted by the Expert Committee on Specifications for Pharmaceutical Preparations at its meeting in October 1968, and is to be presented in final form to the Twenty-second World Health Assembly in July 1969.

The same expert committee discussed in detail a possible procedure for ensuring a system whereby specifications for new drugs could be made available more rapidly than under the present system of publication in the bound International Pharmacopoeia. In accordance with the Twentieth World Health Assembly's request to the Director-General "to continue work on analytical control specifications for international acceptance to be published as they are completed", the Expert Committee discussed in detail a scheme whereby WHO would receive, collate and distribute reference data concerning the quality control of new drugs.

The Expert Committee reviewed the work of the WHO International Reference Centre for Chemical Reference Substances and approved the adoption of thirty-four reference substances for the purposes required by the second edition of the International Pharmacopoeia.

On the basis of a collaborative investigation by twelve laboratories of analytical methods for the determination of morphine in opium, the Expert Committee recommended a specific method for further examination by national and international bodies dealing with opium control.

A three-week inter-regional course on the quality control of drugs was organized in Copenhagen and financed from the Danish Special Contribution to the Technical Assistance component of the United Nations Development Programme. Subjects included control of raw materials and finished products, production control, administrative drug control, practical laboratory work and demonstration of new analytical methods.

At the European Conference on the Quality Control of Pharmaceutical Preparations, which was organized by WHO in Helsinki in November 1968, emphasis was laid on the need for inspection of pharmaceutical manufacturing establishments, legislation on and enforcement of quality control, co-ordination of regulations at international level, and training of personnel, especially inspectors and laboratory technicians. Assistance was given by the Organization in the planning and implementation of relevant national activities.

Following the discussions at the Twentieth World Health Assembly on the dangers to health that can result from unobjective pharmaceutical advertising, the Twenty-first World Health Assembly adopted, and urged Member States to enforce, a set of ethical and scientific criteria which from the medical point of view should govern the advertising of pharmaceutical products, both to the medical and related professions and to the public. A survey of recent legislation on pharmaceutical advertising, covering twenty-six countries, was published in the International Digest of Health Legislation.

A nineteenth list of proposed international nonproprietary names for new pharmaceutical substances was published in the March issue of the WHO Chronicle. On the recommendation of the Expert Committee on Non-proprietary Names for Pharmaceutical Preparations in 1967, the list, consisting of fifty-six names, was established under a new procedure, by correspondence, in order to speed up the selection of international non-proprietary names and to allow them to be published at shorter intervals. At its meeting in April, the Expert Committee selected a further seventy-eight names, which were published in a twentieth list in the WHO Chronicle, bringing the total of such proposed names to 2276.

An eighth list of recommended international non-proprietary names, consisting of 143 proposed names to which no objections had been filed or in respect of which objections had been withdrawn, was also published in the WHO Chronicle.

2 Int. Dig. Hlth Leg., 1968, 19, No. 3.
5 WHO Chronicle, 1968, 22, 463-469.
CHAPTER 6

PUBLIC HEALTH SERVICES

National Health Planning and Public Health Administration

Activities in national health planning expanded in all regions, with WHO providing assistance to countries in developing comprehensive national health plans and, where necessary, in strengthening health administrative structures through the training of personnel.

Two travelling seminars were organized for senior health planning officials, one for participants from the South-East Asia Region and the other for participants from the African and Eastern Mediterranean Regions. In each case a four-week study tour of selected Latin American countries followed a two-week course given in association with one of the United Nations Institutes for Economic Development and Planning—the Asian Institute in Bangkok for the first course, and the African Institute in Dakar for the second. Other senior health planners from the Eastern Mediterranean Region received fellowships to attend a course at Johns Hopkins University followed by visits to the Economic Commission for Africa and the United Nations Institute for Economic Development and Planning at Dakar.

Training activities in the regions included the establishment of a regional training programme in national health planning at the University of the Philippines and advice to Thailand on the inclusion of health planning in the curriculum of the School of Public Health, Bangkok.

The selection of health planning as the subject of the technical discussions at the Regional Committees for South-East Asia and the Western Pacific is an indication of the increased general interest being shown in this field. In the discussions at the Regional Committee for South-East Asia special attention was paid to health manpower.

Two meetings relating to national health planning were sponsored by WHO in the European Region—a symposium, in Budapest, on methods of estimating health manpower (see page 114) and a seminar in Moscow on health economics (see page 117).

Assistance in planning the development of health services was given to Ethiopia, Indonesia, Kenya and Lesotho. Several ministries of health received assistance from WHO in assessing their health manpower, estimating future needs and planning to meet those needs.

In January 1968 the Governing Council of the United Nations Development Programme agreed to provide assistance under the Special Fund component to the Pan American programme for health planning with WHO as executing agency. The programme, which aims to develop the methodology and practice of national health planning in fourteen countries, includes training, research and advisory services and will operate in close association with the Latin American Institute for Economic and Social Planning, Santiago, Chile.

Collaboration was reinforced with the United Nations regional planning institutes in Bangkok and Dakar which have been associated with the training activities sponsored by WHO in national health planning, and to which WHO staff members had been assigned. The Organization has also co-operated with the United Nations Research Institute for Social Development in Geneva; it took part in an inter-regional course on social planning sponsored by the Institute and was represented at the meeting of the Institute’s Board in July 1968, when its programme was discussed. On the subject of manpower, WHO contributed to the work of the ACC ad hoc Working Group on Human Resources, and of a working party organized by the Economic Commission for Africa.

Assistance in planning and implementing projects for the development of comprehensive basic health services was provided during the year to sixty-three countries—twenty in the African Region, twenty-three in the Region of the Americas, six in the South-East Asia Region, three in the European Region, four in the Eastern Mediterranean Region and seven in the Western Pacific Region. An example of one of these projects, in the Maldive Islands, is described on page 110.

All these projects have the common objective of establishing simple health care systems, adequately organized and staffed to provide the preventive and curative services to the total population of the project area, and to be financed from the locally available resources. Important elements are the in-service training of all categories of professional and auxiliary
health personnel, the provision of adequate guidance and supervision for such personnel, and assistance in strengthening the system of health administration at the national, intermediate and local levels.

When adequately developed, these basic health services are capable of carrying on maintenance activities of mass campaigns against specific diseases and thus ensuring that the gains achieved are permanent.

In the African Region, the projects for the development of the basic health services include the establishment of a network of rural health facilities which, *inter alia*, can provide support for future malaria eradication programmes and other mass programmes for communicable disease control.

The feasibility is also being explored of introducing simple mental health activities into the work of the basic health services of developing countries. Over the past two years mental health experts and public health administrators have visited a number of countries where such an extension in the scope of the rural health services might usefully be made. During the year, the data collected during visits to Iraq, Lebanon and Tunisia were reviewed, further countries were visited and studies were made of the type of mental health activities that would be suitable for the rural health services and of the staffing and training that would be required.

Co-operation continued with specialized agencies and the United Nations in programmes of comprehensive rural and community development and related subjects. For example, WHO took part in the United Nations Conference on Minsters Responsible for Social Welfare, which was convened in New York in September, and in the Technical Meeting on Nomadism in the Sahelian Region of Africa, sponsored by ILO in Niamey, in October. In each case WHO contributed papers on the health aspects of the subject under discussion.

Several of the WHO-assisted projects for the development of rural health services are conducted within the framework of overall community development programmes, in close collaboration with those responsible for work in other sectors such as agriculture and education. For instance, WHO continued to provide training in the public health aspects of community development at the two regional training centres for community development assisted by UNESCO, one in Mexico and the other in the United Arab Republic (see also page 72).

The supplement to the *Third Report on the World Health Situation*—which covers the years 1965 and 1966 and contains information on individual countries and a review of a special topic, environmental health—was discussed at the Twenty-first World Health Assembly. A final version of the supplement, incorporating amendments received from governments, was later prepared for distribution.

WHO provided the Trusteeship Council with comments on public health conditions, as reflected in the annual reports, in the Trust Territories of New Guinea and of the Pacific Islands; it was also represented at the Council when the reports were discussed.

The 1967 *Report on the World Social Situation* compiled by the United Nations contains a chapter on health contributed by WHO.

**Organization of Medical Care**

Requests from Member States for assistance in the organization of medical care have tended to be more specific than in the past, and many have been concerned with such subjects as technical equipment and maintenance, the planning of hospital services and architectural design of hospitals, rather than the more general field of hospital administration. Thus in the Eastern Mediterranean Region assistance was provided to Cyprus, Ethiopia, Israel and Tunisia on problems concerning respectively teaching facilities, technical supplies, hospital laundry systems, and operating theatres and hospital equipment.

Courses on hospital organization and administration were given in Indonesia and Thailand; advice on hospital construction and planning was provided in Thailand, and also in India with particular reference to the remodelling of the Baroda teaching hospital; assistance in hospital administration was provided in China (Taiwan). Other assistance under this programme included advice to Mauritius on the planning of family doctor services, and to Yugoslavia on the organization of spas.

In the Region of the Americas, most Latin American countries requested assistance for their hospital services and there was a trend towards decentralization in medical administration and operational research. The increasing cost of medical services within the context of social security, particularly in the developing countries, has led to closer co-operation with ILO with regard to the relationship between social security and medical care programmes, and a joint ILO/WHO study was planned on ways of co-ordinating social security programmes and the planning of medical care institutions. A joint ILO/WHO mission was organized to visit Malta and carry out a preliminary study on the feasibility of introducing a health insurance scheme. At the International Labour Conference in June 1968, concern was expressed about the availability of medical care services for persons covered by health insurance or social security schemes. In a discussion at the Conference on the problems of planning health services to meet the needs of the population, reference
was made to the research methods developed by WHO for its study on the availability and utilization of medical services.

The WHO-sponsored international research project on the utilization of hospital in-patient services was continued in selected areas of six countries in Europe, and its extension to other regions was under consideration. Information is being collected in certain well-defined districts on the social and economic characteristics of the population and the flow of patients to the different levels of the regional hospital services. A parallel study, on the utilization of out-patient services, was continued in Belgium and Canada and started in Tunisia. The primary aim of both these studies is to assess the demand for personal health care in relation to the many factors affecting it.

Medical Rehabilitation

The increasing attention being given to the problem of the disabled is reflected in the greater number of requests for assistance in medical rehabilitation. The Organization provided physiatrists (medical experts in rehabilitation) to Iran, Laos and the Republic of Viet-Nam to advise on the planning and development of rehabilitation services in hospitals.

Assistance was also given to Ceylon, China (Taiwan), Iran, Japan, Jordan, Laos, Lebanon, Nigeria, Thailand, Tunisia and the United Arab Republic in the field of physiotherapy, occupational therapy and prosthetic services in medical practice. Countries in the Region of the Americas that received assistance with medical rehabilitation programmes included Chile, where an institute for speech therapy was set up with help from the Organization, and Ecuador, in the form of a special programme for children crippled in a recent poliomyelitis epidemic. Two inter-regional courses were financed from the Danish Special Contribution to the Technical Assistance component of the United Nations Development Programme: one in physical therapy, for clinical instructors, was held in Copenhagen, and the other, the second part of a course in medical rehabilitation, included visits to Ireland, Sweden and the United Kingdom, as well as study in Denmark.

The Expert Committee on Medical Rehabilitation met in Geneva, in November, to discuss the definition of terms used in the field of rehabilitation, the classification and assessment of invalidity, the organization of medical rehabilitation services, the training and functions of rehabilitation teams, and research.

The need for close co-ordination between ILO, the United Nations, UNESCO, WHO and non-governmental organizations in the fields of medical rehabilitation, vocational rehabilitation and job resettlement, production of appliances for the disabled, education of the disabled and training of personnel is increasingly recognized, and co-ordinating machinery was discussed at an ad hoc inter-agency meeting.

Rheumatic and Diffuse Connective Tissue Diseases

The WHO International Reference Centre for the Study of the Diffuse Connective Tissue Diseases, designated at the Cochin Hospital in Paris in December 1967, is to co-ordinate studies with a view to a better characterization of rheumatic diseases, scleroderma, periarteritis nodosa and lupus erythematosus. This work will be based on clinical, laboratory and anatomo-pathological data from collaborating centres. During the year preparations were made for the collection, coding, and tabulation of information on four main connective tissue diseases.

Health Laboratory Services

Eighty-two countries and territories received assistance from WHO during the year in the planning and establishment of public health laboratory services, the training of various categories of laboratory personnel and the expansion of reference services at national, regional and international levels. Such services perform an essential function in many aspects of the basic health services, including not only the diagnosis and treatment of diseases and the combating of communicable diseases and nutritional deficiencies, but also the quality control of food and of biological and pharmaceutical preparations, and the surveillance of potentially detrimental environmental factors.

The Organization's assistance comprised 134 national and twenty-five inter-country projects: ninety-two of the former were exclusively concerned with the development of laboratory services in various aspects, and the remainder involved the laboratory component of specialized programmes on malaria, bacterial diseases, tuberculosis, venereal diseases and treponematoses, schistosomiasis, etc., reinforced by their respective advisory and evaluation teams. A large number of fellowships were also provided.

The Organization assisted with training courses for laboratory technicians, including auxiliaries, in Afghanistan, Cambodia, Gabon, India, Libya, Morocco, Seychelles, Sierra Leone and Venezuela; and specialized courses in haematology and immunohaematology were organized in Amman (see also page 123), and in virology in Cairo for technicians from countries of the Eastern Mediterranean Region.

Through inter-regional courses, advanced training was given in clinical chemistry in Copenhagen, and on the organization and operation of blood transfusion services in Budapest.
An inter-regional travelling seminar on hospital and sanitary-epidemiological station laboratory services was held in the USSR to enable directors of laboratory services from developing countries to acquaint themselves with the organization and functioning of such services and the system of training scientific and technical laboratory personnel in the Soviet Union.

The WHO-supported International Committee on Laboratory Animals continued to promote international co-ordination, and advise on the production of laboratory animals for diagnostic, control and research purposes, and on the training of specialized personnel.

WHO co-operated with the International Committee for Standardization in Haematology. In the continuing work on the preparation of an international terminology in haematology, an additional hundred definitions were completed and circulated to experts for comment.

By the end of 1968 eighteen countries had joined the panel of donors of rare blood types, started by the WHO International Blood Group Reference Laboratory in London in 1967.

An institute in Japan received support for a study on the distribution of caesium-137 in man. This entails the collection of blood specimens from a number of countries throughout the world.

Nursing

During the year WHO provided over 250 nurses to work in ninety countries, as well as advisers on specific aspects of nursing and midwifery services, and an increased number of fellowships. The shortage of nursing personnel is a matter of concern almost everywhere, and the Organization's main activities have been directed towards the planning and organization of nursing services and the improvement of education at all levels.

Technical advice with regard to nursing administration and the organization of nursing services was provided to Afghanistan, Algeria, India, Indonesia, Morocco, Nepal, Saudi Arabia and Thailand. The Organization helped to establish nursing units at national level in Cambodia, Malaysia, the Republic of Korea and Singapore, and to plan a similar unit in Lebanon.

Countries in every region have received assistance in improving existing programmes in basic nursing and midwifery education. Examples of assistance provided during the year in connexion with basic nursing education include a national seminar on the evaluation and accreditation of nursing education programmes in the Philippines; the development of plans and procedures designed to promote the implementation of legal provisions for schools of nursing in Lebanon; the evaluation and revision of curricula, especially in relation to field practice and supervision in Libya, and the establishment of a nursing school in Benghazi.

Post-basic and advanced education programmes for the preparation of teachers, administrators and clinical specialists in nursing and midwifery also received considerable support from the Organization. Thus, in the African Region, assistance was provided for national programmes in Ghana and Kenya, as well as for the development of two post-basic nursing education centres, in Dakar and Ibadan, to train teaching and supervisory staff for the countries in the Region.

In several countries steps are being taken to associate advanced nursing education with recognized institutions of higher learning. In this connexion, WHO has assisted in organizing or establishing university degree-level nursing education programmes in India, Israel, Malaysia, the Republic of Korea and Thailand. In Iran, a department of nursing was established at Pahlavi University, Shiraz, and in Tunisia the merging of two separate programmes, one for nurse educators and the other for administrators and supervisors, at the Avicenna School of Public Health in Tunis, has led to the co-ordination of post-basic training in that country.

Guidelines for the progressive development of post-basic education for nurses and midwives were drawn up on the basis of detailed replies received in answer to a questionnaire sent to the directors of eighty-eight selected post-basic schools in forty countries.

Leaders in nursing education in Europe met in December 1968 to discuss internationally applicable criteria for the evaluation of post-basic education programmes in nursing.

Auxiliary nursing and midwifery personnel are an essential element in the staffing of most health services and with adequate training and supervision can effectively undertake a wide range of duties. In Yemen, for example, female nursing auxiliaries from the WHO-assisted training school in Sana'a have been employed in government service for the first time and are making a valuable contribution to the development of local health services. In the Western Pacific Region, WHO's work on the training of auxiliaries included assistance to Laos for the development of two-year courses and to Cambodia, Laos and areas of the South Pacific, for the preparation of auxiliary midwives and maternal and child health workers for the rural areas. In the Republic of Korea, a programme assisted by UNICEF and WHO since 1966 has provided training, in nine schools, for about one thousand health aides a year, also for work in the local health services. In
India, a study guide for auxiliary nurse/midwives was produced with WHO assistance.

Continuing education for nursing personnel at the different levels was promoted in all WHO-assisted programmes. Five inter-country and five national courses were held in Afghanistan, Ceylon, India, Nepal and Thailand, and dealt with such topics as in-service education, clinical teaching, the teaching of science in basic nursing education, the administration of schools of nursing, and also hospital housekeeping, which aroused particular interest. There were more than two hundred participants from seven countries of South-East Asia.

More operational investigations were undertaken with a view to ensuring the most effective use of personnel in the nursing and midwifery services. The Organization assisted in a study of nursing needs and resources in Guatemala, Jamaica and Peru. Assessments of the use of nursing staff were also carried out in China (Taiwan), Malaysia, the Philippines, and the Republic of Korea, and work was begun in Israel on a study of public health nursing. In Switzerland the findings in the first part of a WHO-assisted study on nursing resources and functions were being analysed at the end of the year, and in India a methodology designed for use in studying the activities of health personnel in hospitals was revised after final field-testing.

A guide on the special duties of public health nurses in tuberculosis control programmes was completed and distributed and guidelines were prepared on the role of nurses and midwives in family planning programmes and the training they need for that work.

Health Education

Many countries now have some type of organized health education service and WHO assistance to governments has been concentrated on the development and strengthening of such services at national, provincial or state levels. In this work, training in order to build up a more qualified staff has been a major activity. Advice on planning health education services and help with training were, for example, provided to Afghanistan, China (Taiwan), Fiji, India, Malaysia, Nigeria, Papua and New Guinea, the Philippines, the Republic of Korea, Singapore and Uganda.

The need to include health education in national health planning, because of its value in obtaining local co-operation in health programmes, was featured in two developments in the Region of the Americas: the Seventh Central American Seminar on Health Education, held in Honduras and sponsored by the health ministries of the countries concerned, was focused on the planning of the educational components of health planning and the supervision of health education activities; secondly, a group of health administrators and specialists in health education, national health planning and social science was convened to plan activities designed to improve the educational components of national health planning in Latin America.

Advice was again given on the planning and assessment of health education activities which are designed to stimulate popular participation in projects assisted by the Organization. Such projects included rural water supply programmes in Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama; a rabies eradication project in Grenada; an *Aedes aegypti* eradication programme in Barbados; projects for communicable eye disease control in Algeria and malaria eradication in Central America and Surinam.

In Peru the Organization helped in the preparation of a plan to establish progressively a system of co-ordination between the ministries of health, education and agriculture, with a view to developing health education and enlisting popular participation in the programmes under the Plan for Co-ordinated Action in Health in the Rural Areas of Peru.

Evaluation of health education services, including evaluation techniques, was the subject of WHO-assisted seminars held in France and in the Philippines. In addition, a four-week regional course on evaluation techniques was organized at the School of Public Health, Teheran, and attended by health education specialists from the Eastern Mediterranean and other regions.

Since schools can provide valuable support for health promotion, much activity, often with UNESCO and UNICEF, has been directed to the improvement of health education in schools and of the curricula for teacher-training institutions. Countries assisted in this work included Australia, Cambodia, China (Taiwan), Fiji, India, Malaysia, New Zealand, Nigeria, Peru, the Philippines, the Republic of Korea, the Republic of Viet-Nam, Singapore and the United Arab Republic. Joint UNICEF/UNESCO/WHO assistance was also provided to China (Taiwan) and Fiji on school texts. In the Philippines, a training programme on health education in schools, which has been assisted by UNICEF and WHO over the last seven years, was completed (see page 130). In 1968 a three-week course on health education activities was held in Kuwait, with WHO assistance, for physicians and dentists of the school health section of the Ministry of Health.

In India WHO continued to co-operate with the Ministries of Health and Family Planning, and Education, in improving school health education. Stress was laid on health education in the teacher-training curriculum, mainly through pre-service and in-service
activities, particularly field training, and on the preparation of materials to assist educational institutions in promoting and guiding health education in schools.

A number of countries have received assistance in increasing training facilities for the professional health educators who are needed for the developing national health education services. For example, the School of Public Health, University of Teheran, initiated with WHO assistance the first post-graduate course in health education in 1968.

Advice on the strengthening of post-graduate teaching in health education was given to the School of Public Health of the University of São Paulo. At the School of Public Health of the University of Venezuela, where assistance to a project for the introduction of health education into the various curricula was completed, a department of health education and social sciences has been established under professional qualified personnel.

In Papua and New Guinea, WHO helped in evaluating the first post-basic diploma course held at the Health Education Institute of the Department of Public Health.

The inclusion of health education in the training of various categories of professional and auxiliary health personnel was promoted in many WHO-assisted projects. In the South-East Asia Region, for example, WHO helped to organize a seminar in Indonesia on the health education component of health programmes, as well as an inter-country working conference on the same subject in India. These two meetings are among the many activities undertaken in this region as a result of a working conference, held in November 1967, on the planning of health education in health programmes.

In Tunisia, as a first stage in a programme to introduce health education into the training of all students at health schools, curricula were prepared for use in the training of nurses, midwives and sanitarians. In a number of other countries also, including Fiji and India, help has been given in extending the role of health education in the training of nurses.

Similarly assistance has been provided for the inclusion of health education in the field training of malaria workers in the countries of Central America, Algeria, the Philippines, Surinam, and Togo, and of sanitation personnel in Ghana, Nigeria and the Republic of Korea.

A further five monographs in the series Review of Research and Studies related to Health Education Practice were published.1 The series, prepared at WHO's instigation, has been published by the Society of Public Health Educators. The main subjects treated in the volumes issued in 1968 were: psycho-social and cultural factors related to health education practice; communication methods and materials; patient education; planning and evaluation of health education; and school health education.

In December 1968 a scientific group on research in health education met in Geneva to review some of the priority health education problems in public health and medical care, current trends in research, the promotion of further research in health education and the relevant social sciences, and the training of health education research workers.

The Organization continued its technical co-operation in meetings sponsored by UNESCO relating to literacy projects, educational planning and health education; it also co-operated in health education aspects of projects sponsored by the League of Red Cross Societies, and participated in meetings convened by the International Union for Health Education.

Maternal and Child Health

Trends and developments in the field of maternal and child health, such as an integrated approach to the health problems of mothers and of children from conception through adolescence, the concept of continuity of care, and the inclusion of family planning activities in maternal and child health services, were discussed by an expert committee on the organization and administration of maternal and child health services, in Geneva, at the end of November 1968. The Committee reviewed the training, research and evaluation aspects of these services, as well as legislation to protect the health of mothers and children.

The Organization's assistance to countries in all regions in strengthening maternal and child health work has been directed to its development as a part of the general health services. For example, in Ghana and the Ivory Coast UNICEF and WHO are assisting with projects in which integrated maternal and child health services are being developed and extended to rural areas. In the Republic of Korea, a new project was started with the purpose of integrating maternal and child health (and family planning) into the basic health services. An account of the development of health services for mothers and children in islands of the South Pacific will be found on page 129.

The greater part of WHO's assistance to governments in improving services for children has again been given jointly with UNICEF. An indication of the range of projects supported by UNICEF will be found in the project list in Part III of this volume.

---

More countries are adopting family planning as an official policy and are seeking technical advice from WHO. The orientation of WHO staff in the various aspects of family planning, particularly the integration of family planning into maternal and child health services, was further developed (see page 44). WHO helped to prepare the curriculum for courses in family planning in Thailand, and plans were made to assist Singapore in developing maternal and child health services, including family planning programmes.

WHO provided technical advice on family planning and maternal and child health in India, and also took part in the work of United Nations missions which assessed family planning programmes in both India and Pakistan.

It also continued to promote training in paediatrics, both by providing professors for medical schools and by collaborating with UNICEF and various institutions in organizing post-graduate courses. These included the third advanced course in maternal and child health held at the Mother and Child Institute, Warsaw, for paediatricians and medical officers responsible for maternal and child health services in developing countries; a course for senior teachers of paediatrics, given at the Institute of Child Health, University of London, and the Paediatric Centre, Bombay; a workshop on paediatric education in Mexico City co-sponsored by WHO and the International Paediatric Association; and an eleven-month course in child health and paediatrics given at Hacettepe Medical Centre, Ankara, for medical officers from the Eastern Mediterranean Region.

This course, completed in July 1968, included lectures on child health problems common in the developing countries, such as malnutrition and infection, and field work carried out in the rural areas of Etimesgut. Assistance provided by WHO for the development of training in paediatrics and obstetrics in India is described on page 109.

WHO continued to co-operate in courses organized by the International Children's Centre, Paris, and was represented at two meetings of the ICC Technical Advisory Committee.

The health needs and problems of children between the ages of one and five years were discussed at a seminar organized by WHO in Karachi for paediatricians and health administrators from countries of the Eastern Mediterranean Region.

WHO was represented at the Fourth Inter-Agency Meeting on Youth, held in Geneva in July, at which the development of co-operative programmes for young people and a report on youth in the Second Development Decade were among the subjects discussed.

WHO was represented at the meetings, in May, of two committees convened by the International Federation of Gynecology and Obstetrics: one for the study of perinatal mortality and the other for the study of maternal mortality.

The Organization also participated in the eleventh International Congress of the Medical Women's International Association, in Vienna in June, at which the theme was “The hungry millions”, and was represented at the XIIth International Congress of Paediatrics held in Mexico City in December.
CHAPTER 7

ENVIRONMENTAL HEALTH

Environmental deficiencies are still a major cause of poor health in most of the developing countries; and in the industrialized countries air and water pollution, noise and other phenomena resulting from industrialization and urbanization constitute ever-growing threats to health. This is the picture that emerges from the review of environmental health contained in the supplement to the Third Report on the World Health Situation, which was submitted to the Twenty-first World Health Assembly in May 1968 (see page 51).

There is today a greater awareness of the need for improvement in environmental conditions in the interests both of health and of economic development, and more governments have established environmental health organizations and taken steps to provide qualified staff. Such actions, together with national programme planning and the allocation of necessary funds, are essential steps towards the solution of the environmental health problems that are hampering socio-economic development in most of the world.

The international and regional banks, the United Nations Development Programme and UNICEF continued to deal with requests from Member States for financial assistance for sound environmental health projects, and in 1968 the African and Asian Development Banks also began to provide this type of assistance, for the first time.

An assessment of the environmental sanitation and rural water supply programme assisted by UNICEF and WHO was completed for review by the UNICEF/WHO Joint Committee on Health Policy and the Executive Board of UNICEF. This study, a first attempt to examine in depth the successes and failures of environmental sanitation and rural water supply projects, should provide impetus for further progress as well as useful data for the formulation of future policies and procedures in these fields.

During 1968 the Organization's work has been directed to the development of national environmental health programmes, training of sanitation personnel, the improvement of water supplies and waste disposal, and the control of environmental pollution. These activities are reviewed below.

Community Water Supply

Eighty-two countries and territories—among them a large number of developing countries—received assistance from WHO in 1968 in the strengthening of community water supply programmes, both national and local. As in previous years, much of the work was directed towards the preparation of realistic programmes and assistance in arrangements for their financing.

To finance the orderly construction of community water supplies, the paramount need is for capital expenditure of considerable magnitude. While the bulk of the funds must come from national investment programmes, external assistance in the form of “soft” loans (i.e., loans on exceptionally favourable terms) brings an impetus to the national programme and an infusion of new capital. International, regional and bilateral financing agencies have been sympathetic to the efforts of developing countries to improve their community water supplies, and over the last ten years have placed on loan to them for this purpose sums estimated to total some US $850 million. The number of such loans is increasing annually and there is reason to believe that a limiting factor is the ability of developing countries to present projects that are technically sound and financially viable; WHO is therefore making every effort to help governments to prepare projects that are sound and “bankable”. Requests for loans must be based on studies that meet the criteria of the lending agencies.

Experience over the last ten years has shown that governments cannot successfully provide safe and ample water supplies unless there is a soundly conceived and carefully planned national programme. National and local organizations able to plan, execute and operate water supply projects are essential components of such programmes, and WHO has therefore provided advisory teams—consisting of engineers, accountants and economists—to advise on the establishment of organizations of this kind. Countries receiving such advice included Ceylon, Ghana, India, Malta, Senegal and Uganda.
Acting as executing agency for the Special Fund component of the United Nations Development Programme, WHO has been assisting the Governments of Ceylon (see also page 111), Ghana, India, Malta, Morocco, Senegal, Turkey and Uganda in the pre-investment surveys that provide a firm basis for requests for loans to finance the actual construction work. The Organization has also assisted the Governments of Ghana, Iraq, Ivory Coast, Kenya, Madagascar, Nepal, Surinam and Upper Volta in preparing their official requests to the United Nations Development Programme for the necessary financial assistance to make possible the carrying out of pre-investment surveys. At an earlier stage, by providing the requisite experts, the Organization has helped other governments to examine the possibility of submitting requests to the United Nations Development Programme. The countries in this category include the Democratic Republic of the Congo, Ethiopia and Kenya (see also page 90).

An expert committee on community water supply met in Geneva in October to evaluate progress and trends in the programme, identify problems in water supply, and indicate broad areas (scientific, technical, administrative and financial) requiring research and elaboration at national and international level.

Improvement of the quality of drinking-water is an important aim of the programme and during the year a study on the effectiveness of various water treatment processes for the removal of viruses was completed and the results published in the Bulletin.1 Toxicological studies were completed on plastic materials used in the manufacture of water pipes and fittings, on the use of iodine compounds for drinking-water disinfection and on new water treatment chemicals. Studies were initiated on procedures for the surveillance of drinking-water quality.

A travelling seminar on the treatment and disinfection of drinking-water was held in the USSR; the participants were from thirteen countries.

A programme of research and development, aimed generally at helping governments—particularly those of developing countries—to increase community water supplies, while at the same time reducing costs and enhancing the efficiency of operation and management, was initiated during the year. The Chemical Bacteriological Department of the Institute for Water Supply, The Hague, was designated as the WHO International Reference Centre on Community Water Supply; it will co-ordinate the work of some sixty collaborating research institutes throughout the world. The programme will focus initially on such activities as the simplification of design, operating and construction methods and their adaptation to the conditions of individual countries, encouragement of a greater use of locally produced materials, and the promotion of training.

Environmental Pollution

Although environmental pollution is increasing in complexity and extent with the growth of population, the expansion of urbanization and industrialization and the increased application of technical developments, the past few years have at the same time seen a marked increase in work and research on various aspects of the problem.

The effects of environmental pollution and its control were also discussed at a number of international conferences during the year. The Administrative Committee on Co-ordination convened an ad hoc inter-agency meeting, in Geneva in February, to consider the overall question of co-ordination in the field of pollution. It noted that although, for administrative and technical reasons, it is often necessary to consider separately the pollution of air, soil, sea and inland waters, all aspects of pollution are closely related.

The more general problem of the conservation of natural resources was considered at the Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere, which was convened by UNESCO in Paris, in September, and at which WHO presented a paper on the scientific aspects of environmental pollution. The Conference emphasized the need for greater intergovernmental co-operation in extending air pollution monitoring systems for measuring both the normal constituents of the air (such as carbon dioxide) and pollutants. It also recommended that the international organizations concerned should promote further research programmes on the identification and control of pollutants and their effects on man and the environment.

A report on environmental pollution and its control,2 prepared by WHO in consultation with various agencies of the United Nations system, was presented to the Economic and Social Council in May. The problems of environmental pollution and its consequences for man's physical and mental well-being in both developing and developed countries were discussed also at the Council's forty-fifth session, in July and August, when a resolution was passed recommending the United Nations General Assembly to consider the desirability of convening a United Nations confer-

---

ence on problems of the human environment. Other activities with international organizations on pollution control are mentioned in the following sections. WHO-assisted research in environmental pollution includes a continuing study being carried out in Ferrara, Italy, on the long-term effects of agricultural pesticides. Data collected on pollution of the environment and the levels of pesticides in the body were the subject of comprehensive statistical study. Examples of other studies supported by the Organization are mentioned in the following sections dealing with air and water pollution.

A brief review of existing knowledge on the biological aspects is provided in Research into Environmental Pollution, \(^1\) published during the year. This is a consolidated version of the reports of five WHO scientific groups which met between March 1963 and November 1965. A summary of basic concepts in the evaluation of environmental hazards and of recent trends in environmental pollution is followed by separate sections on air, water and soil pollution. The publication concludes with a review of research projects and of problems on which research is required.

Water Pollution

The Expert Committee on Water Pollution Control in Developing Countries \(^2\) met at the end of 1967 and considered particularly the problems of countries in tropical and semi-arid areas. It emphasized that such countries should plan pollution control measures at the beginning of their urbanization and industrialization in order to protect their limited water sources.

Advice on measures for water resources management and protection was again provided to several individual countries, including India (for water pollution surveys), Israel (for a survey of pollution by industrial wastes and on water conservation), and Sudan (on water resources management and the classification of ground and surface waters).

In the Region of the Americas a number of water pollution control programmes are in operation or being planned with assistance from the Organization. The possibility of introducing comprehensive schemes to protect river basins from industrial and other pollution is being investigated in various parts of the world. WHO, as executing agency for an applied research project on the protection of river waters in a heavily industrialized area of Poland, provided technical advice to Polish institutions on the combined treatment of municipal and industrial wastes, the control of pollution caused by saline water discharged from coal mines and thermal pollution (excessive heating of river waters by the discharge of cooling water from thermal power stations). Alternative solutions for saline pollution control and salt recovery from saline water were investigated. This project is financed from the Special Fund component of the United Nations Development Programme.

The possibility of a similar, inter-country, project in the Danube river basin is being explored, following formal requests from Czechoslovakia and Hungary for assistance with preliminary surveys and an expression of interest on the part of other countries in the area. Visits were made to Hungary where it was found that, although conditions in the basin are still fairly satisfactory, there are significant problems there that are likely to become more serious. The Tisza catchment area causes particular concern, on account of considerable pollution problems, and also because a rapid increase is expected in the need for irrigation water.

In the Region of the Americas, various programmes of river basin planning, to include pollution control, are under consideration (see page 97).

A study, supported by WHO, on methods for identifying and determining some mineral and organic toxic substances in surface and ground waters was completed. It was undertaken by an institute in Belgium and entailed the determination of lead in water and of certain pesticides of the chlorinated hydrocarbon group, the sampling of hydrocarbon films in river waters and the continuous separation of detergents. It also included the investigation of certain intermediary degradation products of detergents, which may have toxic effects.

The final report on the assistance provided to the Central Public Health Engineering Research Institute (CPHERI) at Nagpur, India, under the United Nations Development Programme was issued during the year by WHO, the executing agency for the project. The report lists the scientific and engineering equipment and other assistance provided under the project, and describes the Institute’s organization and development and its research and educational activities. These have been mainly concerned with problems of water supply and water pollution control and have included studies on the operating characteristics of oxidation ponds for treatment of sewage wastes under tropical conditions, the design of economical units for flocculation and clarification as a major step in water treatment, and the treatment of wastes from rayon manufacture

---

and from installations producing synthetic pharmaceuticals.

The pollution of coastal waters and estuaries is causing increasing concern and may entail grave health risks, especially in areas used for the breeding of shellfish. The first part of a study of coastal pollution, comprising a comprehensive review of the health effects of pathogens and other organisms discharged with sewage into coastal waters, was published.1

WHO took part in the work of the United Nations Group of Experts on Marine Science and Technology and also of other meetings convened by the Secretary-General for the preparation of surveys and reports requested in resolutions of the General Assembly on international co-operation in exploiting the resources of the sea.

Air Pollution

The Expert Committee on Urban Air Pollution, convened in July 1968, discussed and assessed the possible effects on health of motor vehicle exhausts—an important potential source of pollution in large cities, particularly under certain atmospheric conditions. The Committee reviewed the sources, nature and composition of pollutants discharged from motor vehicles, and methods for sampling and analysis, and drew attention to the need for periodical appraisals of individual pollutants—especially carbon monoxide, lead, hydrocarbons, nitrogen oxides and other oxidants—as well as for less costly and simpler sampling methods. It further indicated that more data were required on carboxyhaemoglobin levels and other biochemical indices in persons exposed to pollution by traffic exhausts. With regard to air quality standards, it considered that more information should be collected on technical feasibility and costs of pollution abatement programmes, as a guide to countries in developing balanced control programmes.2

A seminar on air pollution was organized at the end of the year for Latin American countries. Methods of analysis and control for certain air pollutants, legislation, and future programmes were among the subjects discussed.

As part of its research programme, WHO established at the end of 1967 an International Reference Centre on Air Pollution at the Air Pollution Research Unit of the Medical Research Council, London, and a number of regional and national reference centres and collaborating laboratories are now being designated. The functions of the WHO International Reference Centre include advice on and co-ordination of research on such subjects as the effects of air pollution, the organization of air pollution surveys, the identification and measurement of air pollutants and control methods. As a first task, the International Reference Centre has undertaken a critical review of a number of methods for measuring air pollutants. Monographs relating to the methods for determining sulfur dioxide, carbon monoxide, sulfuric acid aerosol, nitrogen oxides, and particulate matter were prepared and submitted for comment to members of the Expert Advisory Panel on Air Pollution. A guide to the selection of methods for measuring air pollutants was in press at the end of the year.

An institute in Zagreb, Yugoslavia, completed a WHO-assisted study on the different methods of identifying and determining metals in airborne particulate matter.

Work with other organizations included the joint sponsorship with WMO of the Symposium on Urban Climates and Building Climatology, held in Brussels in October. WHO was concerned particularly with the sessions on urban air pollution and contributed five reports on different aspects of the subject.

WHO also took part in meetings on air pollution organized by the Economic Commission for Europe; in a European Symposium on the Influence of Air Pollution on Plants and Animals, sponsored by the Council of Europe and the Government of the Netherlands; and in a meeting convened by the Organization for Economic Co-operation and Development to discuss the establishment of an air management research group which would evaluate the need for and stimulate international and national work on air pollution.

Environmental Radioactivity

The rapidly increasing use of nuclear energy is placing on national health administrations the new responsibility of surveillance of the environment for radionuclides. To help health authorities in organizing surveillance programmes a guide was published during the year dealing particularly with surveillance in air and water, the media that serve generally as the original vectors for environmental contamination.3 The outcome of a WHO technical meeting in 1967, the publication is designed alike for countries with developed nuclear energy programmes and for those where the principal activities involving the radioactive materials are the application of radionuclides in medicine, agriculture, research and industry.

The Institute of Occupational Health and Air Pollution Research, in Santiago, Chile, was established with assistance from the Special Fund component of the United Nations Development Programme, with WHO as executing agency. In addition to its research work, the Institute acts as a regional training centre for specialized personnel and measures radioactive contamination.

1. An air sampler and apparatus for measuring the amount of sulfur dioxide in air over the street outside the Institute.

2. A chemist changes the air filter.

3. A film badge is worn by Chilean workers exposed to ionizing radiation.

4. Records are kept of the degree of exposure revealed by films from different parts of Chile.
Under existing arrangements, horse-drawn and motorized water carts are used.

Pipes being laid to supply water as a direct service to the community.

Sorting solid wastes in preparation for composting.

WHO is giving assistance to health authorities in many countries in ensuring provision of safe water and adequate sanitation. The work covers a wide range of operations that vary with the conditions and problems of each country, and often includes an important element of self-help.

WATER SUPPLY AND WASTE DISPOSAL

MALTA

WHO is assisting with the improvement of water supply and waste disposal in Malta.

AFGHANISTAN

One of the first new pumps to be made in Afghanistan has been installed in Wazirie Kala, twenty-seven kilometres from Kabul, under the rural development programme being assisted by WHO.

TURKEY

In Turkey WHO is executing agency for a project under the Special Fund component of the United Nations Development Programme to extend the water supply and sewerage system of Greater Istanbul.

1. The new water supply line which joins Lake Tuzka, main reservoir for Istanbul, and the Kagitthane treatment plant, passes under the Egrikemer aqueduct.
2. Using microphones to detect leakage of water from mains. Prompt repair is important in order to minimize water loss and pollution.
3. The waters of the Golden Horn are tested to determine the extent of pollution.

CEYLON

Villagers learn to manufacture latrines for installations in their own communities.
A lecture, given during the course in Copenhagen, on the neurology and physiology of the locomotor system.

The course also included demonstrations of physical therapy techniques...

The reintroduction of the disabled into the community is an important task of medical care services, and WHO is providing assistance to a growing number of projects for medical rehabilitation. Work in 1968 included an inter-regional course for clinical instructors in physical therapy, organized by WHO in Copenhagen with funds from the Danish Special Contribution to the Technical Assistance component of the United Nations Development Programme. WHO is also advising on the planning and development of medical rehabilitation services in various countries.

The rehabilitation centre in Laos, where WHO's assistance in medical rehabilitation forms part of a more general programme for the physically handicapped, financed under the United Nations Development Programme.
A study was undertaken to ascertain the minimum equipment, special instruments and staffing required to enable a specialized laboratory to carry out the necessary laboratory and field investigations for environmental radiation surveillance. Other studies in progress during the year concerned the public health implications of the disposal of radioactive wastes and the health hazards associated with the ingestion of radionuclides in food under certain conditions—for example, in the case of contamination of the environment by radioactive fallout or of local contamination by radioactive wastes.

The world's total nuclear electrical generating capacity in operation at the end of 1967 was 10 600 MW(e) and forecasts that this would increase to 30 000 MW(e) in 1970 and more than 300 000 MW(e) in 1980 continue to appear realistic. By the year 2000, 43 per cent. of the total power produced will be nuclear energy. Nuclear power plants release controlled amounts of radioactive pollutants to the environment during normal operating conditions. A study was initiated in 1968 on environmental pollution resulting from nuclear power stations and also from fossil-fuelled power generating stations; the objective is to provide guidance on the selection of types of plants and the siting of power stations, taking into account their effects on the environment and public health.

The current status of environmental radiation problems was reviewed in October during a consultation of experts who also advised on subjects needing emphasis in the future programme: the surveillance of radionuclides in air, water and food; the public health implications of radioactive waste releases; the public health aspects of nuclear-fuelled power stations; the training of personnel for work in environmental radiation protection; and the functions of the projected international reference centre on environmental radioactivity. In the Region of the Americas a network of surveillance stations is in operation (see page 95).

WHO has again in the past year continued its collaboration with other international organizations, especially with IAEA, and took part in the Study Group on Nuclear Techniques in Water Pollution Investigations in Budapest in December.

Sanitation Services and Housing

During the year assistance was provided to over sixty projects for the promotion of public health and sanitation services in individual countries, an important general objective being the intensification of the programme for training sanitation personnel at all levels.

Because of the great need for French-speaking sanitary engineers for the developing countries and the paucity of universities providing the necessary courses in that language, plans have been made to set up a sanitary engineering education centre in a country in Africa where French is spoken. Preliminary arrangements have been made for establishing such a centre in Morocco to provide undergraduate and postgraduate sanitary engineering courses for students and professional engineers from countries in the African, European, Eastern Mediterranean and Western Pacific Regions.

Meetings at regional level included a seminar on the teaching of sanitary engineering in Quito, Ecuador, and a conference on the training and utilization of auxiliary sanitation personnel, held in New Delhi for participants from six countries of the South-East Asia Region. The conference, which was a follow-up of a meeting on the same subject held in 1960, reviewed the present position regarding the training of such personnel, established criteria for their functions and responsibilities in the Region and discussed the curricula of courses and ways of improving their standard.

The WHO programme in this field also involves long-term support of sanitary engineering education at national institutions in various parts of the world. In the Region of the Americas, universities in several countries received assistance from the Organization (see page 98). WHO also contributed to the initiation or development of sanitary engineering courses at universities in Afghanistan, Ghana, India, Indonesia, Pakistan, Sudan, Thailand and Turkey.

Closer collaboration has developed between UNESCO and WHO regarding the education and training of engineers in general, and sanitary engineers in particular. WHO assisted in the revision of model syllabuses for various engineering disciplines prepared by UNESCO for use in its engineering and technological education projects, and also took part in two meetings convened by UNESCO—a meeting of experts on engineering syllabuses, held in Lausanne in May, and a conference on trends in the teaching and training of engineers, held in Paris in December 1968. The Organization was also able to help in the recruitment of a professor of sanitary engineering by UNESCO, for its programme of civil engineering training at the Faculty of Engineering of the University College in Nairobi, Kenya. The intention is to give future graduates from this faculty—which serves several East African countries—a better understanding of the environmental health problems associated with their normal work, whether in irrigation engineering, water supply or general public works.

A study, begun in 1964, was published during the year under the title The Physiological Basis of Health Standards for Dwellings. 1 It reviews the present state

---

of knowledge and research in various countries on the basic human requirements in housing, including temperature regulation, lighting and other factors affecting health and comfort in the home. The use of new materials of public health importance in housing construction and housing sanitation in relation to community planning are also discussed.

A new study, started during the year, was directed to the establishment of environmental health criteria for use by those responsible for urban and regional planning. Existing knowledge and experience on the subject are being analysed as a first step in drawing up principles that can be adapted by public health and city or regional planning agencies to local conditions.

An inter-regional travelling seminar on the public health and sanitation aspects of city planning was organized in the USSR (in Moscow, Baku and Sochi) for health and sanitation officers, civil and sanitary engineers, architects and town planners from fifteen countries. The programme covered such subjects as the organization of the services concerned in the Ministry of Health, the health principles applied to town planning, climatic factors affecting the design of cities and villages, zoning and land use, and recreation facilities, water supply, sewerage and solid wastes disposal, and environmental pollution control.

The ACC Working Group on Housing and Urbanization, at its twelfth session, in Paris in February, discussed proposals for more effective and simple procedures of inter-agency co-ordination at project level, particularly with regard to projects assisted under the Special Fund component of the United Nations Development Programme. WHO continued to co-operate in the housing activities of the Economic Commission for Africa (ECA) by providing a sanitary engineer, whose work in 1968 included participation in planning and conducting a course for building contractors, which was given successively in six countries of East Africa, and a course in co-operative and aided self-help housing, held in Monrovia.

The Organization also participated in a seminar on housing sanitation organized by the South Pacific Commission and in work of the Economic Commission for Latin America.

Wastes Disposal

In many developing countries the rate of urbanization is so great that waste-water collection, treatment and disposal lag far behind community needs and construction of the urgently required sewerage systems and treatment plants for major cities is constantly deferred because of the high capital costs. WHO is therefore assisting an increasing number of developing countries in the preparation of requests to the United Nations Development Programme for the financing, from the Special Fund component, of the necessary pre-investment and engineering feasibility studies for economic long-term waste disposal programmes, particularly for capital cities and other large communities. Studies carried out by consulting engineering firms under WHO supervision serve as a basis for securing from international sources the loans essential for the implementation of the long-term waste-management plans.

Progress in the preparation of a master plan for a sewerage system for the metropolitan area of Manila—the first large-scale waste disposal project to be financed from the Special Fund component—was reviewed by a WHO panel, working with the National Waterworks and Sewerage Authority. WHO is also executing agency for two other projects similarly financed which are due to start early in 1969: a master plan for sewerage and sewage disposal for the metropolitan area of Taipei, and master plans for sewerage, drainage and solid-wastes disposal for the city of Ibadan. Training of local personnel and advice on managerial and organizational aspects are important elements in all these projects.

Two other countries wishing to benefit from assistance from the Special Fund component received advice on the preparation of requests: in Iran a preliminary request, prepared in 1966, for the financing of the planning of a sewerage system for the city of Teheran was revised in order to include a study for drainage, industrial wastes, and the possible re-use of treated effluent for irrigation; in the Central African Republic, WHO took part in a mission appointed by the United Nations Development Programme to advise on the possibilities of developing a sewerage and drainage project for the city of Bangui.

Advice was also given on the preparation of schemes for the execution of which financing is likely to be sought from sources other than the Special Fund. A WHO mission visited Malaysia to review and assess plans for two major sewerage schemes—for the Greater Kuala Lumpur region and for the city of Ipoh. In Thailand assistance was provided for the review of a master plan for sewerage, drainage and flood protection systems for Bangkok, advice being given on the feasibility of establishing a single authority to manage and operate the systems, and on the negotiation of a supplementary contract with a consulting engineering firm.
Assistance was provided to the Government of Iraq in the overall planning, administration, management and operation of sewerage systems, and also to the Government of Fiji, particularly in connexion with economic and administrative aspects of sewerage planning for the capital city, Suva.

A short course on solid wastes collection and disposal was held in Damascus in May for municipal engineers from countries in the Eastern Mediterranean Region. In the Philippines, advice was given on the improvement of solid wastes collection and disposal practices in metropolitan Manila, and in Israel assistance was given in connexion with a review of current practices for solid wastes storage, handling and disposal, and the development of a national plan for those purposes. Advice was also provided to the United States of America on a study concerning the survival of pathogens in the composting of refuse and sewage sludge.

The disposal of the varied effluents from industry is a major problem, and one of growing concern to health agencies. In advice given to India and Israel on the treatment and disposal of industrial wastes, stress was laid on the systematic collection and analysis of data on industrial effluents and their identification, as a necessary preliminary to the introduction of any satisfactory programme. The WHO International Reference Centre on Wastes Disposal was set up in September 1968 at the Federal Institute for Water Supply, Sewage Purification and Water Pollution Control, Zurich, Switzerland, to establish an international programme for the collection, storage and distribution of information. Initially the centre's activities are to be concentrated on solid wastes, where advances have been small in comparison with those made in the management of waste-water. Later, more emphasis will be given to research on various aspects of the management of liquid and solid wastes with a view to the best use of local resources. Steps have been taken to establish regional and national reference centres to assist in the many activities falling within the centre's terms of reference.

The Organization continued to participate in the work of the ACC Sub-Committee on Water Resources Development.
CHAPTER 8

HEALTH STATISTICS

Collection and Use of Health Statistics

The quality, sources and utilization of mortality statistics were reviewed at a meeting sponsored jointly by the United Nations and WHO in October. The meeting, convened in accordance with a recommendation of the fourteenth session of the Population Commission, identified gaps in present knowledge with particular reference to the aspects requiring further action and international co-operation. Recommendations were made for a detailed programme of research on such subjects as mortality trends in relation to demographic, economic, and social characteristics and the differences in mortality rates in urban and rural areas.

Statistics on subjects of current interest and public health importance were published in the World Health Statistics Report (formerly Epidemiological and Vital Statistics Report). Among the conditions dealt with were leishmaniasis, filariasis, meningococcal infections, cancer, diabetes mellitus, mental diseases, deaf mutism, and motor vehicle accidents. For many of these subjects the reports are the only source of consolidated information on prevalence in a large number of countries.

Following a discussion at the Twentieth World Health Assembly in May 1967 from which it was clear that abortions were a serious public health problem in many countries, information was collected on the availability of data concerning abortions in order to define the magnitude of this problem and its consequences in ill-health and to plan preventive measures. Information was also collected on the availability of hospital statistics — in many countries the only source of health statistics — as a first step towards the preparation of guides to the collection of uniform and comparable data. To help in the planning of services for the aged — a problem which will grow as expectation of life increases — information was collected on the availability of statistics on diseases and physical handicaps which affect the old.

International Classification of Diseases

The French and Spanish editions of the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, based on the Eighth Revision of the Classification, were published, following the English version which appeared in the autumn of 1967. A provisional short alphabetical index was also issued in these three languages, and a full length index was in process of preparation. A Russian version of the manual and the short index are being prepared at the WHO Centre for the Classification of Diseases in Moscow. Assistance was given to several countries in the preparation of national versions of the International Classification of Diseases.

A number of other steps were taken to facilitate the application of the Eighth Revision of the Classification which came into effect on 1 January 1968. Courses for coding instructors were given with assistance from the Organization at the Latin American Centre for the Classification of Diseases in Venezuela (see also page 98) and at New Delhi to help familiarize national personnel with the new classification, and a guide to the main differences between the Seventh and Eighth Revisions was prepared by the WHO Centre for the Classification of Diseases in London, and circulated to Member States.


Following recommendations of the Sub-Committee on Classification of Diseases (of the Expert Committee on Health Statistics) and of the Eighth Revision Conference, steps were taken to develop a statistical classification of surgical operations and procedures for international use. A first draft of such a classification, based on codes in use in the United Kingdom and the United States of America, was prepared in collaboration with the WHO Centre for the Classification of Diseases in London, for circulation to Member States for comment.

When adopting the Eighth Revision of the International Classification of Diseases, the Nineteenth World Health Assembly requested the Director-General to prepare a compendium of recommendations, definitions and standards which would be useful to Member States in preparing health statistics and would improve
their international comparability. This compendium is to include the technical matters that were removed from the WHO Nomenclature Regulations in the last revision. An outline of the compendium, prepared in collaboration with the WHO Centre for the Classification of Diseases in London, was sent for comment to the Member States that have shown particular interest in this subject.

The WHO centres for the classification of diseases (in Caracas, London, Moscow and Paris) played an important part in the preparation of the Spanish, English, Russian and French versions of the Eighth Revision, and its short index, and have collaborated in dealing with problems arising in the application of that revision. Other activities of the centres in 1968 were the preparation of lists of pharmaceutical products on various national markets classified according to the categories in the International Classification of Diseases, an experimental coding of diagnosis by computer, and the drafting of rules for the classification and tabulation of mortality from multiple causes, with a view to ensuring comparability and their adoption for use internationally.

Assistance to Governments in the Development of Health Statistical Services

Training programmes for all categories of health statistical personnel have been developed by WHO. In addition to the formal and informal courses given as part of WHO-assisted projects on health statistics, WHO provided staff to lecture on special topics of health statistics at national and international training centres. Training in health statistics for holders of international fellowships and other university graduates was organized in three European training institutes, namely, the London School of Hygiene and Tropical Medicine, the Free University of Brussels, and the Institute for Post-graduate Medical Education in Bratislava for students speaking the English, French, and Russian languages respectively. Similar training in Spanish was developed in the Region of the Americas (see page 98).

A conference on the training of health statistical personnel was held in Kampala in April, with assistance from WHO, to specify the principles to govern training policy for intermediate and auxiliary health statistical personnel — the grades where the most urgent need for training lies. Public health administrators, teachers of public health and statisticians from countries in the African, South-East Asia, Eastern Mediterranean and Western Pacific Regions took part in the conference, which defined the two main categories of personnel needed in these grades in the health services (health statistical technicians and health statistical clerks), and the responsibilities and type of work each category would be expected to perform. The conference laid down principles for training, proposed training curricula and teaching methods, and made suggestions as to the type of institutes that could form the basis for teaching centres, the teaching personnel, the teaching media and the organization of the training. The recommendations and suggestions made by the conference will provide guidance for future activities in this field at national and international level.

The Expert Committee on Health Statistics, which met in November, dealt with health services and their activities, particularly health institutions other than hospitals — a field of statistics that has been inadequately developed in most countries. The Committee discussed the information which should be collected, the basic records to be kept in health establishments, methods of collection and presentation of information, and indices of the activities of the health services and their efficiency. Special attention was paid to this last subject, as well as to training, in the papers prepared by the national committees on vital and health statistics.

Statistical Publications

Volumes II and III of the World Health Statistics Annual for 1964 as well as Volumes I and II for 1965 were published during the year. The Annual is published in three volumes, the first providing vital statistics and causes of death, the second giving statistics of infectious diseases (cases and deaths) and vaccinations, and the third giving statistics of health personnel and hospital establishments.

The presentation of morbidity data in the World Health Statistics Annual (Volume II) has been changed to meet the needs of workers in this field and to facilitate the storing and retrieval of the information by computer.

National morbidity and mortality statistics over a number of years are being stored in the computer, so that the information is available when required from the data bank thus being compiled.

Volume III of the World Health Statistics Annual included for the first time charts showing the percentage distribution of population, health personnel and hospital beds in urban areas and in the rest of the country. These charts bring out the relationship between proportions of population and health facilities in each type of area for the sixty-one countries concerned. Since the beginning of 1968, the most recent data on health personnel and hospital establishments have been published in the monthly World Health Statistics Report, thus making this information available more rapidly than before.
Statistical Analysis of Research and Technical Programmes

Statistical methods are an essential factor in the planning and execution of many of the Organization's activities and in related data analysis. For instance, statistics have been used extensively in WHO surveys on trachoma in China (Taiwan), yaws in Nigeria, endemic treponematosis and anthropometric aspects of nutrition in Yugoslavia, leprosy in Colombia and India, smallpox vaccination scars in East Pakistan, and dental health in Brazil, Czechoslovakia, Hong Kong, and the United Kingdom. Similarly, statistics were an important element in the studies on atherosclerosis in three European countries, on the epidemiology of schizophrenia in ten countries, and on fertility in Senegal. A statistical analysis was made of data from field trials and laboratory experiments, including preliminary data of a trial in Burma to determine the value of BCG vaccine in the prevention of leprosy (see page 27); data from therapeutic trials on trachoma in Morocco, Syria, and Thailand; results obtained from international collaborative assays of immunoglobulins, oxytetracycline, and colistin; and data from tuberculin testing and post-mortem examination of cattle.

Computerized data files were developed for the production of periodic reports. Besides the data bank on national health statistics mentioned above, reports on virus isolations made at about forty collaborating laboratories in many countries and data on susceptibility of insect vectors to insecticides tested in various parts of the world were stored in a computer. These files not only permit statistical reports to be prepared for offset reproduction, but also make it possible for information required for ad hoc studies to be retrieved at any moment at low cost.

Similarly, data banks were being developed in connexion with international quarantine reports on smallpox incidence, and in relation to the salmonella surveillance programme from information on isolations collected by reporting institutions and national reference centres, as well as epidemiological and serological statistics obtained from WHO serum reference banks.

By making possible calculations that could not be undertaken by other methods, the computer has greatly extended the scope of the technical assistance that the Organization can provide. One example is the calculation of the actual intake of food additives on the basis of data on the consumption of food items in individual countries and on national and international tolerance standards for food additives (see also page 48). A comparison of the results of such computations with the permissible limit indicates to what extent standards in force or in preparation are suitable. Other examples of similar use of the computer were the development of a mathematical model to describe the dynamics of the transmission of typhoid fever, thus making it possible to analyse the effects of mass vaccination programmes on the incidence of the disease, and the creation of a linear programming decision model in order to determine the optimum utilization of medical and financial resources in tuberculosis control, and to solve problems of optimization in connexion with the size of control groups for BCG vaccination trials (see also page 25).

Participation in the United Nations Statistical Programme

WHO participated in the second meeting of the Subcommittee on Statistical Activities of the Administrative Committee on Co-ordination and in the fifteenth session of the Statistical Commission which were held in New York in February and March. The Commission reviewed the question of developing a five-year programme of international statistics, the co-ordination of world standards and of statistical questionnaires, a progress report on improvement in demographic statistics, and statistics of research and development.
CHAPTER 9

EDUCATION AND TRAINING

The shortage of trained personnel is one of the greatest obstacles to the development of health services, and consequently the provision of training is an essential element of WHO's assistance to governments in all fields of its programme. Examples of in-service and other training activities occur throughout the Report under the various subject headings; and the seminars and courses shown in the project list in Part III give an indication of the range of the subjects covered. The present chapter is concerned primarily with the development of undergraduate and postgraduate education in medicine and public health, with assistance to governments in strengthening their facilities for medical education, and with measures, such as the provision of fellowships, training grants and internationally recruited professors and teaching staff, for making training in medicine and health subjects more readily available to those living in areas where local facilities are inadequate.

A programme review was completed of the assistance provided to the developing countries in the field of education and training over the period 1948 to 1968. The review, started in 1967, covered both the experience gained in surveys of medical education undertaken by WHO with a view to the possible establishment of medical schools, and the technical assistance provided to medical schools, public health schools and similar educational institutions. The problems, achievements and needs were examined in the light of the policies and principles established by the World Health Assembly and the Executive Board and the technical recommendations of the Expert Committees on the Professional and Technical Education of Medical and Auxiliary Personnel. The findings of this review were assessed by a special group of advisers who made recommendations to the Director-General concerning the future development of the Organization's education and training programme.

Towards the end of 1968 a start was made on a new programme, on research in education. The provision of staff for the teaching of medicine, public health, nursing and allied subjects, and as instructors for auxiliary staff, was again an important part of the Organization’s assistance to the developing countries, where serious problems persist because of the lack of teaching staff. The tables below show the numbers of full-time professors, lecturers and other teaching staff so assigned during 1968 in the various subjects, and the countries in which they worked. The figures show an increase over those of the preceding year: 224 teaching staff in 57 countries, compared with 207 in 51 countries in 1967.

1. For training professional personnel (by subject)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic medical sciences</td>
<td>25</td>
</tr>
<tr>
<td>Paediatrics, maternal and child health</td>
<td>3</td>
</tr>
<tr>
<td>Clinical and related fields</td>
<td>35</td>
</tr>
<tr>
<td>Public health and preventive medicine (including hospital administration and statistics)</td>
<td>32</td>
</tr>
<tr>
<td>Nursing</td>
<td>86</td>
</tr>
<tr>
<td>Environmental health</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>189</strong></td>
</tr>
</tbody>
</table>

2. Countries to which assigned

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Months Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>3</td>
</tr>
<tr>
<td>Argentina</td>
<td>1</td>
</tr>
<tr>
<td>Bolivia</td>
<td>1</td>
</tr>
<tr>
<td>Brazil</td>
<td>7</td>
</tr>
<tr>
<td>Burma</td>
<td>3</td>
</tr>
<tr>
<td>Cambodia</td>
<td>1</td>
</tr>
<tr>
<td>Cameroon</td>
<td>1</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>1</td>
</tr>
<tr>
<td>Chad</td>
<td>2</td>
</tr>
<tr>
<td>Chile</td>
<td>6</td>
</tr>
<tr>
<td>China (Taiwan)</td>
<td>1</td>
</tr>
<tr>
<td>Colombia</td>
<td>2</td>
</tr>
<tr>
<td>Congo (Brazzaville)</td>
<td>2</td>
</tr>
<tr>
<td>Congo, Democratic Republic of</td>
<td>16</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>3</td>
</tr>
<tr>
<td>Fiji</td>
<td>3</td>
</tr>
<tr>
<td>Gabon</td>
<td>1</td>
</tr>
<tr>
<td>Ghana</td>
<td>5</td>
</tr>
<tr>
<td>Guatemala</td>
<td>3</td>
</tr>
<tr>
<td>India</td>
<td>21</td>
</tr>
<tr>
<td>Indonesia</td>
<td>4</td>
</tr>
<tr>
<td>Iran</td>
<td>9</td>
</tr>
<tr>
<td>Iraq</td>
<td>8</td>
</tr>
<tr>
<td>Israel</td>
<td>3</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1</td>
</tr>
<tr>
<td>Jordan</td>
<td>3</td>
</tr>
<tr>
<td>Kenya</td>
<td>3</td>
</tr>
<tr>
<td>Laos</td>
<td>2</td>
</tr>
<tr>
<td>Libya</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>224</strong></td>
</tr>
</tbody>
</table>

1 Some instructors were engaged in the training of both professional and auxiliary personnel.
A reason for the continuing shortage of teachers of medical and allied subjects must be sought in the insufficient inducement offered in many countries by teaching careers, especially in the basic medical sciences. Moreover the expansion of medical education facilities in many developed countries absorbs a number of teachers who might otherwise be available for service outside their home countries. The consequent lack of suitable candidates also partly explains the relatively few fellowships awarded for training in medical teaching (see Annex 11).

The Organization has consistently encouraged the training of teachers in the area or region in which they are to work and is promoting a system under which outstanding departments of medical schools may be selected for teacher training and given assistance for that purpose.

Fellowships, and Grants for Research Training and Exchange

From the beginning of the Organization’s fellowships programme in 1947 until the end of 1967 approximately 26,500 fellowships were awarded. Since 1961, grants have also been awarded for research training and the exchange of research workers.

During the period under review WHO provided assistance to enable 4255 individuals to study abroad. The Organization awarded 3154 fellowships for study (including 324 for undergraduate studies), as compared with 2634 for the twelve months ending 30 November 1967, and also 1020 fellowships for participation in meetings or other educational activities organized by WHO, 42 training grants and 39 grants for the exchange of research workers. Further information on fellowships awarded as part of assistance to projects in individual countries will be found in the project list (Part III). Annexes 11 and 12 show the number of fellowships awarded, by subject and by region, and the number of grants for training and exchange of research workers, by subject and type of grant.

Education in Medicine and Allied Subjects

Visiting professors were provided to medical schools in Afghanistan, Burma, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iran, Israel, Malaysia, Nigeria, Syria, the United Republic of Tanzania, and Zambia to strengthen the teaching of basic medical sciences with emphasis on laboratory work. In addition, the medical faculties received technical advice on such matters as evaluation techniques, teaching methods and curricula planning. Similar assistance in preventive medicine and public health was given to Ethiopia, India, Israel, Kenya, Malaysia, Rwanda and Tunisia for undergraduate training; to Burma, Canada, Iran, Iraq, Pakistan and the Republic of Korea for postgraduate teaching; and also to a number of countries, including Laos, Libya, Nepal, Somalia and Yemen, for the training of auxiliaries.

In Canada WHO co-operated with the School of Hygiene, Montreal, in strengthening the teaching of biostatistics and epidemiology so that WHO fellows from other regions might be trained at the school; a full-time professor of biostatistics was provided, on a reimbursable basis, and a member of the teaching staff received a fellowship for additional training in epidemiology.

The shortage of medical manpower and the desirability of facilitating the free movement of doctors wishing to work as physicians outside their home countries, as well as the awareness in many countries of the limitations and difficulties connected with the problems of regional or international equivalence of medical degrees, led the Twenty-first World Health Assembly to request further studies in this field. Discussions with advisers were held in Geneva on the two sides of the problem of equivalence of medical degrees: the national, legal aspects of the right to practise medicine on the one hand, and the academic achievements, with possible regional or inter-regional comparability of the professional capacity of a doctor, on the other. WHO also participated in a meeting of experts, organized by UNESCO in Moscow, on international comparability and equivalence of matriculation certificates and higher education diplomas and degrees.

With continuing developments in the sciences of teaching and learning, it is necessary that modern techniques and the best methods of using the many teaching aids now being produced should be widely known and adapted for education in medicine and allied subjects. An inter-regional seminar on current trends in medical education, teaching methods and teaching aids was held at the Faculty of Medicine, Hacettepe University, at Ankara, for deans and other representatives of medical schools from developing countries. The Organization took part in a conference convened by UNESCO and the International Association of Universities in Paris on teaching and learning methods at the university level.

Technical advice was provided on the establishment of new schools of medicine in Cameroon, Ghana, Kuwait, Libya and Nigeria. A plan of more than ordinary interest is that of a university centre of health sciences in Cameroon for which assistance has been requested from the Special Fund component of the United Nations Development Programme. The intention is to bring together under one authority and in one centre, under bilingual conditions, the education
and training of all levels of health personnel, and to co-ordinate their programmes where it is feasible to do so. The usual system of training categories of health personnel separately is a source of weakness in their operational work and the projected university centre of health sciences, by carefully planned curricula and exercises, should go a long way towards strengthening the essential team approach in eventual practice. Training at the centre is to be related primarily to the solution of the health problems of the country and will entail close co-operation between the national education and health authorities, an aspect which does not always receive the attention it deserves. The preparatory work for this project has included visits to Cameroon.

During a visit to the Democratic Republic of the Congo a WHO team gave advice on the reorganization of the Medical Training Institute in Kinshasa, for training paramedical and auxiliary health personnel.

Information on the programme for the development of medical education in the Region of the Americas will be found on page 99.

A travelling seminar on the organization of refresher courses for medical staff was organized in the USSR to enable senior medical administrators from the developing countries to acquaint themselves with the system of continuing education for physicians and other health personnel in that country.

The first edition of the *World Directory of Schools of Public Health* and the second edition of the *World Directory of Veterinary Schools* were published. The third (1963) edition of the *World Directory of Medical Schools* is being kept up to date by supplementary lists with data on new medical schools as these are established.

A review was published of current examination systems in use in medical schools in different areas and of new developments in examination theory and practice. New techniques of student evaluation are being increasingly accepted as a better means of stimulating learning, grading students, and permitting reliable comparisons to be made of the attainments of students in different medical schools at national and also international level.

For staff training, see page 80.

Co-operation with other International Organizations

WHO's work in education and training again entailed frequent contact with other organizations, particularly with UNESCO. For example WHO contributed to the International Conference on Educational Planning, organized by UNESCO, and in addition was represented at a meeting of directors of UNESCO-sponsored European post-graduate courses, held in Prague.

Papers on the development and utilization of human resources in developing countries were prepared for the Working Group on Human Resources set up by the Economic and Social Council.

CHAPTER 10

RESEARCH

Medical Research Programme

The various activities in the Organization's medical research programme are described under the relevant headings in the other chapters of this report. This section summarizes some aspects of the research programme as a whole.

The tenth session of the Advisory Committee on Medical Research was held in Geneva in June 1968. The research programmes in epidemiology and communications science, and in malaria (with particular reference to the reports of the scientific groups on the chemotherapy of malaria) were reviewed in detail. The Committee considered the priorities in malaria research as established by the Organization to be acceptable, but felt that more attention might be paid to the training of research workers. It expressed general appreciation of the proposed programme of research in epidemiology and communications science, and made suggestions regarding specific fields of research, such as the epidemiology of cancer, the causes of accidents, the epidemiology of new diseases, and the ecological, social and medical consequences of the creation of artificial lakes.

The Committee also examined the reports of nine scientific groups; on the use of hormonal steroids for contraception; the physiological and clinical aspects of intra-uterine devices; genetics of the immune response; research on human population genetics; arboviruses and human disease; respiratory viruses; neurophysiological and behavioural research in psychiatry; the cytog enetics of vectors of disease of man; and principles for the clinical evaluation of drugs.

The Organization continued to collect information on current research, with particular emphasis on cancer, cardiovascular diseases, dental health, human reproduction and veterinary public health. A comprehensive study of biomedical research in twelve selected countries was completed in 1968; the information is supplied, on request, to interested organizations, institutions and persons.

Developments in Epidemiology and Communications Science

Five major areas of research in this programme have been defined: the organization and strategy of health services; the epidemiology of high-risk groups; the health effects of urbanization; the epidemiology of disappearing diseases; and mathematical studies on

With assistance from UNESCO and WHO, the Council for International Organizations of Medical Sciences (CIOMS) organized a symposium on the integration of biomedical research policy into the overall planning of sciences and technology, and two round table conferences—on heart transplantation and on the evaluation of drugs. CIOMS decided to establish a committee on the international nomenclature of disease with the aim of standardizing the nomenclature in close collaboration with WHO.

The work of the WHO reference centres in the various fields of WHO's programme is mentioned under the relevant sections of this report, and the centres are listed in Annex 14. During 1968 twelve international reference centres and eight regional reference centres were designated, bringing the total number of WHO reference centres to 167. Similarly reference is made in the various sections of this report to the collaborative research projects in operation in 1968; of the total of 686, 135 were initiated during the year (see Annex 13).

Ten scientific groups were convened during the year, on the following subjects: cholera immunology; the parasitology of malaria; cell-mediated immune responses; genetic factors in congenital malformations; developments in fertility control; field studies of human reproduction; the biochemistry of mental disorders; principles for the testing and evaluation of drugs for carcinogenicity; research in health education; and the optimal level of physical performance capacity for adults. Further details of the meetings are given in the relevant sections of this report.

The theory of disease processes. These are intimately connected with the Organization's existing and proposed programmes. By using existing data from within and outside the Organization, by presenting field projects as studies on an inter-programme basis, and by combining studies so that they have more than one objective, the definition of a research programme covering most of these questions is being developed.

A major study, regarding the organization of health services, was designed during the year. It consists of three parts, relating to different levels of the planning process. The first part, concerning the structure and distribution of health services at the village and district level, was started in 1968 within the context of a medical care project in Tunisia. The second part concerns the type of national data required on both needs and resources for the national planning process, and the method of collection. Preparations were made during the year for work on this aspect to begin in 1969 in conjunction with the Iranian national health survey. With regard to the third part, relating to the ways of using collected data in the formulation of a health plan, consideration was given to plans for such a project at the province level in Colombia, in co-operation with the Ministry of Public Health and the Association of Colombian Medical Schools. In all three parts, research being carried out by the countries concerned is taken into account. These studies are particularly oriented towards decision-making in providing health services according to existing patterns.

A second major study concerned the designing of services of different patterns and the development of new strategies. For this study, preliminary pilot investigations on the epidemiology of high-risk groups in one area of Iran were planned during the year. They are due to start in 1969, so that results will be available in later years for incorporation into concepts on the organization and strategy of health services. Several group consultations were held in 1968 to discuss the selection and use of suitable markers for the study.

The first Epidemiological Research Centre was established in Teheran, at the University Institute of Public Health Research.

The third major study in 1968, in the field of malaria, combines some of the overall objectives in the work on the epidemiology of disappearing diseases and in the mathematical studies on the theory of disease processes. The study, which is co-ordinated with the Organization's malaria eradication, immunology and vector control programmes, is based on a description—in epidemiological, immunological and mathematical terms—of the patterns of prevalence, distribution and transmission of malaria in populations living in a savanna area in Nigeria. Following a preliminary survey of suitable areas in Nigeria, a team of WHO advisers, consisting of immunologists, an epidemiologist, a sociologist, and a malariologist, visited these areas to make the final selection. Alternative simulated models of control methods are under study with a view to selecting the one that is compatible with operational feasibilities and offers the greatest probabilities of achieving interruption of malaria transmission under existing conditions and in a given period. This control method is to be tested in the population, and subsequent clinical, parasitological and immunological changes in the population are to be followed.

The immunological aspects of the study are being undertaken in collaboration with the WHO Immunology Research and Training Centre in Ibadan, Nigeria, and the International Reference Centre for Immunoglobulins, in Lausanne, Switzerland.

Other work in 1968 included a comparative study of the methodology of three trials on the protective value of BCG against leprosy, in Burma, New Guinea and Uganda. The first of these trials is being carried out by WHO (see also page 27). Differences in the preliminary results seemed unlikely to be due to methodological causes.

In conjunction with the Organization's programmes on bacterial and cardiovascular diseases, studies were developed on the methodology of investigations of the streptococcal diseases complex in tropical populations.

The work and proposals for research in epidemiology and communications science were discussed by several experts in various related fields during consultations in Geneva in August.
CHAPTER 11

CO-OPERATION WITH OTHER ORGANIZATIONS

In 1968, several United Nations bodies continued their study of co-ordination and co-operation in programme matters among the organizations of the United Nations system. The general review of co-ordination of the programme and activities in the economic, social, technical co-operation and related fields of the United Nations system was continued by the Enlarged Committee for Programme and Co-ordination, and the Commission for Social Development designated special rapporteurs to review technical co-operation programmes in the social field.

Within WHO, the Executive Board continued its review of its organizational study on co-ordination with the United Nations and the specialized agencies.

The trend towards long-term planning of assistance to developing countries in support of the programmes of each country gained momentum. Through ACC, WHO was associated with the work of the United Nations Committee for Development Planning in the preparation of an overall strategy for the Second Development Decade; the Organization is to contribute a plan for health based on the programme of work for a specific period and on action taken in pursuance of the decision of the Twenty-first World Health Assembly regarding long-term planning in the field of health. It also submitted contributions on the health aspects of the World Plan of Action to the Advisory Committee on the Application of Science and Technology to Development which is drafting the plan.

An agreement on policy issues regarding the future evolution of community development programmes clarified the basis for co-operation among the various organizations concerned. The regional community development training centres—ASFEC, in the United Arab Republic, for the Arab States, and CREFAI, in Mexico, for the Latin American countries—were transformed into centres for training in functional literacy in the rural areas, and thus withdrawn from the United Nations programme of rural and community development and placed under the UNESCO functional literacy programme, in which WHO is co-operating.

Progress was made in 1968 toward extending inter-agency collaboration with respect to the administration of water resources development programmes and the exchange of information concerning future plans and projects in this field. Similar arrangements were made regarding programmes of housing, building, and planning.

In response to resolutions of the Economic and Social Council and its subsidiaries, WHO took part in consultations through ACC and in the preparation of reports to the Council concerning, particularly, work on population, statistics, and the development of human resources.

Co-operative work in environmental pollution included the preparation, at the request of the Economic and Social Council, of a report on environmental pollution and co-ordination in that field (see page 58).

WHO took part in the International Conference on Human Rights, in Teheran, which was the culminating event of the International Year for Human Rights.

United Nations Development Programme

At its January 1968 session, held in New York, the Governing Council of the United Nations Development Programme approved three further Special Fund projects for which WHO was designated executing agency. One of these projects—for the preparation of a master plan for sewerage and sewage disposal for the metropolitan area of Taipei—is a further example of the pre-investment type of sanitation project customarily entrusted to WHO. The other two, however, give evidence of the broadening of the type of projects in the health field receiving support from the Special Fund component of the United Nations Development Programme: the project for the establishment of a Central Institute of Public Health in Sofia (to strengthen the organization of the central and peripheral health services in Bulgaria on a national basis), and the Pan American programme for health planning (to develop the methodology and practice of national health planning in the fourteen countries which have supported the project: see

---

1 For co-ordination on administrative, budgetary and financial matters, see page 81.
At its June session, held in Vienna, the Governing Council approved two further projects for which WHO was designated executing agency—the community water supply and sewerage project for the south-west coastal area of Ceylon (see page 111), and the continuation of the study on water supply for Morocco. These brought the number of Special Fund projects being executed by WHO to twenty-four—out of a total of 925 projects approved by the Governing Council. The funds allocated to WHO-assisted projects amount to US $23,000,000, or 2.5 cent. of the total Special Fund allocations.

Operations were started on the Special Fund project in Senegal for the establishment of a master plan for water supply and sewerage for Dakar and surrounding areas. Ten further projects were prepared during the year, and most of them were submitted to UNDP for appraisal. Requests in the fields of water supply, sewerage and environmental pollution were received from the Central African Republic, Ghana, Honduras, Ivory Coast, Mali, Nepal and Surinam, and in the general health field from Mexico (to develop the production of biological substances) and Venezuela (for the establishment of a centre for hospital maintenance and engineering). WHO assisted the Government of Cameroon in preparing a request regarding a university centre for health sciences, in Yaoundé (see page 68); this project—the first request for Special Fund assistance for the education of medical and other health personnel—was considered by the Inter-Agency Consultative Board in October. WHO also helped the Democratic Republic of the Congo in the preparation of a request for Special Fund assistance in connexion with the medical training institute.

As in the past, WHO participated, in some cases with other agencies, in a number of preparatory assistance missions organized by UNDP for the re-evaluation and re-formulation of requests. The Organization played an increasingly important part in studying the possible health implications of requests for assistance from the Special Fund, and advising UNDP of measures to be taken within the context of the project to safeguard and promote the health of the population affected. In a number of cases this has resulted in WHO participation in schemes being executed by other agencies. By the middle of the year, agreements reached with FAO and the United Nations provided for the transfer to WHO of some three hundred man-months to cover the assignment of health specialists in thirty-five projects for which those organizations have executive responsibility. Among the most important of these are the institutional support project to the Mekong Committee, the man-made lake projects in Africa (Lake Volta in Ghana, Lake Kainji in Nigeria and Lake Nasser in the United Arab Republic) and the river basin development projects such as that being implemented in the Senegal river basin.

The final report on the Central Public Health Engineering Research Institute at Nagpur, India, was published (see page 59). The final reports on the first and second phases of the survey of water supply resources of Greater Calcutta, India, and on the first phase of the master plan for the water supply and sewerage project in Ghana were in preparation at the end of the year.

WHO was closely associated with the UNDP study of the capacity of the agencies and of UNDP to meet the needs of developing countries for pre-investment and technical assistance in coming years. A commissioner was appointed to direct this study, and a draft of the report was discussed by the Inter-Agency Consultative Board at its October session in preparation for submission to the Governing Council.

In the Technical Assistance component of UNDP, WHO proceeded with the implementation of the second year of the 1967-1968 Technical Assistance biennium, and projects continuing from 1968 into 1969 were programmed in accordance with the new procedures.

Projects financed under the Special Fund and Technical Assistance components of the United Nations Development Programme are shown in the list in Part III of the Report.

United Nations Children's Fund

At its June 1968 session in New York, the Executive Board of the United Nations Children's Fund approved programme allocations for a total of over US $36,000,000, of which 48.1 per cent. was for projects in the field of health. Altogether, allocations were approved for over 220 projects, including twenty new ones. Seventy-one of the recommendations approved were for health service projects, and thirty-one for assistance in disease control activities.

In reviewing UNICEF aid for the various disease control programmes, the Board recognized that the ultimate objective was to integrate the specialized campaigns into the work of the basic health services. It was emphasized that maternal and child health services should retain a significant place in the basic health services and should reach the population of rural areas; the need for more assistance in child nutrition was particularly stressed. The Board also discussed at length the question of UNICEF assistance in emergencies.
During the year WHO co-operated with UNICEF in the assessment of jointly assisted environmental sanitation activities (see page 57). Projects carried out with assistance from UNICEF are shown in the list in Part III of the Report.

United Nations Relief and Works Agency for Palestine Refugees in the Near East

Under the existing agreement WHO continued to support UNRWA's health programme by providing the Director of Health Services, a medical officer and a nurse. This support was strengthened from October 1968 by provision of the services of a sanitary engineer. The Agency's programme includes provision of a comprehensive health service; due stress was laid on preventive measures and the promotion of health—in particular on the control of communicable diseases (no case of quarantinable disease was recorded), maternal and child health supervision, nutrition among the vulnerable groups, and environmental sanitation facilities in UNRWA camps.

In spite of the strain and difficulties following the June 1967 hostilities and subsequent events in 1968 which repeatedly dislocated refugee life, health services in the disturbed areas were maintained at a reasonably satisfactory level, and no undue incidence of disease or change in its pattern was reported. WHO studied the health and nutrition status of the mothers and children among the newly displaced refugees in Jordan and Syria.

World Food Programme

All World Food Programme projects are now regularly investigated for their public health aspects; 142 were scrutinized in this way during 1968.

The Organization made a study of the possibilities offered by the World Food Programme, with a view to the development of a closer relationship between the Programme and WHO.

A number of WHO-assisted projects received support from the World Food Programme, among them the malaria eradication project in Turkey (see page 4), and trypanosomiasis control in Botswana (see page 89).

Non-governmental Organizations

With a view to ensuring close co-operation between WHO and the non-governmental organizations, the Executive Board, at its forty-first session, recommended that the list of non-governmental organizations in official relations with WHO should be reviewed every three years, instead of every four, and a decision to that effect was taken by the Twenty-first World Health Assembly.

At the same session—in January 1968—the Board admitted into official relations the International Council on Alcohol and Alcoholism (now the International Council on Alcohol and Addictions), the International Society of Orthopaedic Surgery and Traumatology, the International Union of School and University Health and Medicine, and the Transplantation Society. This brought the total number of organizations in official relations with WHO to seventy-five (see Annex 6).

Reference to collaboration with non-governmental organizations is to be found under the relevant subject headings in the various chapters of this report.

SUMMARY OF CO-OPERATION WITH OTHER ORGANIZATIONS

The following is an illustrative list of the main subjects of collaboration during the year between WHO and other organizations, apart from the co-operation mentioned above (with UNDP, UNICEF, UNRWA, the World Food Programme and non-governmental organizations).

United Nations and Related Agencies

United Nations

Economic development, public health aspects: co-operation with the regional economic commissions; with the regional development institutes in Africa, Asia and Latin America; with the United Nations Institute for Training and Research; and with the United Nations Research Institute for Social Development.

Community development: see page 51; continued participation in jointly assisted programmes in the Andean region of Latin America.

Environmental health: co-operation through participation in the work of the ACC Sub-Committee on Water Resources Development, and the ACC Working Group on Housing and Urbanization (see page 62); preparation of a report on environmental pollution for the Economic and Social Council (see page 58). Co-operation on the environmental health aspects of programmes of regional economic
CO-OPERATION WITH OTHER ORGANIZATIONS

commissions: WHO sanitary engineers stationed at the headquarters of the Economic Commission for Africa (see page 62) and the Economic Commission for Latin America; participation in meetings on air pollution organized by the Economic Commission for Europe.

Public health aspects of the Lower Mekong Basin project (see page 126).

Statistics: see page 66.

Dependence-producing drugs: advice on drugs subject to international control, and drug abuse (see page 47).

Population (family planning): see page 45.


Road traffic safety: preparation of revised version of guiding principles on medical examination of applicants for driving permits, for submission to the Economic Commission for Europe (see page 40).

Participation in the Conference on the Exploration and Peaceful Uses of Outer Space (see page 41), and in the work of the United Nations Scientific Committee on the Effects of Atomic Radiation (see page 39).

International Year for Human Rights—participation in International Conference on Human Rights.

Office of the High Commissioner for Refugees

Health services for refugees: liaison maintained with the Office.

International Labour Organisation

Occupational health (see page 40): Joint ILO/WHO Committee on Occupational Health; rehabilitation; social security (see page 51); rural and community development; participation in the Technical Meeting on Nomadism in the Sahelian Region of Africa (see page 51).

Food and Agriculture Organization


Food safety: food standards and the Codex Alimentarius, food hygiene and food additives, including the Joint FAO/WHO Expert Committee on Food Additives (see page 48).

Health hazards of pesticides (see page 20), and evaluation of pesticide residues in food (see page 48).

Communicable diseases, including trypanosomiasis (see pages 16 and 86) and diseases spread by irrigation and land reclamation schemes.

Veterinary public health, including zoonoses (see page 30).

United Nations Educational, Scientific and Cultural Organization

Education (see pages 68 and 69), including participation in a meeting of experts on international comparability and equivalence of diplomas and degrees; a conference on teaching and learning methods at the university level; a conference on educational planning; and a meeting of directors of UNESCO-sponsored European post-graduate courses.

Health education in schools: see pages 54 and 55.

Co-operation on scientific matters of mutual interest.

Environmental health: participation in the Intergovernmental Conference of Experts on the Scientific Basis for the Rational Use and Conservation of the Resources of the Biosphere (see page 58), and training of sanitary engineers (see page 61).

World Meteorological Organization

Atmospheric pollution and atmospheric chemistry, including joint sponsorship of a symposium on urban climates and building climatology (see page 60).

Inter-Governmental Maritime Consultative Organization

Contamination of foodstuffs during shipment (see page 22).

International Atomic Energy Agency

Medical uses of radioisotopes; radiation health (see pages 35 and 39).

Other Intergovernmental Organizations

Council of Europe: participation in meetings organized by the Council, in particular on environmental pollution—including a European symposium on the influence of air pollution on plants and animals.

Inter-American Development Bank: joint assistance to projects for community water supply and sewage disposal systems.

Organization for Co-ordination and Co-operation in the Control of Major Endemic Diseases (OCCGE): joint AID/OCCGE/WHO technical meeting on the feasibility of onchocerciasis control (see page 15).
Organization of African Unity: participation in the joint FAO/WHO/OAU(STRC)\(^1\) Regional Food and Nutrition Commission, for which WHO provides the secretariat.

\(^1\) STRC — Scientific, Technical and Research Commission of the Organization of African Unity.

South Pacific Commission: joint WHO/South Pacific Commission seminar on filariasis (see pages 15 and 125); maternal and child health advisory services in the South Pacific area (see page 129); participation in a seminar on housing sanitation.
CHAPTER 12

PUBLIC INFORMATION

The Organization's twentieth anniversary, which was celebrated throughout 1968, attracted much attention through public information media all over the world, as did the subject of World Health Day — "Health in the World of Tomorrow". Many Member States organized ceremonies and information activities to mark the occasion, and postal administrations issued commemorative stamps (see page 82). Articles and photographs distributed by WHO on health in the world of tomorrow and appearing in a special issue of the WHO magazine *World Health* were widely reproduced in periodicals and the daily press.

A Russian author received WHO assistance for a book, published in Moscow in 1968, on countries in the Eastern Mediterranean Region giving a personal and popular account of people, places and international health work. WHO also assisted an author from the United States of America in writing an educational book for young people on the subject of communicable diseases with special reference to WHO. A book by a French author and one by a Polish author were in production at the end of the year. *La Documentation française*, a French Government service, devoted a thirty-six-page document in one of its series to WHO's twenty years, and the health education committee of the Federal Republic of Germany published, in book form, a series of articles on health in the world of tomorrow written by specialists. To mark the twentieth anniversary, a number of publications were brought out by regional offices, and articles appeared in publications of other agencies in the United Nations system, including the *ILO Panorama* and *UNESCO Courier*.

Posters for the twentieth anniversary were published and distributed by the Regional Offices for the Americas and for Europe, by the US Information Service in Manila, as well as by government authorities in a number of countries including the Federal Republic of Germany, Ghana, Liberia and Nigeria. A travelling exhibition consisting of captioned photographs mounted on light metal frames and dealing with some of the main activities of WHO was produced in English, French and Russian, in twenty-five copies, and distributed to twenty-two Member States.

Special recordings for the anniversary, including the Director-General's message for World Health Day, were produced in English, French, Portuguese, Russian and Spanish. A total of some eight hundred copies of these recordings were distributed on request to broadcasting stations in all regions. Excerpts of the anniversary celebration at the Assembly (see page 82) were broadcast by several stations in Europe and a condensed recorded version of the ceremony was supplied to Regional Offices.

Television stations were offered two films for programmes relating to the twentieth anniversary: "Man Alive", a film on WHO made by the United Nations, and the other a short cartoon film illustrating the aims of WHO and made in Prague especially for the twentieth anniversary, entitled "The Fight Continues". Some eighteen stations showed one or both of the films offered.

A fifty-minute colour film entitled "Mankind Tomorrow" was made jointly by the Swedish Broadcasting Corporation and WHO on the theme of World Health Day. It was shown by at least ten television stations in Europe and also in Australia and India. The French Radio and Television Office produced four films on international health work in Burma, Congo (Brazzaville), Guatemala and Turkey which were shown in a French current affairs programme and, in part, in television programmes in Lebanon and Switzerland. A programme on the history and work of WHO, and the use of computers in medicine, was produced by German television and broadcast to celebrate World Health Day. The television service for French-speaking Switzerland showed a twenty-five minute film on WHO for young people, based on the visit to the Organization of three pupils from a Geneva primary school.

Two films made by industrial firms were shown to delegates during the Twenty-first World Health Assembly: the first "The Threat in the Water", a colour film on the subject of schistosomiasis, was made with WHO collaboration; the other, also in colour, deals with pharmaceutical production and research past and present. A third film, on the condition of modern man, being made by a Swiss producer-director with support from WHO and the Swiss Federal Government, was still in production at the end of the year.

Two WHO films won prizes in film festivals during the year. "Smallpox — Merciless Traveller" received
the first prize in the cartoons category at the Second International Festival of Films on Prevention held in Lisbon in April, and "False Friends", a colour cartoon on drug-taking, was awarded a gold medal at the annual festival of the British Industrial and Scientific Film Association, in June. The WHO film on alcohol "To your Health" was brought out in Greenlandic and Italian during the year with some assistance from WHO. This brings the number of language versions of this film to eleven.

"Health, Labour and Productivity" was selected as the theme for World Health Day in 1969, the year in which ILO celebrates its fiftieth anniversary. The theme for 1970, announced a year earlier than hitherto, to meet requests for more time for preparation, will be "The Prevention and Early Detection of Cancer".

During the year, ten issues of the WHO magazine World Health were published in English, French, Portuguese, Russian and Spanish. The German Green Cross continued to publish an edition in German. Circulation increased to about 160 000 copies per issue (all languages) and the proportion of paid copies to about one quarter.

The January-February issue of World Health contained an article on smallpox and 15 000 additional copies of this issue were printed for distribution to field workers in the smallpox eradication campaign. An additional 14 000 copies of the December issue devoted to the Americas were printed for distribution in that region. Other regional issues published during the year concerned Europe and Africa. The October issue was devoted to the Universal Declaration of Human Rights and to Universal Children's Day.

Three pamphlets were distributed with World Health during the year: the WHO film catalogue, a pamphlet on the work of the Organization in general and one on the Voluntary Fund for Health Promotion.

The year's photographic output at headquarters amounted to about forty-five thousand prints.

Photographic reportages were obtained, mainly by contracts with professional photographers, from thirty-four countries on a wide variety of health topics, including health in industry, medical practice in rural areas, mentally handicapped children, community water supply, radiation medicine and traffic accidents.

Including the radio material already mentioned, over 250 recordings were produced at headquarters in ten languages during the year. The total number of copies distributed was about 1400.

Larger amounts of more substantive material are being put at the disposal of journalists, and there is an increase in the number of requests for information and for authoritative statements from WHO on matters of current interest. Some 250 press releases were issued by the Organization as a whole in 1968 to cover major developments, as well as important meetings and publications. Themes that were the subject of WHO press releases or press conferences and received particular attention in the world press included: prevention of cancer, road accidents, suicide, the spread of rabies, increasing poliomyelitis frequency in warm countries, and Hong Kong influenza virus.

Talks on the work of the Organization and tours of the headquarters building were arranged for groups of visitors including fellows of the Carnegie Endowment for International Peace, interns from the International Institute of Educational Planning, and staff from the United Nations and the United Nations Institute for Training and Research.

Closer co-operation with the United Nations Development Programme in public information was developed during the year. In addition to participating in discussions at the Consultative Committee for Public Information, WHO acted as host to the informal meeting of editors of United Nations magazines which was held in Geneva in September.
CHAPTER 13

CONSTITUTIONAL, FINANCIAL AND ADMINISTRATIVE DEVELOPMENTS

Constitutional and Legal

Two new Members joined the World Health Organization in 1968 by depositing instruments of acceptance of the Constitution with the Secretary-General of the United Nations: the People's Republic of Southern Yemen on 6 May, and Mauritius on 9 December. Mauritius, which attained independence on 12 March 1968, had been an Associate Member since 1963. On 8 May 1968 the Twenty-first World Health Assembly admitted Bahrain to associate membership. Thus by the end of the year the Organization had 128 Members and three Associate Members. These are listed in Annex 1.

In 1967 the Twentieth World Health Assembly adopted a resolution amending Articles 24 and 25 of the Constitution in order to increase from twenty-four to thirty the number of Members entitled to designate a person to serve on the Executive Board. The amendments will come into force after acceptance by two-thirds of the Members in accordance with their respective constitutional processes, and in 1968 the number of such acceptances reached a total of thirty-two, through the deposit by the following twenty-one Member States (in the order listed) of instruments of acceptance: Kuwait, Nigeria, Zambia, Trinidad and Tobago, Norway, Belgium, Canada, Netherlands, United Kingdom of Great Britain and Northern Ireland, United Arab Republic, Laos, Mali, Brazil, Ghana, Yugoslavia, Niger, Czechoslovakia, Mexico, Sweden, Australia, and the Maldives Islands.

In 1968 the Philippines, Lebanon, Iraq and the Maldives Islands (in that order) deposited instruments of acceptance of the amendment to Article 7 of the Constitution adopted in 1965 by the Eighteenth World Health Assembly (in resolution WHA18.48). At the end of 1968 the total number of acceptances of that amendment was thirty-eight.

Five Members — Bulgaria (with reservations), Guinea, Mali, Malta and Niger — acceded to the Convention on the Privileges and Immunities of the Specialized Agencies together with its Annex VII, which relates specifically to the World Health Organization.

The Financial Position

Budget for 1968

The Twentieth World Health Assembly established, by resolution WHA20.17, an effective working budget for 1968 of US $56 123 000, i.e., $4 608 000 over the corresponding total of $51 515 000 for 1967.

The approved budget for 1968 was $59 865 580, the difference of $3 742 580 between the effective working budget and the approved budget being appropriated (resolution WHA20.33) as an undistributed reserve, equal to the assessments on China, South Africa, and the inactive Members (the Byelorussian SSR and the Ukrainian SSR).

The Twenty-first World Health Assembly concurred in the recommendation of the Executive Board that $108 000 be transferred from the Working Capital Fund to meet the increase in the general service salary scales in 1968. The full amount of $108 000 was repaid to the Working Capital Fund from 1968 budgetary savings.

The distribution of the approved budget among the appropriation sections is shown in Annex 7.

United Nations Development Programme

From the Technical Assistance component of the United Nations Development Programme the amount available to WHO for 1968, the second year of the 1967-1968 biennium, was $8 991 581, or 14.4 per cent. of the total funds for that component.

The sum included $1 301 901 for administrative and operational service costs. Contingency allocations in 1968 for WHO projects amounted to $171 842. The total amount allocated to WHO in 1968 was thus $9 163 423 as compared with the figure of $9 331 870 for 1967. An unobligated balance of $813 802 brought forward from 1967 resulted in a total amount of $9 977 225 available in 1968.
From the Special Fund component of the United Nations Development Programme, WHO was allocated an amount of $4,425,317 during 1968. This sum, together with an amount of $8,663,726 remaining undisbursed from previous years, resulted in a total of $13,089,043 available for disbursements.

**Voluntary Fund for Health Promotion**

Contributions in cash and in kind received in 1968 for the Voluntary Fund for Health Promotion amounted to $2,593,238, bringing the total value of contributions credited to the Fund from its inception to $33,469,699 as at 31 December 1968. These contributions related to the following sub-accounts:

<table>
<thead>
<tr>
<th>Sub-account</th>
<th>1.1.1968-31.12.1968</th>
<th>Total from inception</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Account for Undesignated Contributions</td>
<td>$675</td>
<td>$47,015</td>
</tr>
<tr>
<td>Malaria Eradication Special Account</td>
<td>$46,711</td>
<td>$20,956,116</td>
</tr>
<tr>
<td>Special Account for Smallpox Eradication</td>
<td>$313,233</td>
<td>$1,391,818</td>
</tr>
<tr>
<td>Special Account for Medical Research</td>
<td>$744,612</td>
<td>$7,192,538</td>
</tr>
<tr>
<td>Special Account for Community Water Supply</td>
<td></td>
<td>$1,020,566</td>
</tr>
<tr>
<td>Special Account for Assistance to the Democratic Republic of the Congo</td>
<td></td>
<td>$335,010</td>
</tr>
<tr>
<td>Special Account for Accelerated Assistance to Newly Independent and Emerging States</td>
<td>$213</td>
<td>$55,162</td>
</tr>
</tbody>
</table>

Collection of Contributions and Advances to the Working Capital Fund


Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training

The status of the Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training will be shown in the Financial Report.

Administration

Details of the numbers and the composition of the staff by nationality at 30 November 1968 are given in Annexes 8 and 9. The latter shows that on 30 November 1968 the number of Members whose nationals were employed by the Organization in posts subject to geographical distribution was ninety-two.

Staff briefing and training were continued on a systematic basis. Group training was organized once a month at headquarters for newly appointed professional staff both for the field and for headquarters. A second orientation course on the health aspects of population dynamics, including family planning, was held at headquarters, its purpose being to familiarize WHO country representatives with the new trends in this field. A fifth training course for senior technical officers in the regional offices and at headquarters took place in October 1968. Seventeen staff members were granted study leave to follow post-graduate studies in public health in the academic year 1967-1968, while short-term refresher study tours were granted to twelve staff members in 1968.

1 Off. Rec. Wild Hlth Org., 175.
Supply Services

During the period 1 October 1967 to 30 September 1968, supplies and equipment purchased amounted to 35,000 line items with a total value of $5,213,000, an increase of 52 per cent. over the corresponding period the previous year. This figure includes $1,176,000 for reimbursable purchases made for fourteen countries, and for the United Nations and specialized agencies, UNICEF, other governmental organizations, and non-governmental organizations in official relations with WHO. Of this total, $133,000 represents purchases made out of the Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training. Purchases from research grants awarded under assistance to research amounted to $275,000.

In connexion with the smallpox eradication programme, contracts were placed for the supply of twenty million bifurcated needles with provision for further purchases at the contract price of up to ten million additional needles within the ensuing twelve months. The needles are being supplied to countries participating in the worldwide programme for the eradication of smallpox.

Emergency Assistance to Member States

Vaccines were supplied to combat outbreaks of poliomyelitis in the Congo (Brazzaville) and the Democratic Republic of the Congo. TAB vaccine, triple vaccine against diphtheria, pertussis and tetanus, tetracycline, chloramphenicol and halazone tablets to a value of $30,000 were provided for relief of refugees in the Republic of Viet-Nam. Assistance in relation to floods in the Akyab area in Burma was provided through the supply of tetanus and gangrene antitoxins, bleaching powder and bandages. Two tons of DDT (10 per cent.) dusting powder were provided to assist in combating an outbreak of plague in Lesotho.

Emergency supplies provided from contributions in kind to the Voluntary Fund for Health Promotion included poliovirus vaccine to the Democratic Republic of the Congo and to Poland, smallpox vaccine to Southern Yemen and to Uganda, cholera vaccine to Afghanistan, Malaysia and Nepal.

Co-ordination in Administrative, Budgetary and Financial Matters within the United Nations System of Organizations

To secure greater co-ordination among the many organs in the United Nations system, new inter-agency bodies were created and the mandates of existing ones were expanded. As a result the time and effort which have to be devoted to co-ordination of administrative, financial and budgetary matters have been steadily increasing.

The United Nations General Assembly established, at its twentieth session (1965), an Ad Hoc Committee of Experts to examine the finances of the United Nations and the specialized agencies. The Committee in its second report dealt, inter alia, with the administrative and budgetary procedures, the financial consequences of the expansion of activities and the means of comparing and, if possible, standardizing the budgets of the specialized agencies. Out of the fifty-two individual recommendations formulated by the Ad Hoc Committee in its second report, fifteen were not directed to, or did not require action by, WHO, while many of the others were already in operation in the Organization. In 1968, inter-agency agreement was reached on a number of budgetary and financial terms and definitions. This was an important step towards the standardization of budgetary and financial matters, on which considerable emphasis was placed by the Ad Hoc Committee.

On 1 January 1968 the Secretary-General of the United Nations, after consultation with his colleagues in the Administrative Committee on Co-ordination, appointed the eight members of the Joint Inspection Unit established by the United Nations General Assembly on the recommendation of the Ad Hoc Committee. The inspectors, whose principal function is to assist in ensuring that the activities of the organizations of the United Nations system are pursued in the most economical way with the optimum use of available resources, frequently visited WHO headquarters to enquire about and discuss matters of interest to them. They also paid visits to some Regional Offices and offices of WHO area representatives and inspected field projects. A considerable amount of material and data was prepared by WHO for the inspectors. Comprehensive material was also prepared for two of the studies undertaken by the inspectors, namely the study on the problems of the overhead costs of extra-budgetary programmes and itemized operational accounting, and the study concerning the recruitment of experts.

Among other developments which called for increased attention were the expanded responsibilities of the International Civil Service Advisory Board and the Consultative Committee on Administrative Questions (a subsidiary body of the Administrative Committee on Co-ordination), and the arrangements for co-operation in the use of computers.

Twenty-second World Health Assembly

The Twenty-first World Health Assembly accepted the invitation of the Government of the United States...
of America to hold the Twenty-second World Health Assembly in the United States of America, subject to confirmation of the necessary undertakings by the United States Government. This confirmation was subsequently received. The Executive Board at its forty-second session, in May, decided that the Twenty-second World Health Assembly should be convened on Tuesday, 8 July 1969, in Boston, Massachusetts.

**Twentieth Anniversary of the World Health Organization**

As 1968 was the Organization’s twentieth anniversary year, the Twenty-first World Health Assembly devoted a day to the celebration of the anniversary. A message was read from U Thant, Secretary-General of the United Nations. Mr H.-P. Tschudi, Conseiller fédéral, Mr F. Peyrot, President of the Conseil d’Etat of the Republic and Canton of Geneva, and Mr J.-P. Buensod, Mayor of the City of Geneva, conveyed the congratulations of the Swiss Federal Council and the local authorities respectively. Mr D. A. Davies, Secretary-General of the World Meteorological Organization, spoke on behalf of the organizations of the United Nations system and Mr H. Beer, Secretary-General of the League of Red Cross Societies, spoke as the representative of the first non-governmental organization to be admitted into official relations with WHO. Professor E. Aujaleu, President of the Twenty-first World Health Assembly, Dr K. N. Rao, Chairman of the Executive Board, and the Director-General of the World Health Organization delivered statements, followed by two speakers from each of the Organization’s six regions.

The ceremony closed with the adoption of a resolution in which the World Health Assembly, *inter alia*, reaffirmed “the World Health Organization’s determination, in the spirit of its Constitution and with the help of all those who share its ideals, to move steadily towards the attainment of its objective during the third decade now opening before it”. Subsequently, at the end of its session, the Health Assembly in another resolution extended its congratulations and expressed its appreciation to the staff members who had served the Organization for many years, for their long and faithful service in the cause of world health.

More than one hundred and fifty congratulatory messages were received from heads of state, governments, the United Nations and other inter-governmental and non-governmental organizations.

The twentieth anniversary was also celebrated at regional and national levels. National programmes consisted of commemorative ceremonies, exhibitions, articles in the press, radio and television broadcasts, etc. In various countries, celebrations were combined with the observance of World Health Day (see page 77). Eighty-eight postal administrations issued postage stamps or other related philatelic material commemorating the anniversary.

The United Nations and most of the specialized agencies gave prominence to the event in their publications. The non-governmental organizations in official relations with WHO contributed to the celebration of the Organization’s twentieth anniversary by publishing articles on WHO and its activities, adopting special resolutions and organizing ceremonies. National branches of a number of non-governmental organizations participated in the celebration programmes in their countries.


A special public information programme, which included publications, exhibitions, films, television and radio broadcasts, was also arranged to mark the occasion (see page 77).
PART II

THE REGIONS
In the African Region WHO concentrated on assistance to national health services in preventing disease and promoting health, and in the treatment and rehabilitation of the sick. Epidemiological services, including public health laboratory and health statistics services, were established or strengthened, and high priority was given to the training of personnel urgently needed for the effective implementation of health programmes.

**Malaria Eradication**

Fourteen malaria pre-eradication projects in eleven countries were converted into projects for the development of basic health services. In six of the projects, epidemiological survey or research activities in the field of malaria were continuing at the end of the year. In Togo, plans were made to interrupt malaria transmission in the coastal savanna areas by distributing drugs to the population, thereby improving the results obtained by the spraying operations in the south of the country.

Two malaria eradication projects were in operation during the year. In Mauritius, early certification of eradication may be possible if the epidemiological trend observed in 1968 continues. In the United Republic of Tanzania, on the other hand, the epidemiological situation was hardly encouraging; internal administrative difficulties led the Government to postpone any eradication work in the islands of Pemba and Zanzibar, and the project was terminated.

A regional malaria advisory team, set up towards the end of 1967 to carry out epidemiological surveys while the basic health services are developing, worked in Chad, Niger, Swaziland and Zambia, and made recommendations on antimalaria activities in each of those countries.

**Communicable Diseases**

During 1968, twenty-three countries in the African Region were actively engaged in smallpox eradication programmes. In nineteen countries of western and central Africa vaccination programmes, carried out with bilateral aid from the United States of America and assistance from WHO, brought the number of persons vaccinated since the beginning of the programme in 1967 to approximately 65 million of the total population of 118 million in the area. Except in the Democratic Republic of the Congo, and Burundi, the incidence of smallpox declined sharply in 1968 and in some areas there were fewer recorded cases than ever before, in spite of better reporting. The decrease coincided with the wider use of freeze-dried vaccine and the development of eradication programmes in the United Republic of Tanzania, and Zambia.

There has been no delay in the supply of freeze-dried vaccine. Jet injectors were used extensively throughout western Africa, and in the Democratic Republic of the Congo. The newly-developed bifurcated needles have been introduced in all countries either as the principal instrument for vaccination or to supplement vaccination by jet injection. These methods result in a saving of vaccine of between two- and five-fold. Assistance was provided to vaccine production centres in Kenya and Nigeria which are both producing vaccine that meets WHO recommended standards for potency and stability. Progress was made in the establishment of a centre in Guinea which should begin producing vaccine during 1969. During November, a seminar on smallpox eradication organized in Kinshasa by WHO was attended by participants from countries in eastern and southern Africa.

There was a recrudescence of poliomyelitis in a number of large towns—among them Kinshasa, Brazzaville, Bamako and Conakry—with hundreds of paralytic cases. In general, children under five years of age were attacked, most cases occurring in those about two years old. Deaths were few. The Organization supplied about 900 000 doses of trivalent oral vaccine (Sabin type) for the immunization of children under five years of age in the cities concerned. Serological surveys made in several countries have shown that 95 per cent. of children over five years of age have acquired sufficient immunity against poliomyelitis to render vaccination above this age unnecessary.

Surveys have shown that onchocerciasis is widespread in many countries, especially in West Africa, and has serious repercussions on the health of the people as well as on economic and social life. However, the technical difficulties of controlling the Simulium
vector are great, and the implementation of a large-scale control project will call for very large sums of money. Precise planning of all the operations and careful evaluation of the possible benefits are now under way.

The epidemiological/serological evaluation survey of previous mass anti-yaws campaigns in Nigeria was completed by the regional treponematoses advisory team, working in collaboration with the Medical Research Council, London. The serum collections obtained are used for epidemiological surveillance for other diseases also and for multi-subject research—on, for example, malaria, streptococcal infections, poliomyelitis, tetanus, diphtheria and human genetics—in which several WHO reference centres and other laboratories are collaborating.

During the year several more governments asked for increased attention to be given to surveillance of endemic treponematoses and also venereal syphilis. In countries south of the Sahara the incidence of these diseases is increasing because of the changes in socio-economic patterns and urbanization and the reduction of cross-immunity against syphilis which has followed the mass treatment campaigns. These aspects were investigated in 1968 in Mali, Senegal and Upper Volta.

Trypanosomiasis presents many difficult problems in Africa, particularly in areas where it is caused by Trypanosoma rhodesiense and affects both man and animals. In some countries the number of those affected is increasing at a rate reminiscent of the worst epidemics. An operational research project recently started in Kenya under the Special Fund component of the United Nations Development Programme with WHO as executing agency is concerned with the possibility of eradicating human and animal trypanosomiasis in an endemic area on the shores of Lake Victoria. The project, in which FAO is co-operating, includes a survey of the epidemiology and epizootiology of the disease in the area. WHO is also assisting with trypanosomiasis control in Botswana (see page 89).

By the end of 1968 WHO was helping to develop national tuberculosis programmes in twelve countries of the Region—two more than in the previous year. Among the available control measures, BCG vaccination continued to receive the highest priority. The general strategy consists in an initial coverage of the total population by mobile teams, followed up by the basic health services with systematic vaccination of children under six years old, in order to consolidate the results achieved. In nearly half the countries of the Region fairly satisfactory BCG vaccination programmes were in operation. In several instances their cost has been reduced and their coverage extended through being carried out in conjunction with smallpox eradication programmes.

Thanks to the simplification and standardization of bacteriological techniques and ambulatory chemotherapy, diagnosis and treatment of tuberculosis are now being progressively introduced as a routine activity of basic health services in the countries assisted by the Organization.

The regional WHO leprosy evaluation team started operations in 1968: it assessed the leprosy situation and the facilities for control in Uganda and Zambia, and recommended measures for their improvement.

In addition to the cases reported in the Democratic Republic of the Congo and Madagascar, plague also reappeared in Lesotho and in the United Republic of Tanzania. The disease frequently occurred in the pulmonary form. Emergency measures for treatment and prevention were applied from the outset of the epidemic.

Public Health Services

Twenty projects for the development of basic health services were in operation in the Region, including the converted malaria pre-eradication programmes. As far as possible, they include activities in maternal and child health, environmental health, and the training of auxiliary health personnel, thus ensuring a higher degree of integration.

A seminar on basic health services in relation to mass communicable disease campaigns was held at the Regional Office in April and attended by senior health officials from twenty-nine countries (see page 91). Activities in national health planning included the organization of a study tour to enable senior health officials from countries in the Region to visit several Latin American countries to observe how planning problems can be resolved in countries where the health services have to meet great problems with limited resources.

Nineteen projects for the development of nursing services in the Region received assistance from WHO in 1968. An important event was the opening of the new Centre for Post-basic Nursing Education in Dakar where the first students were enrolled. By training nurse administrators and educators the centre will perform for French-speaking countries the same functions as does the similar centre in Ibadan, Nigeria, for English-speaking countries in the Region.

Work in health education was concentrated on the drawing up of curricula for training health personnel at all levels. A project for the development of health education in schools, the first of its kind in the Region, is being developed in Nigeria.
In addition to the maternal and child health work carried out in the WHO-assisted projects for the development of basic health services, specific maternal and child health projects were in operation in a number of countries, including Burundi, Chad, Gabon, Ivory Coast and Rwanda. Surveys, the demonstration of methods, the development of standards applicable to the countries, and training of personnel were essential elements in these projects.

Environmental Health

The main activity in the field of environmental health was directed to the provision of community water supplies and the improvement of sanitation. The following governments received assistance from the Organization in surveys and in the preparation of requests to the United Nations Development Programme for assistance from the Special Fund component for pre-investment studies: Central African Republic (for drainage and sewerage in Bangui); Democratic Republic of the Congo (for water supply and sewerage for Greater Kinshasa); Ghana (for water supply and sanitation in rural areas); Ivory Coast (water supply and sewerage for Abidjan) and Kenya (for Nairobi and Kisumu: see page 90); Madagascar (water supply for Tananarive and Antsirabé); Upper Volta (water supply and sewerage for Bobo-Dioulasso and Ouagadougou).

WHO is the executing agency for two Special Fund projects which started operations in 1968: the preparation of master plans for water supply and sewerage in Dakar (Senegal), and for Kampala and Jinja (Uganda). A project for wastes disposal and drainage in Ibadan (Nigeria) is to start in 1969.

WHO also assisted in studies concerning water supply for six towns in Liberia and Sierra Leone and for some small communities in the United Republic of Tanzania.

Health Statistics

With the establishment of epidemiological services greater importance is being attached to the development of health statistics. Assistance has been provided to individual countries and an inter-country project has been set up to make available to governments advice and assistance in the development of vital and health statistics services. In another inter-country project co-operation was continued with the Economic Commission for Africa in training middle-grade statistics personnel.

Education and Training

The Organization's increasing activity in education and training in the Region has been directed mainly to the adaptation of curricula to the needs of the Region and the provision of training within the Region for as many health workers as possible. The place of public health in medical education and the type of training to be given to professors of public health were among the subjects discussed by professors of public health from eleven countries in the Region at the Regional Office in October. The deans of most of the African medical schools and medical faculties met in November at the Regional Office—the first meeting of its kind to be held in the African Region.

The compilation of detailed, basic information on every medical school in the Region was started.

Advisory services were provided to several governments; for example, to Nigeria in connexion with the establishment of a new medical school in Zaria, which received further WHO support in the form of a grant-in-aid for a professor of microbiology; to Senegal in developing an institute of tropical stomatology and odontology in Dakar; to Ghana and Zambia respectively in the organization and administration of the teaching hospital in Accra, and the preparation of a basic medical sciences (human biology) curriculum for the new medical school in Lusaka; and to Cameroon on a university centre for health sciences in Yaoundé (see page 68).

Twelve professors provided by WHO continued their teaching activities at the medical schools in Dar es Salaam (Tanzania), Kinshasa and Lubumbashi (Democratic Republic of the Congo). Two professors were recruited for the schools in Butare (Rwanda) and Nairobi (Kenya), and support was continued to Makerere University College (Uganda) and the University of Lagos (Nigeria) with regard to teaching staff for their medical schools.

Evaluation of Regional Activities

Because of the widening scope of the Organization's activities in the Region and in order to ensure more effective planning, steps were taken to develop programme evaluation, including a programme information retrieval system.

Co-operation with other Organizations

Co-operation continued to develop with other organizations concerned with programmes in the African Region, particularly with the World Food Programme, the United Nations Development Programme, FAO, and with UNICEF in connexion with the large number of jointly assisted projects.

The Organization for Co-ordination and Co-operation in the Control of Major Endemic Diseases, the Organization for Co-ordination and Co-operation in
the Control of Major Endemic Diseases in Central Africa, and the East African Community have worked with WHO, particularly in the organization of seminars and other training activities.

Close contacts were developed with the African Development Bank which has shown interest in water supply and other health projects, and which was represented at the second meeting, in Brazzaville, of the regional directors of international organizations in Africa.

The Regional Committee

The eighteenth session of the Regional Committee for Africa was held in Nairobi, Kenya, from 16 to 26 September 1968. The session was attended by representatives of twenty-eight Member States (including those of France attending on behalf of certain territories in the Region) and observers from four non-Member States in the Region. The United Nations Development Programme, the Economic Commission for Africa, UNICEF, FAO and the Office of the United Nations High Commissioner for Refugees were represented, as were the East African Community, OCCGE, nine non-governmental organizations (including the League of Red Cross Societies), and the United States Agency for International Development. The Deputy Director-General attended on behalf of the Director-General.

In the discussion on the Regional Director’s report for the period 1 July 1967 to 30 June 1968, six subjects retained the attention of most speakers, namely, health planning, staff training, basic health services, progress in communicable disease control, modalities of WHO assistance, and inter-country co-operation.

Satisfaction was expressed that virtually all the countries of the Region were giving due importance to health planning as an essential part of national plans for socio-economic development, and to sound public health as a measurable component of such development.

On the subject of education and training emphasis was placed on the need for radical change in the approach to the training of health personnel, and for the development of new teaching methods and the adaptation of course content to the realities and specific needs of the countries of Africa. It was considered essential, moreover, that training be organized locally as far as possible. The Committee endorsed measures to facilitate the dissemination of these new concepts by staff exchanges between medical schools. Attention was directed to the relatively low output of those schools and to the need for serious efforts to remedy this situation.

The development of basic health services was the subject of many statements by representatives, who considered that such services were essential for the long-term development of general public health and of mass campaigns against specific diseases. It was agreed that the principal deficiencies were inadequate coverage in facilities, shortage of trained auxiliaries, and the difficulties in finding the necessary finance to cover the cost of the staff required. The advantages of establishing demonstration and training areas were generally acknowledged with the proviso that clear objectives be defined at the outset and evaluation carried out in order to obviate unnecessary perpetuation of the activities in the area.

The Committee approved for transmission to the Director-General the proposed programme and budget estimates for the Region for 1970. In discussing the item it stressed the need for increased provision to be made for supplies and equipment and for local costs, and the desirability of awarding fellowships for studies within the countries of the Region, when possible. The Committee endorsed the inter-country projects planned for 1970 and, in a separate resolution, recommended the financing of a certain number of such projects from the Technical Assistance component of the United Nations Development Programme for the period 1970 to 1973.

The Committee endorsed the principle of biennial programming and took note of the fact that this would assist the Member governments in developing their national health plans on a long-term basis. It further recommended that, in accordance with resolution WHA21.49, the Director-General include in his report to the forty-third session of the Executive Board the decision taken and the views expressed by the Committee on this subject.

The Committee suggested that it should meet at least one year out of three at the Regional Office and, in connexion with the additional expenditure entailed by sessions held elsewhere, decided to maintain the practice whereby the host governments bear only those costs relating to the organization of the sessions.

The Committee accepted the invitation of the Government of the Ivory Coast to hold its nineteenth session at Abidjan in October 1969, and that of the Government of Ghana to hold its twentieth session at Accra in September 1970.

The subject of the technical discussions was “The place of public health in the economy of the African countries”.

“The national health planning: its value and methods of preparation” was chosen for the technical discussions in 1969.
Administrative and Organizational Developments in the Regional Office

Estimates for an extension of the Regional Office building were prepared. Estimates were also obtained for the construction of new apartments to provide living accommodation for sixteen additional staff. To help meet the immediate housing needs, three additional villas were rented. At the end of 1968 the Organization owned seventy-three housing units in Djoué, and leased twenty-four units.

Some Aspects of Work in the Region

A list of projects current during the year will be found in Part III. The following have been selected for fuller description.

Trypanosomiasis Control, Botswana

During the years 1940 to 1953 a first tsetse fly control programme was in operation in a well-watered and potentially highly productive area in the N’gamiland and Chobe districts in the north-west of the country. This first programme was financed from the United Kingdom Colonial Development Fund and also from the local budget. A tsetse fly control service was set up in 1953.

During the first phase of WHO assistance, technical advice was provided by experts who made six visits to the country in the period between 1955 and the end of 1963. In the ten years from 1955 to 1965, 604 cases of human trypanosomiasis were diagnosed in N’gamiland, of which 64.4 per cent. were in the 15 to 44 age-group.

An epidemiologist and an entomologist were provided to help implement the second phase of the WHO-assisted project, beginning in 1965. It was planned on the basis of recommendations made previously by the experts, especially in regard to the use of insecticides for the prevention of human and animal trypanosomiasis. The aim was to reduce as far as possible trypanosomiasis in N’gamiland, the Chobe district and neighbouring areas. The means utilized included an epidemiological study of the disease; the installation of better diagnostic and treatment services; health education to improve the co-operation obtained from the public; and the training of personnel in modern methods of vector control.

Entomological studies prior to the second phase had revealed the presence of Glossina morsitans in the area of operations. The vegetation favouring its multiplication was investigated and experiments were carried out to discover which were the most effective control methods: destruction of game, clearing of areas favourable to tsetse flies, or the application of insecticides.

As from 1966, a considerable fall in the incidence of the disease was obtained by the application of insecticides and the creation of completely deforested corridors to serve as barriers against the reinfestation of areas where the tsetse fly had been destroyed. The number of reported cases in N’gamiland fell from 105 in 1966 to thirty-seven in 1967, and in the Chobe district there was a drop from twenty-two in 1966 to five in 1967.

By 1968, when the WHO assistance to the second phase of this project was completed, four medical assistants had been trained in the diagnosis and treatment of trypanosomiasis, as well as two technicians and six auxiliaries in entomological survey methods. The World Food Programme helped by providing supplementary food for the workers engaged on applying insecticides and clearing tsetse fly areas as part of a community development project, supported by other agencies in the United Nations system, which includes such elements as irrigation, stockraising, the development of fishing resources and the organization of a tourist trade.

Tuberculosis Control, Swaziland

A survey in the late nineteen fifties revealed that the tuberculosis problem in Swaziland was considerable: in the 15 to 19 age-group almost 70 per cent. of the population was infected, and in those over 11 years of age the prevalence of positive infected cases was found to be over 1 per cent. The Government requested the assistance of WHO in building up a control project, and a plan of operations was signed early in 1962 by the Government, UNICEF, and WHO. Field work started in 1963.

The initial plan provided for a pilot area with a population of about 50,000, where conventional tuberculosis control measures were to be applied, such as BCG vaccination of non-reactors under 20 years of age; case-finding by mass X-ray examination; bacteriological examination of persons showing radiological evidence of lung pathology; and domiciliary treatment of sputum-positive patients. Early in the operations, however, it became obvious that the classical approach of mass X-ray examination would not be a practical one: in Swaziland—as in many
other African countries—most of the people live in scattered villages and an X-ray case-finding campaign was not feasible with the resources available.

Accordingly, in 1964 the plan of operations was re-formulated and, in the light of experience gained in other developing countries, it was decided to test in the pilot area the approach known as “national tuberculosis programme”, which relies for case-finding on the spontaneous attendance at existing health services of persons with chest symptoms, diagnosis being based on bacteriological examination of the sputum collected from such persons at the peripheral health units. The new plan was implemented in the Manzini district where the central laboratory was established. Because Swaziland is a small country with a well-developed communications system, it was possible for all sputum specimens to be sent for bacteriological examination to this central laboratory until peripheral laboratory units were set up. This centre also provided for X-ray examination of patients having persistent chest complaints but with negative sputum. Domiciliary treatment was organized by the health unit nearest the patient’s home. Direct BCG vaccination (i.e., without prior testing) combined with smallpox vaccination was given to all children under 15 years of age. The Manzini centre, however, soon had attracted so many patients from all over the country that it was decided to abandon the concept of a pilot area project and to extend the programme at once to cover the whole territory.

The achievements of the project can be summarized as follows: by the end of 1966 all fifty-four health institutions in the country, including seven hospitals, were involved in the programme; 16,000 microscopic examinations had been carried out; 45,000 patients had been X-rayed; and 4000 patients had been put on treatment. The direct BCG vaccination campaign, started in September 1967, had covered the whole of Manzini district by the end of 1968. The national staff trained on the spot comprised four assistant laboratory technicians, two assistant X-ray technicians, seven clerks, and twenty-five health visitors. In addition, by the end of 1968 nearly a hundred members of the staff of peripheral units had been trained in diagnostic procedures, treatment supervision, and case recording.

A development of general public health importance was the equipping, with the help of supplies provided by UNICEF and the Government, of the large premises of the Manzini laboratory as a public health laboratory which is used as a reference centre for all laboratory work in Swaziland. It serves to train personnel and checks the work of peripheral units. By the end of 1966 national staff had been trained sufficiently to carry out routine examinations independently. Moreover, in four of the hospitals laboratory examinations were being carried out by local technicians. A certain amount of decentralization could thus take place, and it was also possible to assist in upgrading general public health laboratory work in the field, such as that relating to inspection of meat, milk, and water.

Until 1966 the internationally recruited team consisted of a medical officer, a bacteriologist, a laboratory technician, an X-ray technician, a statistician, and a public health nurse. In April of that year a national counterpart was provided for the medical officer. In the past two years the international staff have been gradually reduced in number, as they handed over responsibility for the continuation of the national tuberculosis programme to national personnel.

Environmental Health, Kenya

In 1960, a ten-year programme of environmental health improvement for rural communities in Kenya was started with assistance from UNICEF and WHO. The proposal was to construct demonstration projects of water supply and excreta disposal in various parts of the country with the ultimate objective of setting up a national community water supply programme for the whole of Kenya.

The programme thus far has covered 225 demonstration water supply projects, which together provide piped water to about a quarter of a million people. WHO has, since the beginning of the programme, assisted the Government by providing a sanitary engineer and a sanitary inspector, while UNICEF has supplied imported materials and equipment.

An important feature of the programme has been the training of personnel, both for the planning and construction of water supplies, and for their operation and maintenance when completed. Courses for sanitary inspectors have also been held to provide the necessary trained staff for supervision and inspection.

Personnel provided by WHO for the programme have, in addition, assisted in the study of water supply and sewerage problems in the cities of Nairobi and Kisumu, and in the preparation of a request which the Government will submit, in due course, to the United Nations Development Programme for assistance from the Special Fund component for a pre-investment survey for those communities.

Responsibility for this programme has been assumed by the Ministry of Health, and it is proposed to continue the work into a further phase with the assistance of UNICEF and WHO. A factor which has contributed to the successes thus far obtained, and to the decision to continue the programme, is the enthusiastic...
participation of the communities themselves in the construction and in the operation of the environmental improvements provided.

Seminar on Basic Health Services in relation to Mass Communicable Disease Campaigns, Brazzaville

A seminar on basic health services in relation to mass communicable disease campaigns was held at the Regional Office from 24 April to 4 May 1968 to enable senior health officials to exchange views on the general principles of the planning, organization, implementation and evaluation of mass campaigns against the communicable diseases, and to help them in promoting the development of the basic health services needed to support such campaigns.

The first part of the seminar was devoted to a general review covering the following subjects: types of mass campaigns and their relation with health services; establishment of priorities among communicable diseases susceptible to mass campaigns; integration of mass campaigns in basic health services; inventory and evaluation of basic health services; population coverage of basic health services; the pilot area; and staff training.

The second part of the seminar consisted of case-studies—a method used in the Region for the first time. The participants, divided into seven groups, studied and proposed practical solutions to two health problems which had been chosen to illustrate the subject under discussion: first, an epidemic of yellow fever in a fictitious African country known as Afroland; and, secondly, the elaboration of a plan for the development of basic health services in Afroland for eventual support of a malaria eradication programme. The background documents for the case-studies included general data on Afroland and detailed information on the two problems.

The last part of the seminar comprised an evaluation of the solutions proposed by the groups, in the course of which some general conclusions were formulated. One of these was that the basic health services should be associated with emergency mass campaigns from the outset, since they had an important part to play in the health education work that should be undertaken at an early stage. Another conclusion was that, in health service development, pilot areas should have short-term objectives only, and should not be allowed to develop beyond that stage. During the discussion of staffing, the participants noted the confusion existing in regard to the terms used to designate the various categories of public health staff and recommended that emphasis should therefore be placed on defining the actual duties and functions of each category and the professional qualifications required to carry them out. Finally, the participants considered that, in order to relate the long-term plan for the development of basic health services to a country's economic situation, some training in economics should be included in undergraduate and post-graduate medical education.
CHAPTER 15

THE AMERICAS

This chapter describes work done in the Region of the Americas, where the Pan American Sanitary Bureau has a dual capacity as secretariat of the Pan American Health Organization and Regional Office of the World Health Organization.

The general framework of the health work of the Region is the ten-year public health programme of the Charter of Punta del Este, which was approved by the governments in 1961. The achievements of the first five years under that programme were assessed in October 1968 at the Special Meeting of Ministers of Health of the Americas (see also page 100) who also discussed what remained to be done in order to reach the stated objective in each field and made recommendations accordingly. This chapter describes some of the results achieved and efforts being made towards the fulfilment of the ten-year programme.

Malaria Eradication

The activity in malaria eradication programmes in the Americas was intensified during 1968. The programme in Brazil, the largest in the Region, continued to follow its schedule of phased operations. Additional areas were advanced from the attack to the consolidation phase following an evaluation; some areas in the consolidation phase, however, were found to have been reinfected and were returned to the attack phase. By the end of July, attack measures had been begun in all the areas still in the preparatory phase. The programme for computerization of basic data concerning spraying operations and case detection was put into operation in a sector near Rio de Janeiro.

The Central American countries and Panama, which form an epidemiological area, undertook a co-ordinated attack plan for which funds became available in 1967. In 1968 full-scale attack measures were in operation in almost all the countries concerned. Evaluation activities were also carried out as planned, except in El Salvador, where they were still incomplete in consolidation-phase areas, and in Panama.

The results of these intensified field activities were reflected in the decrease in the number of cases of malaria detected during the first six months of 1968 as compared with those for the first six months of 1967.

In Haiti malaria incidence had, by the middle of 1968, reached the lowest point so far recorded. To take advantage of this favourable situation, spraying operations and mass drug administration were intensified in an effort to eliminate the usual seasonal increase in cases in the latter half of the year. In Paraguay, where a serious outbreak occurred in 1966 and continued in 1967, the attack phase was started in October 1968. In Ecuador, where the campaign had been stopped by inadequate financing since 1966, and where the number of cases of malaria had increased to a point well above 1962 levels, normal activity was resumed in August 1968 and continued for the remaining months of the year.

During 1968 independent assessment teams evaluated the programmes in Brazil (São Paulo State), Cuba, Dominican Republic, Ecuador and Haiti.

The trial of cycloguanil embonate, a long-acting injectable drug, was continued into a third six-monthly cycle in Guatemala, and a comparative analysis was started of the data from the various cycles. A trial of a liquid preparation of chloroquine and primaquine was continued as part of the mass drug administration programme in Honduras; public acceptance of this preparation was not outstanding but probably better than for the tablets given in the comparison area. An evaluation of the carbamate insecticide OMS-33 was under way in an area in El Salvador. Field operations in the study of a three-day, radical cure treatment for *Plasmodium vivax* in Colombia were terminated in mid-September and the data collected were being analysed at the time of reporting.

The co-ordination of malaria eradication programmes was discussed at meetings of the working group on co-ordination of the programmes in Central America and Panama, in Tegucigalpa, Honduras, in August; of the Ministers of Health of countries of the Plate River Basin, in Porto Alegre, Brazil, in September; and of the directors of national malaria eradication services of South America, in Paraguay, in November. Border meetings were held between Argentina and Paraguay, Brazil and Paraguay, and Colombia and Venezuela.
MATERNAL AND CHILD HEALTH IN SOUTH-EAST ASIA

Services for the protection of the health of mothers and children are being developed as part of the general health services of countries in all regions in order to ensure continuity of care and an integrated approach to family health problems. The photographs on this page show nutritional and nursing aspects of child care being demonstrated to mothers in programmes assisted by WHO in India, Nepal and Thailand.

A medical examination to determine the nutritional status of a child in India.

Infant care in a village in Thailand.

A health post near Kathmandu. There has been a steady increase in attendance at maternal and child health clinics in Nepal.
The development of the smallpox eradication programme has been most marked in Africa, where in many countries the number of cases reported in 1968 was 50 per cent, lower than in the previous year. Twenty-three countries in the African Region were actively engaged in smallpox eradication programmes during 1968. The pictures on this page show aspects of the work in Uganda — where BCG vaccination against tuberculosis is being combined with smallpox vaccination — and in Mali.

UGANDA

MALI

The entire population of a village can be rapidly vaccinated with the use of jet injector equipment.

Children receiving BCG vaccination in one arm and smallpox vaccination in the other in the combined campaign.

The campaign includes home-visiting.

Checking vaccination scars.
MEDICAL EDUCATION

As part of its work to strengthen the teaching of medicine and public health, WHO has arranged for professors and instructors to visit medical schools in order to organize courses and give lectures and practical demonstrations. The medical schools in Iraq and Tunisia, where these photographs were taken, are among the many that have received assistance of this kind.

1. A seminar in the Department of Preventive and Social Medicine, which WHO has helped to develop at Baghdad University.
2. Laboratory work in microbiology during the preclinical course at the first medical school in Tunisia, which has been established in Tunis with the assistance of WHO.
3. An anatomy class at the Tunis School of Medicine. The anatomy course was organized by a visiting professor provided by WHO.
Communicable Diseases

The Organization's assistance to countries with regard to communicable diseases included the promotion of research and training in epidemiology, and help in the development or improvement of epidemiological and laboratory services.

The situation of the smallpox eradication campaign in the Region is described on page 100.

With regard to poliomyelitis, the Organization continued to advise on the planning and execution of oral vaccination and rehabilitation programmes, to assist in emergencies and in the typing of viruses; and to facilitate the purchase of vaccine. A localized epidemic of poliomyelitis was reported in Venezuela: poliomyelitis virus type 1 was confirmed, and a mass vaccination campaign was carried out using monovalent vaccine. In Peru the incidence of poliomyelitis, which began to rise at the beginning of June, had assumed epidemic proportions by July, and remained high until September; poliomyelitis virus type 1 was isolated from most of the patients.

The nationwide schistosomiasis control programme in Venezuela and the pilot studies in Brazil were evaluated. The Organization also helped to assess the problem in the Dominican Republic and in Surinam, where a national control programme was being planned.

In a collaborative research programme to select a standard diagnostic antigen and a standard technique for the diagnosis of Chagas' disease, the proposed antigens were selected for evaluation, test sera were collected, and a detailed protocol for the tests was agreed upon. Assistance was given for studies on complement-fixation antigen evaluation, on the pathology of the disease, and on its course during the chronic stage. The Organization assisted Argentina, Bolivia, Ecuador, and Peru in reviewing their problems and programmes in connexion with Chagas' disease.

The Aedes aegypti eradication campaign reached its final stage in Trinidad, and was continued in Barbados, Cuba, and St Lucia. Special measures were taken in foci of re-infestation in Brazil, Honduras, and also in Guatemala where the focus was cleared during the year. In Surinam the budget allocation for A. aegypti eradication was increased and the extension of operations to all infested areas was prepared. In French Guiana also steps were taken to resume the campaign. Administrative and technical difficulties continued to hinder eradication operations in many other areas.

The Organization provided advice to Panama and Trinidad and Tobago on the preparation of venereal disease control programmes, and assisted Argentina, Chile, and Ecuador in training personnel in control techniques, including laboratory diagnosis. In Chile, advice, equipment and supplies were provided for the establishment in Santiago of a demonstration centre on techniques for the control of venereal diseases, which is intended to provide training for personnel from other countries in the Region also.

National tuberculosis programmes received assistance in evolving technical and administrative procedures adapted to the local epidemiological and other conditions. The inclusion of BCG vaccination, diagnosis, and ambulatory treatment in the activities of local health services, training of managerial personnel, and the standardization of records were particularly emphasized. Assistance was provided for projects in Central America, and in Argentina, Bolivia, Brazil, Colombia, Ecuador, and Peru with a view to more effective use of available resources and reorientation of traditional programmes in line with the findings of operational studies. Technical advice was given to Colombia, Mexico, Peru, and Venezuela on BCG vaccine production and on problems relating to the choice of strains, techniques, and quality control of the vaccine. Training activities in tuberculosis control included a seminar on BCG vaccination in Argentina; regional courses on bacteriology of tuberculosis, in Venezuela and in Cuba; and assistance in Brazil (for the training of auxiliary personnel in current tuberculosis techniques), Chile and Colombia.

The introduction of leprosy control activities into the work of the general health services was the subject of a regional seminar held in Guadalajara, Mexico; the experience of Argentina, Ecuador and Venezuela in applying the methods recommended at the previous seminar in 1963 was discussed, certain administrative improvements in carrying out leprosy control programmes were proposed, and subjects requiring further research were suggested.

The Organization again assisted plague control programmes in Ecuador and Peru, and provided technical advice on a plague research project in northeast Brazil.

The Pan American Zoonoses Centre continued to assist Argentina, Brazil, Peru, and Venezuela with the production and testing of suckling-mouse-brain rabies vaccine which, by the end of the year, was being produced in twelve countries in Latin America. The rabies control programme along the border area of Mexico and the United States of America was further expanded (see page 101), and Mexico also received assistance for a rabies control programme in the capital, where more than 300 000 dogs were vaccinated. In Grenada assistance was given in evaluating and
further planning a rabies control programme, started in 1965, which included mass vaccination of dogs and poisoning of mongooses in the areas affected.

In Peru advice was given for the planning of a national programme, under the Ministries of Agriculture and Health, for controlling brucellosis in goats, using Rev. 1 vaccine. At an inter-American symposium, held at San Antonio, Texas, in August, under the joint sponsorship of the Organization and the Conference of Public Health Veterinarians, over 180 physicians, veterinarians, and animal wildlife specialists from eighteen countries of the Americas reviewed the health implications of the international movements of animals and food products of animal origin. A course in veterinary mycology for professional staff of the public health laboratory services of the countries of Central America and Panama was held during July in Guatemala City, with the co-operation of the School of Veterinary Medicine of the University of San Carlos and the National Communicable Disease Center of the United States Public Health Service. Other activities of the Pan American Zoonoses Centre included a regional seminar on the epidemiology of zoonoses, with participants from fifteen countries; and a course on laboratory diagnosis of leptospiroses for professional laboratory staff of health and agricultural services from ten countries in Latin America.

**Health Protection and Promotion**

In the first stage of a new programme on cancer, a regional advisory team visited South American countries and helped to assess needs and resources for cancer control, and to plan national central offices for the general programming and supervision of cancer control activities. In Argentina, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay the Organization helped to set up population-based and hospital-oriented cancer registries—the first designed to provide data on demographic variables of epidemiological significance, the second to make possible better patient care and evaluation of treatment methods. Support was given to programmes for the diagnosis and treatment of cervical cancer in Bolivia, Brazil, Chile, Colombia, Ecuador, and Peru. The Organization was represented at the panel on dosimetric requirements of radiotherapy centres, held in Caracas, Venezuela, under the auspices of IAEA, which recommended the preparation of a basic manual of dosimetry adapted to Latin American needs, the organization of regional training courses in radiotherapy physics, and the creation of regional dosimetry facilities. Barbados, Guyana, and Trinidad and Tobago received assistance in organizing radiotherapy facilities.

Work in dental health included an international course on oral microbiology, held in Medellín, Colombia, to train workers for a research programme, to be co-ordinated by the Organization, on the causation of dental caries: professors attended from dental schools of Argentina, Chile, Colombia, Dominican Republic, Ecuador, Guatemala, Nicaragua, Uruguay, and Venezuela. A school for dental nurses was opened in Jamaica. Special programmes for the training of dentists were organized in the schools of public health in Chile and Colombia. Three research projects on dental materials, administration of dental services, and simple equipment were initiated. In Venezuela, the countrywide study of a sample of 33,000 families was completed and is serving as a basis for a planning and epidemiological methodology for the whole hemisphere. Assistance in dentistry was provided to Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Peru, United States of America, and Venezuela.

In Argentina a reorganization of the mental health services of the country has been undertaken in order to introduce modern concepts of patient care and train personnel with a view to a more sympathetic and understanding attitude to the mentally sick. The Organization is collaborating in this programme, for which substantially increased national funds have been made available, by providing a psychiatrist to advise the health services. The Foundations’ Fund for Research in Psychiatry renewed its contribution to research in Argentina on patterns of communication in families of schizophrenic patients. Assistance was provided in Chile for research on the epidemiology of alcoholism, and also for a pilot project on community mental health in Santiago; in Jamaica, for a demonstration unit at the Kingston Psychiatric Hospital, and for a longitudinal comparative study on schizophrenic patients; and in Venezuela, for a post-basic course in psychiatric nursing in Caracas, the reorganization of services in two psychiatric hospitals, and the in-service training of auxiliary personnel. Advice on mental health services and their improvement was given to Brazil, Costa Rica, the eastern Caribbean islands and Uruguay.

In March the second technical advisory committee on nutrition met in Washington to review the programme of the past six years and to establish future priorities. Two technical groups were convened to draw up guidelines, one for the incorporation of nutrition in national health plans, the other for nutrition activities in the local health services. The third meeting of investigators collaborating in the inter-American study of endemic goitre was held in Puebla, Mexico. Standards for the use of iodized oil were developed on the basis of the two-year follow-up of a
pilot project in Ecuador. The second meeting of investigators collaborating in the inter-American study of nutritional anaemias met in Venezuela, in order to review progress in this field and to establish standards for the treatment and prevention of anaemias in public health practice. The Institute of Nutrition of Central America and Panama (INCAP) continued research on new sources of protein, as well as on food consumption and food utilization. In the investigations on the influence of nutritional status on physical work capacity, and on physical and mental development, the analysis of data collected in six Central American nutrition surveys was almost completed. INCAP's training programme included a four-year undergraduate course for nutritionists, and a new two-year post-graduate course in paediatrics and nutrition.

For the sixth consecutive year the Organization and the United States Public Health Service co-operated in providing equipment, supplies and technical assistance to enable various countries to measure the radio- nuclides present in air and milk samples; two new sampling stations were added to the nine in operation, six of which were forwarding milk samples to a laboratory in the United States of America for tests to determine the strontium 89, strontium 90, caesium 137, and iodine 131 content. In Jamaica, research was started on the relative effectiveness of film-badge dosimetry and pocket dosimeters under the high humidity and heat conditions in tropical areas. In Argentina, Costa Rica, El Salvador, Nicaragua, and Peru, short courses were organized on basic principles of radiation protection, including, in Costa Rica and Peru, an introduction to the uses of radioisotopes in medicine. Assistance was again given for the international course, in Chile, on radioisotopes in medical diagnosis and treatment. For work on radiotherapy, see page 94.

The Organization continued to co-ordinate the studies being conducted by the University of Brazil, the Catholic University, Rio de Janeiro, and the United States Atomic Energy Commission in areas of Brazil, particularly Araxá, with high natural background radiation, and similar studies in Rio de Janeiro on lampmantle workers who are exposed to thorium. Studies continued in Chile, with a grant from the United States National Institutes of Health and assistance from the Organization, of the mechanisms by which chronic industrial inhalation of manganese ores induces a schizophrenia-like syndrome, followed either by parkinsonism or a syndrome resembling Wilson's disease.

Pharmacology and Toxicology

A survey by the Organization of the quality control of pharmaceuticals in Latin America showed that some 2200 drug firms manufacture about 90 per cent. of the finished drugs consumed. The total retail cost of drugs consumed in Latin America is approximately US $1500 million per year. The survey suggests that many of the Latin American countries need to increase their pharmaceutical quality control activity and test more samples from the stocks of wholesalers, hospitals, pharmacies, and other distributors close to the point of use. The Organization is supporting the establishment of a regional drug institute to improve the training of the technical staffs of the Latin American countries and to carry on research. Uruguay has offered to serve as host country for the scheme.

At the fourth seminar on food and drug control for Central America and Panama, held in June in San Salvador, El Salvador, the food standards being established in the area were discussed, as well as the organization of food registration and control services and training.

Public Health Services

At the end of 1968 seven countries were implementing national health plans, and nine were at various steps of the planning process. Students from fourteen countries took part in the international planning course, held in Santiago, Chile, with assistance from the Latin American Institute for Economic and Social Planning and from the Organization. More than 230 professional staff have been trained in health planning in international courses, as well as 2000 officials in various national courses. Fourteen countries have announced their intention to collaborate in the Pan American programme of health planning which is to receive assistance from the Special Fund component of the United Nations Development Programme. The programme will include research, training, and the provision of information, and will be operated in co-ordination with the Latin American Institute for Economic and Social Planning.

By June 1968, forty-one projects for the development of general health services in thirty-two countries and territories were receiving some form of assistance from the Organization. Assistance to rural health services was directed principally to the integration in the general health services of programmes for the eradication and control of endemic diseases. A manual of procedures for such integrated services was prepared for the malaria eradication programme in Peru. Seminars on this subject for health officers were held in São Paulo, Brazil, and Cochabamba, Bolivia.
The Organization continued to promote the co-ordination of the medical services of ministries of health with those of social security institutions and other public and private health agencies; co-ordination committees set up under the chairmanship of the ministers of health in Argentina, Chile, Colombia, Costa Rica, El Salvador, Honduras, Mexico, Panama, Peru, and Venezuela are working in close contact with committees for economic and social planning and with health planning agencies.

Many countries are beginning to organize a "national health system" to bring together under a co-ordinated administration the various institutions providing medical services to certain segments of the population. The aim is to extend the medical care services within the cultural tradition and juridical and administrative system of the country concerned. During the year assistance in promoting co-ordination of national health administration services within the framework of national health planning was provided to Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, Honduras, Uruguay, and Venezuela.

Assistance in hospital construction programmes was provided to the Governments of Honduras and Mexico and in medical rehabilitation to Argentina, Brazil, Chile, Mexico, Venezuela, and Ecuador, where staff and equipment were provided to help in organizing services for the treatment and rehabilitation of more than 300 children crippled by the 1967 poliomyelitis epidemic.

In the programme of health laboratory services, a major effort was directed to the improvement of vaccine production. A freeze-dried smallpox vaccine of satisfactory potency was being produced in most countries (see also page 101), and Brazil and Colombia continued to co-operate with the Organization in providing enough yellow fever vaccine to meet the needs of control programmes in the Region. To promote and extend vaccine production further, advice, supplies and equipment were provided to a number of countries, and in Cuba and Mexico the Organization assisted in reviewing existing laboratory resources and personnel in preparation for requests to the United Nations Development Programme for assistance from the Special Fund component in developing the production of biological substances. In Bolivia a programme has been started to provide laboratory assistance to the new health centre hospitals being developed in rural areas with contributions from UNICEF.

Education and training were again the chief elements in the Organization's programme of assistance to countries for the development of nursing services. Thus three seminars, or similar educational meetings, on nursing administration were organized in Brazil, one in Barbados, two in Guatemala, and two in Peru for a total of 248 nurses. The first class of students graduated from the advanced programme in nursing education and administration at the University of the West Indies. A course for instructors was held in Guyana. Seminars and courses on the organization of in-service training programmes, the production of visual aids, and the methodology of nursing studies were held in Antigua and north-east Brazil and in the Caribbean area. A seminar on curriculum structure was organized in Brazil for directors of the thirty-two schools of nursing. Seminars on the evaluation of nursing education were organized in Guatemala for participants from thirteen countries in the area, and the Organization collaborated in the evaluation of curricula of schools of nursing in Colombia, El Salvador, Nicaragua and Panama. Assistance with basic nursing education was provided in Argentina, Barbados, Dominican Republic, Ecuador, Mexico and Peru. For nurses in the Caribbean area a refresher course in public health and three courses for district nurses were organized. Auxiliary nursing training programmes were further developed, and a school was inaugurated in Haiti. Trinidad and Tobago reported 150 students enrolled in seven organized courses.

The newly established nursing and midwifery training centre in Rio de Janeiro conducted a refresher course and seminar for nurses and midwives at the Universities of Niterói and Bahia respectively. Seminars were organized in Costa Rica and Peru to evaluate the content of the midwifery curriculum. Three-month refresher courses for nurses and midwives were developed in Jamaica.

Assistance was also provided to Costa Rica, El Salvador, Jamaica, Peru, and Venezuela in response to an increasing demand for improved care for psychiatric patients and for better clinical teaching, and also to Honduras and Nicaragua for the organization of national hospital nursing services. An advisory committee on nursing reviewed the Organization's present programme in nursing and the plans for the future, on the basis of reports on the situation in the countries. A study was initiated on the feasibility of providing low-cost textbooks to student nurses.

The conclusions and recommendations of the Seventh Central American Seminar on Health Education, held in Tegucigalpa (see also page 54), which established health education priorities for the five republics and Panama, were submitted to the Thirteenth Meeting of Ministers of Health in the Central American Isthmus, also held in Teguci-
galpa, in August. In Colombia the Organization helped in reviewing the health education services and in planning improvements. A series of prototype visual aids were developed as models to be used by ministries of education for training school teachers in health education.

The Organization continued to assist the Community Development Training Centre for Latin America (CREFAL), where sixty-four students from twenty countries of the Region attended the Centre's sixteenth regular course. Several short courses on community development including health aspects were also organized. Assistance was given to Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama in order to promote community participation in the rural water supply and malaria eradication programmes. In Barbados, training in community health education principles and practices was given to twenty ward sisters, twenty public health inspectors, and 105 vector control workers.

In compliance with resolutions WHA20.41 and WHA21.43, the Organization provided advice on the health aspects of population problems to the Governments of Colombia, Haiti, Honduras, and Peru. In addition, a joint mission under the auspices of the United Nations and the Organization assisted in a feasibility study in connexion with maternal and child health and family welfare services in the Magdalena Media region in Colombia. Assistance in developing training programmes at the schools of public health in São Paulo, Brazil, and Santiago, Chile, was continued; and the Organization supported a prospective study in Brazil and Chile of fertility with particular reference to the problems of abortion, and in Peru an epidemiological study of population dynamics. A review and analysis of training centres in population dynamics in Latin America was initiated, as well as a programme of curriculum guidance for the integration of related population subjects in the schools of medicine.

Environmental Health

At the beginning of 1968, 70 per cent. of the urban population, or approximately 95 million people, had water supplies either in the form of house connections or easy access to public hydrants; and it is expected that by the end of 1971 more than 70 per cent. of the urban population will have water services through house connections. In the rural areas progress during the year was slower. At the beginning of 1968 only 16 per cent. of 120 million people living in small communities had adequate water supplies and only one country had succeeded in providing water supplies for 50 per cent. of its rural population. In 1968, loans totalling more than US $37 million were approved by the Inter-American Development Bank (IADB) for Bolivia, Brazil, Dominican Republic, Nicaragua, and Uruguay, and requests from other countries were under consideration. National contributions to match funds provided by the IADB amounted to almost US $80 million. Five countries had introduced revolving funds, and a manual was published for the guidance of governments setting up such mechanisms. Assistance in the field of administration and management in national water agencies was given to Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Trinidad and Tobago, and Uruguay.

National courses on the problem of obtaining community acceptance of and participation in the financing and administration of public water supply systems were conducted in Nicaragua and Panama, with assistance from the Organization, for the technical personnel of the agencies responsible for the planning, construction and administration of rural water supplies.

Comprehensive planning for water pollution control is being employed as part of the development of water resources on a river basin scale, as a new approach to the increasingly serious problem in Latin America of the pollution of surface waters by sewage and industrial wastes. The second of two seminars on river basin planning to be sponsored by the Organization in Latin America was held early in 1968. The purpose was to provide information on comprehensive planning, including mathematical modelling, cost effectiveness, and optimization techniques. They were attended by representatives from all sectors of the economy concerned with water quality—power, agriculture, conservation, industry, municipal and national water supply, sewerage, and health. The Organization also participated in four river basin studies that included the question of water pollution control.

Research projects were carried out in four countries, covering the problems arising from the use of oxidation lagoons. These investigations showed that a careful revision of the design criteria could make projects more economical. Advice was provided to the water authority of Lima, Peru, on the organization of an industrial wastes department.

The Organization helped with a preliminary report for a feasibility study on solid wastes disposal in the metropolitan area of Santiago, Chile, with a view to the preparation of a request for a loan from the IADB. The preliminary design of two incinerators for Caracas, Venezuela, was reviewed, and preliminary reports were made regarding the disposal of solid
wastes in Tegucigalpa and San Pedro Sula in Honduras.

Collaboration was continued with ECLA and with the Inter-American Housing and Planning Center. The rural housing project in Venezuela was completed (see page 102).

In 1968, the programme of education, training, and research in sanitary engineering was in operation in thirty-seven universities in twenty-one countries. Out of sixty-six short intensive courses organized in 1968, sixteen in eleven countries dealt with oxidation lagoons. The IADB in 1968 renewed the agreement originally signed in 1967 to give financial support for the programme.

Research

The seventh meeting of the PAHO Advisory Committee on Medical Research was held in Washington, D.C., in June. It discussed a proposal designed to promote effectiveness of biomedical research in the Americas through direct support of research relevant to the Region's health problems; inauguration of a set of multinational programmes and the financing of co-operative efforts for research and research training; application of advanced analytical techniques to the planning and administration of public health programmes; and improvement of communication among Latin American biomedical scientists.

"Biomedical challenges presented by the American Indian" was the subject of the Committee's special session. The geological, glacial, archaeological, and climatological evidence bearing on the north-east Asiatic origin of the American Indian was reviewed. A study was made of outstanding medical problems such as the difficulty of controlling malaria among the more nomadic groups, and the high prevalence of gall-bladder disease and diabetes mellitus among the Pima Indians. The proceedings of the session were published in the *Scientific Publications* series.¹

The Committee also reviewed the current status of studies being sponsored by the Organization and national institutes, basing its consideration on a report on "Research in progress, 1968", which describes for each individual project the problem, the method used, the results obtained to date, the significance of the work, and resulting publications. The ninety or so projects reviewed in this way included a considerable number in the fields of nutrition and food science, endemic goitre, malaria, environmental sciences and engineering, the main zoonoses—rabies, bovine tuberculosis and brucellosis—and foot-and-mouth disease. The inter-American investigation of mortality in childhood, research training, and the activities of reference centres were among other subjects considered.

Health Statistics

The collection and analysis of statistical data in the health field were continued, and statistical publications during 1968 included the *Weekly Epidemiological Report, Reported Cases of Notifiable Diseases in the Americas, 1966*, and *Facts on Health Progress*.

The Latin American Centre for Classification of Diseases, in Venezuela, prepared teaching materials such as manuals for coding and training sets of death certificates, and organized training in order to introduce the Eighth Revision of the International Classification of Diseases; eleven courses with more than three hundred participants had been given by September 1968. (For other information on the Classification, see page 64.)

The fifth meeting of the Regional Advisory Committee on Health Statistics, in November, dealt with a programme for multinational centres in medical statistics, regional activities for the 1975 Revision of the International Classification of Diseases, recommended research on multiple causes of death, and the development of computer programmes in health and medical fields in the Region.

The inter-American investigation of mortality in childhood was begun in June as a full-scale project in thirteen areas of Latin America and one area in the United States of America. Over a two-year period deaths of 35 000 children under five years of age in these areas are to be studied on the basis of environmental, family, nutritional and medical information obtained through visits to hospitals, homes, physicians and clinics. Similar data will be collected on about 20 000 living children.

Training in statistics in the Region included the strengthening of a fifteen-month course for biostatisticians at the University of Chile; assistance with intermediate-level courses in health statistics and medical records for some two hundred students at schools of public health in Argentina, Colombia, Cuba, Mexico, and Peru and at the medical school of the University of the West Indies in Jamaica; with courses for about five hundred auxiliary personnel in thirteen countries; and with a conference on the teaching of demography, held in Bogotá, with participants from seventeen countries.

---

¹ Pan American Health Organization (1968) *Biomedical challenges presented by the American Indian* (Scientific Publications, No. 165), Washington, D.C.
Education and Training

This section is concerned with developments in medical education only; courses and training activities in other fields are mentioned earlier in this chapter.

The regional programme for the improvement of medical education again included assistance to individual countries, as well as a variety of inter-country activities. Altogether twenty-one medical schools in fourteen countries received assistance from the Organization in this field. In Argentina, Bolivia, Brazil, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Panama, Peru and Uruguay advice was given on the evaluation and improvement of medical education programmes. Assistance was also provided for schools of public health.

The Medical Education Information Centre, for which the Organization provides the secretariat, held its twentieth meeting in Washington, D.C., with the participation of officials from thirty-three institutions. Co-operative medical education activities and information on 122 medical education and research projects and on 140 fellowships for advanced training were reviewed.

In the programme to provide textbooks for Spanish- and Portuguese-speaking medical students, agreements have been reached under the auspices of the Organization with seventy universities. After a review of textbooks in pathology and biochemistry, one in each subject was selected, published and distributed to medical schools.

Data were collected for two studies: from medical schools in fourteen countries for a study of medical education and the teaching of preventive and social medicine, and from all public health schools in Latin America for a study of their structure, functions and needs, and of the general characteristics of the teaching.

Advice was provided to the training centre for professors of medical schools set up, with assistance from the W. K. Kellogg Foundation, at the University of Antioquia, Colombia, and to the similar centre being established in the University of Nuevo León, Monterrey, Mexico. A programme of training in pathology for Latin American schools was started in Colombia with the co-operation of three medical schools and assistance, including textbooks, equipment and fellowships, from the Organization.

Seminars were organized on the administration of medical schools for administrative personnel from Central America; and on the curricula for teaching preventive medicine and public health for professors from twenty-one schools of veterinary medicine in Canada and the United States of America. Courses were held on the teaching of epidemiology for professors of schools of veterinary medicine in Brazil; and on hospital administration for physicians in charge of hospitals.

Scientific and Public Communications

In the regional publications programme thirty-eight titles (85,000 copies) were issued as serial publications in 1968. They included the Spanish version of the PAHO study Patterns of Urban Mortality—Report of the Inter-American Investigation of Mortality; original manuals or monographs on malaria diagnosis, schistosomiasis intermediate hosts, biomedical challenges presented by the American Indian, nutrition; and Spanish translations of English-language technical texts for distribution in Latin America. The third issue of Facts on Health Progress, which appeared in English and Spanish, provides at the mid-point of the decade a statistical analysis of the progress made towards the objectives of the ten-year health programme adopted at Punta del Este.

The periodicals comprise the monthly technical journal Boletín de la Oficina Sanitaria Panamericana, the quarterly Educación médica y salud, published in collaboration with the Pan American Federation of Associations of Medical Schools and distributed throughout Latin America; and the bilingual (English and Spanish) PAHO Weekly Epidemiological Record. A one-volume English edition of the Boletín, containing selections from the previous year’s Spanish edition, is published annually.

Eleven more colour filmstrips were produced in Spanish, with accompanying scripts, for use as teaching aids in the training of students of the health professions—brining the total to thirty-six. More than 6000 copies were distributed in 1968 to schools and health authorities in Latin America.

In the field of public information, a regular news programme for Latin America, called “Salud para las Américas”, was launched during the year. It comprises four five-minute tapes which are sent each month to 300 Latin American radio stations.

The Regional Committee

The XVIII Meeting of the Directing Council of the Pan American Health Organization, which was also the twentieth session of the WHO Regional Committee for the Americas, was held in Buenos Aires, Argentina, from 21 to 25 October 1968, and was attended by representatives of all but two of the Member governments in the Region. The United
Nations, UNICEF, the United Nations Development Programme, the Organization of American States and the Inter-American Development Bank, as well as fifteen non-governmental organizations and other interested institutions, were represented. The Director-General was represented by an Assistant Director-General.

The recommendations made at the Special Meeting of Ministers of Health of the Americas were considered. This meeting, at which the Director-General was present, was held also in Buenos Aires, from 14 to 18 October 1968, and had been convened following action taken by the XVII Meeting of the Directing Council of PAHO, nineteenth session of the WHO Regional Committee. The Ministers of Health had given special attention to the Declaration of Presidents of the American Republics and the action programme approved by them at Punta del Este in April 1967. After reviewing the health programmes in the hemisphere, the Ministers of Health had made recommendations on a number of specific aspects of health work in the Americas, and recommended that governments should consider contributing to a fund whose income would be assigned exclusively to health programmes in the form of long-term low-interest loans, PAHO being given the responsibility of exploring this recommendation. The Ministers had also decided that the recommendations in their final report should be incorporated into the general policy of PAHO.

The appropriations for PAHO for the financial year 1969, amounting to US $14,083,286, were approved and the proposed regional programme and budget estimates of WHO for 1970 were approved for transmittal to the Director-General. The provisional draft of the proposed programme and budget of PAHO for 1970 was noted. The financial report of PAHO for 1967 and the corresponding report of the external auditor were approved.

A series of resolutions of the Twenty-first World Health Assembly and forty-second session of the WHO Executive Board were noted, and specific resolutions regarding long-term planning and evaluation and programming were adopted, together with a report on meetings of expert committees.

Article 15.A of the Constitution of the Pan American Health Organization was amended, increasing the membership of the Executive Committee, Working Party of the Regional Committee from seven to nine Member governments. To fill the new vacancies, Argentina, Brazil, Costa Rica, and Mexico were elected.

Action was taken to adopt the Tax Equalization Fund, to increase the ceiling of the Emergency Revolving Fund, and to amend the staff rules of the Pan American Sanitary Bureau, WHO Regional Office for the Americas.

In connexion with the new budgeting system of the United Nations Development Programme to be introduced in 1969, governments were urged to give full consideration to the importance of health activities in social and economic development with a view to increasing the proportion of health projects in the total number of projects requested from the United Nations Development Programme.

It was recommended that an analysis be made of the objectives and functions of the Institute of Nutrition of Central America and Panama, with a view to extending the scope of the Institute's activities to the whole Region.

The proposal for a programme of support for teaching and research in the health sciences was reviewed and approved for implementation on an experimental basis during the next three years.

Technical discussions were held on “Participation of the health sector in population policy”. The subject “Financing of the health sector” was chosen for the technical discussions in 1969.

Administrative and Organizational Developments in the Regional Office

In 1968 a new organizational structure was adopted for the Pan American Sanitary Bureau, WHO Regional Office for the Americas, with a view to permitting a more orderly development of the Organization's work. It included the setting up of a department of scientific and public communications (comprising publications and editorial services, distribution, translations, visual aids, public information, and library and reference services), another of special technical services (including activities relevant to the whole Organization and serving all programmes), and a department of human resources development, bringing together all services connected with education and training. Other departments were reviewed and their activities distributed among several sections.

Some Aspects of Work in the Region

A list of projects current during the year will be found in Part III. The following have been selected for fuller description.

Smallpox Eradication in the Americas

From 1963 to 1967, 22,293 cases of smallpox were reported in the Americas but the incidence is dimin-
ishing thanks to the constant efforts made in the various countries. In 1968 there were 3583 reported cases, all from Brazil except two imported cases in Uruguay and one case in French Guiana.

Colombia, Paraguay and Peru, where smallpox was present in 1966, and Argentina, where there were twenty-three cases in 1967, remained free from the disease in 1968. All except Paraguay, which had budgetary difficulties, were carrying out eradication campaigns. However, smallpox vaccination was continued through the health centres in Paraguay, and during the first nine months of the year more than 260,500 vaccinations were performed. In Brazil, the only country that continued to report cases, the outlook is encouraging, and the apparent increase of cases from the figure of 2751 for 1967 may be attributed to the fact that reporting has vastly improved, and in 1968 reports were received from all states. Brazil now issues a weekly smallpox bulletin. Its campaign is being reorganized and expanded; more than sixteen million vaccinations were performed in 1968 in special systematic vaccination programmes and during routine activities.

In Bolivia, the attack phase of the campaign was completed in February with a coverage of 81.1 per cent. of the population, and a successful-vaccination rate of 96.5 per cent. The other countries or territories were carrying out maintenance phase or epidemiological surveillance activities.

Since 1966 an important part of the Organization’s assistance for smallpox eradication has been directed to the production of high quality freeze-dried vaccine: laboratories have been provided with equipment and supplies, help in the training of personnel, and advice on techniques; in addition two reference laboratories have been established for the testing of vaccines for potency and purity. Other assistance has included the provision of essential equipment such as jet injectors; the organization of three courses on the laboratory diagnosis of smallpox, held at the Instituto Adolfo Lutz, São Paulo, Brazil, with the co-operation of the National Communicable Disease Center of the United States Public Health Service; technical advice on epidemiology and statistics, with particular reference to the preparation of plans of operations, the training of personnel, and the organization, supervision, and evaluation of campaigns; and services to research on operational techniques applicable to the smallpox eradication campaigns.

Evaluation of smallpox eradication campaigns is now proceeding with advice from the Organization and assistance in the training of local personnel. In conclusion it may be said that the progress in the planning, operation and evaluation of the campaigns has been such that almost all the countries of the Region are well on the way towards the eradication of smallpox.

Rabies Control along the Border between Mexico and the United States of America

At a meeting of the United States/Mexico Border Public Health Association held in Saltillo, Coahuila, Mexico, in June 1966, a resolution was adopted approving the expansion of the rabies control programme to include the entire border. This was the origin of an inter-country project assisted by the Organization and involving the co-operation of the Government of Mexico, the Public Health Service of the United States of America, and the bordering states and municipalities of the two countries. The frontier area concerned extends from the Gulf of Mexico in the east for a distance of 1450 miles westward to the Pacific.

Rabies has been a serious problem for several years. During the five-year period 1963-1967, 887 laboratory-confirmed cases, 615 of them in dogs, were reported in animals from the United States counties along the border, while on the Mexican side seventy-nine cases of rabies in dogs were reported from five cities in 1963 and 257 cases from seven cities in 1967, when two people died. The problem is complicated by the large number of dogs in almost all the cities concerned and by the considerable movement of persons across the frontier. Epizootics have occurred in the cities of Ensenada, Tecate, Tijuana, Mexicali, Juárez, and Matamoros. In 1959 a single stray dog started an outbreak which caused 822 cases during a fourteen-month period.

This episode, among others, led the authorities on both sides of the border to take corrective action. Until then, each community had been responsible for the conduct of its own programme, and the economic resources available were always insufficient to assure effective operation.

In the United States of America, the Public Health Service recently entered into contact with the four border states with the aim of strengthening the local rabies control programmes. On the Mexican side, activities started in 1966 in the cities of Tijuana, Mexicali, and San Luis Rio Colorado and were expanded during 1967 and the spring of 1968 to others along the border. The programme, which is assisted by the Organization, now serves twelve cities, with an estimated aggregate population of 1,429,985 inhabitants, and an estimated total of 178,698 dogs, or an average of one dog for every eight inhabitants. During 1967,
37,648 dogs were vaccinated in the five cities then included in the programme; 16,257 dogs were captured, 4,913 of which were claimed by their owners and vaccinated.

Four diagnostic laboratories serve the Mexican programme, each being equipped to employ the fluorescent antibody technique. Similar facilities are available in state and county laboratories on the United States side of the border.

It has been estimated that the programme must be continued for at least five years before the situation can be fully brought under control. Programme operation is based on five main principles: programme planning and training of personnel, health education, mass and house-to-house vaccination of dogs, capture and elimination of strays, and evaluation of activities. Each community now has a rabies control unit.

Although the programme cannot yet be accurately evaluated, 80 per cent. of the owned dogs have been vaccinated over the last two years in the cities concerned. The control of stray dogs is a much slower operation, however, and remains a serious problem.

It is reasonable to expect that, as the programme develops, all the border communities will be able to emulate the success of El Paso County (Texas) which, after reporting thirty-four cases of dog rabies in 1967, had not recorded a single case up to 15 August 1968.

**Occupational Health**

The Institute of Occupational Health and Air Pollution Research was formally established in 1963 in Santiago, Chile, with support from the Special Fund component of the United Nations Development Programme and WHO to provide training and research facilities at a time when Latin American countries were embarking on a new era in industrial development and when there was an acute shortage of professional personnel with specialized training in this field. In the five years of its existence, the Institute has been instrumental in training more than 100 professional personnel from Chile and from other countries of the Region in activities that have included a ten-month course in industrial hygiene for qualified doctors and engineers, a six-month course in industrial hygiene and safety for technicians, and a number of other courses—on industrial hygiene, toxicology, and water chemistry—which have been given in Chilean universities with the collaboration of the Institute. It has also made available facilities for research and other services to all countries of the Region, and research laboratories have been established in three main fields—industrial hygiene and air pollution, radiation protection (including radiochemistry), and work physiology (including biochemistry).

By the end of 1968 seven countries in the Region had highly effective industrial hygiene programmes and four were carrying on limited activities in that field. An industrial hygiene programme was started in Argentina, in 1966, with assistance from the Organization, which also helped with short courses in Brazil, Colombia and Bolivia. A regional seminar, held in July 1967 at La Paz, was attended by representatives of government institutions and leading mining industries in Bolivia, Chile and Peru, and yielded information on the problem of silicosis in the Andean area, and the preventive and control measures required. Considerable progress has already been made: for example, the silicosis rate among the large mining population of Peru has fallen from 13.5 per cent. in 1949 to less than 5 per cent. in September 1968, largely as a result of the control methods adopted by the mining industry itself with the support of the national industrial hygiene programme. Reductions in the prevalence of this disease have also been registered in Chile.

Most of the labour force in the Region is now given some protection against hazardous exposures associated with industry. The progress made is due to an awakening of interest and concern on the part of both industry and labour, and to the realization that prevention is cheaper than compensation, and that industrial health programmes contribute to the social and economic development of any nation.

**Rural Housing, Venezuela**

A housing programme begun in 1958 by the Department of Malariology and Environmental Sanitation of Venezuela with an annual target of 600 houses, and since developed by the Rural Housing Division of the Ministry of Health, had, by 1968, completed some 80,000 houses in about 1100 rural communities throughout the country. The Inter-American Development Bank provided two loans of US $10 million each for this programme.

Since 1963 the Organization has provided advisory services in order to help solve a number of problems that had been encountered. In the first place, it had been realized that the house itself, even when accompanied by a potable water supply and sanitary facilities, did not always meet the full range of needs of the rural family. Housing a farming population required a different planning approach from that for the rural non-farm dweller. The need to provide shelter for livestock created sanitary problems, and improvised farm buildings near the newly constructed houses would frequently bring back the health hazards which environmental sanitation had been trying to eliminate. Furthermore, it was found that an understanding of
village planning techniques was required for the effective integration of housing programmes into rural development projects implemented in conjunction with other governmental agencies. A growing awareness of problems such as these and the increased support of the Organization have both contributed to the results achieved.

New ideas of village planning are being studied and put into practice. The shortage of planning staff is being met by training schemes. Co-ordination has been improved, and better execution has resulted. A special section was created in the Rural Housing Division in order to deal more efficiently with the complex requirements of village planning. A first short course on rural architecture was held in Caracas during September and October 1967 with the collaboration of the Rural Housing Division, the Agrarian Reform Institute, and the Organization; several students and lecturers from other Latin American countries participated. The Organization also assisted in providing in-service training for architects and engineers engaged in rural planning and for undergraduate students who, thanks to a special grant from the Ministry of Health, have been working on a part-time basis with the rural housing programme.

The Venezuelan experience has demonstrated the beneficial effect on the health of the rural population of combining housing with other environmental sanitation activities. It has also served as an incentive to planners to anticipate future developments in rural housing through increased efforts in training, evaluation, and research.
CHAPTER 16

SOUTH-EAST ASIA REGION

The year saw an increase in assistance to education and training programmes for health personnel in the South-East Asia Region. This sustained emphasis is designed to bring about changes in teaching methodology and practice in undergraduate and postgraduate education; to accelerate the development of selected institutions or departments so that they may serve as national or regional training centres; and to promote group educational meetings for the dissemination of up-to-date knowledge in various fields of health.

Malaria and smallpox eradication continued to receive strong support. At the same time the need for an integrated approach to communicable disease control through the general health services became more urgent. For such an approach to be possible training programmes for health auxiliaries, paramedical and professional personnel will have to be further intensified in the coming years.

Malaria Eradication

Progress in malaria eradication was generally satisfactory in Afghanistan, Nepal and Thailand despite some localized difficulties. Focal outbreaks in northern India and a countrywide epidemic in Ceylon caused reversals in both countries which had so far been making satisfactory headway. In India activities in the affected areas, which have a population of some 86 million, were reorganized; the programme in the rest of the country progressed well. In Ceylon, the emergency measures taken to combat the epidemic are to be followed by a revised long-term eradication programme, scheduled to begin in 1969, on lines recommended by a WHO assessment team. In India, activities continued on a reduced scale because of financial stringency, the Government received assistance in evaluating the current status of malaria and in drafting a plan for the consolidation of existing achievements and for the possible expansion of control operations with a view to eradication. In Burma, the recommendations of a WHO assessment team for a control programme in the centre of the country were being studied by the Government. The first areas in Nepal reached the consolidation phase (see page 109). The prospects for controlling and eventually eradicating malaria from the Maldive Islands appear favourable; no anophelines were found in Male Atoll after the first round of DDT spraying. In April 1968 spraying operations were extended to other inhabited islands of the group (see page 111).

Communicable Diseases

The pattern of communicable diseases has been changing. There was, for instance, a resurgence of plague in Burma, Indonesia and Nepal. Also, the classical *Vibrio cholerae* is being replaced more and more widely by the El Tor biotype, and haemorrhagic fever continues to display a cyclical trend in some countries. Despite mass vaccination, smallpox has not regressed as expected in the classical highly endemic areas, and paralytic poliomyelitis and venereal syphilis have increased in major cities.

Because of these changes the Regional Committee at its twenty-first session, in September, called for assistance in the formulation and development of regional and national epidemiological surveillance programmes. More emphasis is being placed on training in laboratory techniques, epidemiology and health statistics as basic requirements for an epidemiological surveillance programme, and a further advanced course in the epidemiology of communicable diseases was organized (held partly in Prague and partly in New Delhi) for medical officers.

The smallpox eradication programmes in Afghanistan, Burma, India, Indonesia and Nepal were expanded with WHO assistance; supplies of vaccine were provided by UNICEF and WHO and were also obtained from bilateral sources. WHO also helped in establishing the production of freeze-dried smallpox vaccine in Ceylon and in expanding production in Burma, India, Indonesia and Thailand. Seminars were organized for the discussion of vaccine production and testing methods.

The epidemiological trends suggest that the important virus diseases, such as poliomyelitis, dengue-haemorrhagic fever, and viral hepatitis, require greater attention. In this connexion, support was given during the year to the establishment or expansion of virus diagnostic laboratories in five countries. In India, large-scale production of oral poliomyelitis vaccine was successfully developed at the Pasteur Institute,
Coonoor, which has received WHO assistance on a number of occasions.

The filariasis problem in Ceylon was assessed and the WHO Research Unit for the Control of Mosquito Vectors of Filariasis in Rangoon and the Aedes Research Unit in Bangkok continued their studies of the biology of *Culex pipiens fatigans* and different species of *Aedes* mosquitoes (see pages 19 and 21).

The yaws control programme in Indonesia was reviewed with assistance from WHO, and recommendations were made on the gradual integration of yaws surveillance into the general health services.

Venerable disease control activities in Ceylon are to be strengthened by further assistance for the diagnostic services, which is being planned with WHO advice, and in India increased attention is being paid to these diseases in medical education.

For epidemiological and economic reasons tuberculosis control activities continued to be based on direct BCG vaccination (i.e., without previous tuberculin testing), using freeze-dried vaccine, and on detection and treatment of bacteriologically confirmed cases, and to be directed to the integration of national tuberculosis programmes into the general health services. During the year, tuberculosis control programmes in Afghanistan, Burma, Ceylon, India, Mongolia and Thailand were extended to cover larger areas, BCG vaccination was resumed in Indonesia, mainly in Java, simultaneous BCG and smallpox vaccination was introduced on a small scale in Afghanistan and Nepal, and an assessment was made of the production methods for freeze-dried BCG vaccine at Guindy, in India. Courses for senior tuberculosis workers were held in four countries, and participants in the WHO-sponsored international course on the epidemiology and control of tuberculosis, held in Prague, visited Bangalore, Madras and Mandanapalle to observe the research under the Indian national tuberculosis programme.

In Ceylon, the 1967 assessment indicated that the problem of leprosy was greater than had been formerly believed, and long-term WHO assistance was requested. In 1968, leprosy control activities in Thailand covered over 60 per cent. of the population at risk and in India the coverage of the WHO-assisted programme was extended in the states of Orissa and Andhra Pradesh (see also page 27). For work on the trial, in Burma, of the protective value of BCG vaccination against leprosy, see page 27.

WHO continued to assist research in Calcutta (see page 28) and Bangkok on the epidemiology of cholera, and the WHO regional cholera control team helped to organize courses and to advise on laboratory diagnosis and rehydration therapy.

Production of diphtheria/pertussis/tetanus vaccine was assisted in Indonesia and Thailand, and in India, where the production of acetone-dried typhoid vaccine was also increased and its quality improved.

In veterinary public health, advice was provided in India on the possible extension of facilities for postgraduate veterinary public health training and on the improvement of co-ordination between veterinary and public health services in zoonoses control. In Mongolia, following the completion of vaccine trials, studies were made with a view to the establishment of a brucella vaccine production laboratory to meet the requirements of the national brucellosis control programme (see page 30). A seminar on zoonoses was held in October 1968 at the National Institute of Communicable Diseases, Delhi, with WHO participation.

**Health Protection and Promotion**

In the field of cancer, increased WHO assistance was provided for the development of pilot projects to ascertain whether programmes based on early detection and treatment can be effectively undertaken by the health services. In India, a WHO-assisted pilot project in Madras (see page 34) is concerned with cervical and oropharyngeal lesions; in Afghanistan assistance was provided with a survey of oropharyngeal carcinomas and their precursors; and in Mongolia epidemiological information on the prevailing types of cancer was reviewed as a preliminary to a WHO-assisted programme on cancer detection and treatment.

Following an epidemiological survey of cardiovascular diseases in Mongolia, which showed that the rheumatic disease complex was the most urgent problem in this group, arrangements were made to study the possibility of introducing a rheumatic fever prevention programme in association with the maternal and child health services. Advice was given on the improvement of coronary care units in leading hospitals in Burma, Ceylon, India, Indonesia and Thailand.

Advice was given in Burma and Indonesia on the strengthening of dental health services and education, and in Thailand on the establishment of a school, and the preparation of a curriculum, for training of school dental nurses. In India three visiting professors were provided to help the Government Dental College, Bangalore, in broadening the teaching facilities for undergraduate education.

With a view to improving the nutrition education provided by the health services, training of medical personnel in nutrition was intensified. The Nutrition Research Laboratories, Hyderabad (India), received assistance in conducting certificate courses and in
starting a nine-month diploma course for medical graduates from India and neighbouring countries. WHO continued to co-operate with FAO and UNICEF in applied nutrition programmes in India, in Indonesia, where the programme was reactivated, and in Thailand, where it was extended to new areas. Preparations were made for the first phase of a UNICEF/WHO-assisted goitre control project in Burma, and for an extension of the UNICEF-assisted programme in Thailand.

Further assistance for the development of radiation protection services was provided in Thailand, where a division for this purpose has been established in the Ministry of Public Health, laboratory competence has been developed, and a personal film-badge monitoring service is about to be introduced.

Because of the shortage of trained personnel to maintain and repair the costly X-ray and other electrical equipment in hospitals, courses for training hospital electro-mechanical technicians were organized with WHO assistance in India, at the All-India Institute of Medical Sciences in New Delhi, and in Indonesia, at the school for the training of technicians in electro-medical techniques at Djakarta. This school has received assistance from WHO for the training of X-ray technicians and is now enlarging its scope to include training of radiographers. The Organization also provided assistance in India to the Radiation Medicine Centre, Bombay, and for a second course for hospital physicists.

Training in physical therapy was promoted in Thailand, and in India with regard to a physical therapy school in Baroda. A follow-up visit to Indonesia confirmed that the training programme in physical therapy was running satisfactorily there. Assistance was given in the Maldives Islands for the medical rehabilitation of poliomyelitis victims.

Pharmacology and Toxicology

Various countries in the Region received assistance in assessing and strengthening current legislation on the quality control of drugs and analytical laboratory competence in that field. The Regional Committee urged that priority should be given to the development of all aspects of quality control of drugs and that the possibility of establishing a regional laboratory for that purpose should be studied.

Public Health Services

As an interim measure until national health plans can be drawn up within the overall scheme for social and economic development, master plans of operation for the strengthening of health services have been prepared for Afghanistan, Ceylon and Indonesia. They include all health activities assisted by UNICEF and WHO in these countries and can be incorporated in the health plans as these develop. Emphasis is placed on the extension of basic health services in anticipation of the time when they may assume responsibility for maintenance of malaria eradication and the control of other communicable diseases.

Studies were undertaken in Nepal and Thailand as a basis for the further development of the basic health services. Assistance in the training of paramedical and auxiliary personnel for the basic health services, in particular, continued in Afghanistan, Nepal and Thailand, and in Thailand some studies were made on the work of medical and other health personnel at the district level.

The National Institute of Health Administration and Education, in New Delhi, is undertaking a programme of operational research in district health administration which was planned with assistance from WHO.

A WHO public health administrator continued to participate in the training given at the Asian Institute for Economic Development and Planning, established in Bangkok with the help of the United Nations Development Programme (Special Fund component) and UNICEF. An economist is also being stationed at the Institute to assist in courses in health planning. Senior health administrators from five countries of the Region attended a course in health planning which started at this Institute and continued in Brazil, Chile, Colombia, Trinidad and India.

Advice was given in Ceylon and Indonesia on the reorganization of port health services.

Courses in hospital administration were held in India and Indonesia, and in Thailand, where advice on hospital design and planning was also given.

In the development of health laboratory services, WHO continued its long-term assistance to Afghanistan, Ceylon, Mongolia and Nepal, and helped Burma, Indonesia and Thailand in the organization and upgrading of existing laboratories and their phased extension to the provinces. Diagnostic facilities, including the introduction of the fluorescent antibody technique for the diagnosis of rabies, were improved in Ceylon, and assistance was provided to a number of countries for vaccine production.

Assistance in nursing was concentrated on the strengthening of educational programmes for all categories of personnel, particularly for nurse educators and administrators. Programmes of nursing training leading to a university degree were again assisted in India, Indonesia and Thailand. Twelve short inter-country and national courses for nurses
were organized in Afghanistan, Burma, Ceylon, India, Nepal and Thailand on functional and clinical aspects of nursing.

As part of the programme for the development of health education, a second course on training in health education was held in October 1968 in New Delhi. It was attended by leaders in health administration and health education and by persons concerned with the training of medical, nursing and sanitation personnel, from eight countries. Participants evolved a guide for planning training in health education for different categories of health workers.

Assistance was again given to the development of maternal and child health programmes within the framework of the general health services, attention being paid to the further strengthening of administrative maternal and child health units in departments of health, and in this connexion advice was provided on the unmet priority health needs of school-age and handicapped children in the Region.

On request, WHO gave advice on the integration of government-supported family planning programmes into the maternal and child health services and supplementary training of health personnel. Advice was given in India on different aspects of the family planning programmes, and assistance by UNICEF and WHO was extended to urban maternal and child health centres giving family planning advice in India and to health centres in Thailand.

Assistance for the development of paediatric and obstetric services was continued (for work in India see page 109).

Environmental Health

The pre-investment studies for the community water supply project for five priority areas on the southwest coast of Ceylon which is being assisted under the Special Fund component of the United Nations Development Programme started in July 1968 following the completion of the preliminary operations (see page 111). Another important project being financed from the Special Fund component—for improving the water supply of the Greater Calcutta area—which was expected to enter the implementation of the third phase, continued to be delayed.

In Nepal WHO helped to prepare a government request for Special Fund assistance for the development of a community water supply and sewerage project for Greater Kathmandu.

UNICEF and WHO support to the rural water supply programmes in Afghanistan, India, Mongolia and Nepal continued, and in Thailand assistance was given for the development of a national community water supply programme.

Training of sanitary engineers and other sanitation personnel was promoted by the provision of advice and supplies and equipment to engineering colleges in India, Indonesia and Thailand, and by the organization of training for professional and subprofessional environmental health staff in Afghanistan, Ceylon, Nepal and Thailand. An inter-country conference was held in New Delhi in June 1968 on the training and utilization of auxiliary sanitation personnel. WHO continued to assist the Central Public Health Engineering Research Institute at Nagpur, India (see page 59).

Health Statistics

In order to assist countries in applying the Eighth Revision of the International Classification of Diseases, WHO sponsored an inter-regional course for medical coding instructors in New Delhi in November.

Further progress was made in introducing better systems of hospital statistics, and in particular procedures for collecting, processing, and releasing administrative hospital statistics in Afghanistan, Burma and Nepal were reviewed and improved.

Education and Training

Much of the Organization’s activity in education was directed to helping countries to raise the standards of medical education generally. Information on modern teaching theory and methods has been disseminated by the assignment of teams of medical educators to individual colleges and by the organization of group meetings for discussion of general educational principles on, for example, new examination techniques and the teaching of particular subjects. A seminar on the teaching of pathology was organized in Djakarta in May 1968 for participants from Indonesia and Thailand, and a regional seminar on the place of psychiatry in medical education was held in Agra (India) in March 1968 for deans of medical schools and professors of psychiatry and other disciplines.

At the same time, long-term assistance was continued to the School of Preventive and Tropical Medicine and the Institute of Medicine II in Burma, to the Medical College in Baroda, India, and to Gadjah Mada University in Indonesia, and such assistance was again provided for the University of Ceylon at Colombo and Peradeniya.

Three countries of the Region received assistance during the year from the Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training.

Collaboration with other Organizations

WHO continued to collaborate in the Region with the United Nations and related agencies, particularly
with the United Nations Development Programme, UNICEF and FAO with regard to a considerable number of jointly assisted projects. These included large-scale development projects for which FAO is executing agency for the United Nations Development Programme, applied nutrition programmes, and maternal and child health and other projects assisted by UNICEF.

WHO also continued to collaborate with the United States Agency for International Development (AID) in the malaria eradication programmes in India and Nepal, and in health education aspects of education projects in Afghanistan and India. WHO helped to prepare an integrated plan for health services in Nepal, which would take into account the utilization of the resources available to Nepal both from national and international sources and bilateral aid. It also advised the Government of the Federal Republic of Germany in providing technical assistance for the Institute of Public Health, Kabul, for a hospital construction programme in Afghanistan and improvement of health laboratory services in Thailand.

WHO worked in close association with the national Red Cross Societies in the countries of the Region, which provided emergency assistance to the cyclone-affected areas of Burma. There was also continued collaboration with national branches of other international non-governmental organizations such as the national nursing, leprosy, and medical education societies.

The Regional Committee

The Regional Committee for South-East Asia held its twenty-first session in World Health House, New Delhi, from 17 to 23 September 1968. Representatives of Afghanistan, Burma, Ceylon, India, Indonesia, Mongolia, Nepal and Thailand attended the session. The United Nations, the United Nations Development Programme, UNICEF, FAO, and eleven non-governmental organizations in official relations with WHO were represented and an observer from the Ford Foundation also attended. The Director-General was represented by an Assistant Director-General.

The Regional Committee set aside the first half day for the celebration of the twentieth anniversary of WHO, an anniversary which coincided with the twentieth anniversary of the Regional Organization for South-East Asia. The commemorative session was inaugurated by His Excellency Dr Zakir Husain, President of the Republic of India; other speakers included Mr Satya Narayan Sinha, Minister of Health, Family Planning and Urban Development of the Government of India; and a number of messages were also received. Copies of The World Health Organization—Twenty Years in South-East Asia (1948-1967), a publication issued by the Regional Office, were presented to participants.

During the discussion on the annual report of the Regional Director in the regular session, the Committee noted the changing trends in WHO's work in the Region, from the original pattern of prolonged assistance to single-purpose programmes for the control of communicable diseases towards efforts to merge such programmes into strengthened general health services, and to provide advice by assigning more short-term experts. The need to improve education and training in quantity and quality was recognized and the increased assistance to group-training activities was welcomed.

The Committee noted with concern the regression in some malaria eradication programmes. It expressed satisfaction at the increasing tempo of WHO's assistance to national smallpox eradication programmes, and recognized that in both programmes the development of an adequate health infrastructure was the most important factor for achieving eradication. It therefore urged governments to give higher priority to the strengthening of their general health services and to the provision of adequate administrative and financial support to programmes for eradication or control of communicable diseases.

Subjects discussed covered other communicable diseases (including measures for combating preventable diarrhoeal diseases) and related subjects such as vaccine production, health laboratory services, statistics, the need for better training in epidemiology, and the importance of national and regional surveillance programmes.

On the quality control of pharmaceutical and biological products, the Committee emphasized the necessity for WHO's continued assistance in establishing regional or national control services.

The technical discussions on "National health planning as part of national economic development plans" took the form of a seminar. "Training of paramedical personnel in health centres" was selected as the subject for technical discussions in 1969.

The Committee approved the proposed programme and budget estimates for the Region for 1970 for transmission to the Director-General.

Various resolutions of regional interest adopted by the Health Assembly and Executive Board were noted and discussed. The Committee confirmed its wish to adhere to its practice of holding every other session at the Regional Office, and its opinion that, for the sessions held elsewhere, host governments should continue to pay only the local costs incurred.
The Committee confirmed that its twenty-second session would be held in Kathmandu, in October 1969, decided that the 1970 session would meet in New Delhi, and accepted the invitation of the Government of Burma to hold the twenty-fourth session, in 1971, in that country.

Some Aspects of Work in the Region

A list of projects current during the year will be found in Part III. The following have been selected for fuller description.

Malaria Eradication Programme, Nepal

The first serious attempts to control malaria in Nepal were made in selected areas in 1954, with assistance from the United States Operations Mission. From 1956 to 1958 a demonstration and control project was successfully conducted in the Rapti valley with WHO assistance, and this prepared the way for a country-wide malaria eradication programme which was launched in 1959 with the help of the United States Agency for International Development (AID) and WHO. The Government appointed a National Malaria Eradication Board and under it a National Malaria Eradication Organization.

For the purpose of malaria eradication the country was divided into four zones—East, West, Central A and Central B—with an estimated population of 4.9 million at malaria risk, the total population of the country being, according to the 1961 census, 9.4 million. Preparatory planning, training and surveys were carried out in 1959. The attack phase started in 1960 in the central zones and covered 85 per cent. of the population at malaria risk. Over the following six years the spraying coverage was progressively extended to the remaining malarious areas of the country, except for a portion of the West Zone.

Case-finding activities were introduced in 1962 on a limited scale and were gradually extended to cover all zones except part of the West Zone.

The results of the campaign have been encouraging. Malarial surveys carried out in the Rapti valley during 1956 and 1957 had shown a spleen rate of 92 per cent., a parasite rate ranging from 57 to 77 per cent. among children between two and nine years of age, and a parasite rate of 63 per cent. in infants. The spraying programme in the area covered by the surveys has brought these rates down to negligible proportions.

The socio-economic impact of the campaign has been shown most clearly in central Nepal, where some 21 000 acres (8500 ha) of land have been opened up for cultivation since 1962. This has meant a significant increase in rice, corn and mustard production. In addition it has been possible to undertake many construction projects. Roads can now be laid in formerly malarious areas, which has made possible an achievement such as the East-West Highway.

The malaria eradication programme, however, still faces many problems, mainly of an administrative and operational nature. In order to identify problems and deficiencies, an independent assessment was carried out in 1965 by a joint AID/WHO team which made recommendations for the future conduct of the programme. Slow but steady progress was made after this assessment and, following a further evaluation by an AID/WHO independent assessment team in January and February 1968, areas with a population of 1 764 000 were placed in the consolidation phase.

The situation of the programme at the end of 1968 was as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Population (000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>10 799</td>
</tr>
<tr>
<td>Population living in originally malarious areas</td>
<td>5 621</td>
</tr>
<tr>
<td>Population living in areas—</td>
<td></td>
</tr>
<tr>
<td>in the attack phase</td>
<td>3 533</td>
</tr>
<tr>
<td>in the consolidation phase</td>
<td>1 785</td>
</tr>
<tr>
<td>covered by case-detection only (West Zone)</td>
<td>303</td>
</tr>
</tbody>
</table>

The 1968 independent assessment team noted that there had been no proper delimitation of malarious areas above the 4000 ft (1220 m.) level. It also suggested that the persistence of transmission in certain places could be related to shortcomings in geographical reconnaissance and subsequent failure in spraying and surveillance coverage. Population movement in both resettlement and project areas poses a problem, although this has to some extent been overcome by the introduction of a third cycle of spraying in hyperendemic areas.

Lack of communications and difficult terrain are hampering the expansion of the programme in the West Zone. That in the East Zone is making more rapid progress.

The development of basic health services is an urgent necessity for Nepal; a plan is in the course of preparation which will use personnel of the malaria service as the nucleus for building up the basic health structure throughout the country.

Paediatric and Obstetric Training and Services, India

In 1961 a programme was initiated for strengthening paediatric departments in medical colleges and non-teaching and district hospitals in various states of India with the assistance of UNICEF and WHO. This assistance, which covered both paediatric education and paediatric nursing, had by the end of 1968 been
extended to sixty-eight paediatric departments and six surgical paediatric departments in medical colleges and post-graduate institutes, four infectious-disease hospitals and seven general hospitals associated with medical colleges, and eighty-three paediatric units in district hospitals. During this period WHO provided professors of paediatrics for 105 months and paediatric nurses for 146 months, as well as a number of short-term advisers in paediatrics for approximately thirty months. In addition to equipment and supplies, UNICEF assistance included stipends for participants in working conferences and courses, fellowships for courses leading to a diploma in child health, and fellowships for Indian paediatricians to attend certificate courses in nutrition given by the Indian Council of Medical Research at the Nutrition Research Laboratories, Hyderabad.

The programme was extended in 1966 to include the teaching of the social aspects of obstetrics and gynaecology in certain medical colleges and, in 1968, to cover the strengthening of obstetric departments. For this WHO provided consultant obstetricians for eleven months and two professors of obstetrics, each for one year, to Baroda Medical College.

In 1967 a seminar (workshop) on paediatric pathology was held at the Grant Medical College, Bombay, with a view to stimulating interest in the subject in teaching departments; modern teaching methods were demonstrated with emphasis on teamwork. This conference, for which WHO provided two consultants, was attended by thirteen professors of paediatrics and pathology from various Indian medical colleges and its meetings were followed by from twenty to sixty observers.

Between December 1967 and February 1968 a study of the pattern of teaching of neonatology in departments of paediatrics and obstetrics was made with assistance from WHO and two orientation courses in neonatology for senior teachers were organized. Further courses of this kind are planned for 1969.

In 1967 the Paediatric Centre at the Grant Medical College, Bombay, which had received assistance under the programme, was affiliated to the Institute of Child Health, London, so that participants in the UNICEF-sponsored course for senior paediatric teachers given at the Institute could acquire experience in tropical paediatrics.

Under the paediatric nursing part of the programme, nursing techniques in wards and out-patient departments have been improved. Post-basic courses in maternal and child health nursing have been developed at the College of Nursing attached to the Post-graduate Institute of Medical Education and Research, Chandigarh, and thirteen supplementary courses in paediatric nursing and care of the newborn have been given for a total of 258 nurses.

Two evaluations—one made in 1964-1965 and the other in 1966-1967—confirmed the value of the programme and brought out the need for further strengthening of undergraduate paediatric education. They also stressed the importance of making full use of field training facilities, developing field training areas in collaboration with departments of obstetrics and preventive and social medicine, and making child health a major subject in final examinations.

Late in 1968 two meetings were held at the Regional Office—one, attended by leading medical educators in India, to consider the lines along which further UNICEF and WHO assistance in paediatric education should be provided, and the other, attended by professors of obstetrics, to discuss future assistance in that subject.

As a result of the two evaluations and these two meetings, it has been decided to broaden the scope of assistance to undergraduate and post-graduate paediatric and obstetric education and services, and to include training in family planning.

Public Health Administration, Maldive Islands

WHO assistance to the Maldive Islands began in 1951 when a WHO consultant advised on measures to control filariasis and also carried out malaria surveys on some of the atolls. In 1957 the WHO area representative in Ceylon visited Male and, in accordance with his recommendations, a project was planned for the development of basic health services. Except for the award of some fellowships, all subsequent WHO assistance to the Maldive Islands has been provided under this project.

The project started in December 1959 when a WHO medical officer, assisted for some time by a WHO sanitarian and a WHO laboratory technician, was assigned to undertake an examination of health conditions and facilities, assist with the establishment of basic health services, and organize a course for health assistants needed for developing the services. This medical officer has also helped to develop programmes for controlling communicable diseases, particularly malaria, tuberculosis, typhoid fever and leprosy. Since 1963, a WHO public health nurse has been helping to train nurse-aides and indigenous midwives.

On the basis of entomological and malarial surveys carried out with WHO assistance during 1965
and 1966, preparations were made for malaria control work. The surveys showed that Anopheles tesselatus was the principal vector and A. subpictus the secondary vector; spleen and parasite rates were found to be high. In 1966 a house-to-house DDT spraying campaign was undertaken. In the first round of spraying, completed towards the end of December 1966, it was possible to achieve almost total coverage of the buildings and structures in eighteen islands of Male Atoll. Simultaneously, mass antimalarial drug treatment was given to the inhabitants of eight islands.

For two months after spraying, no mosquito species were detected in the islands sprayed. Anopheline larvae were found, however, in freshwater storage cans in the boats arriving daily in Male from the unsprayed atolls. Active case-detection was started in January 1967 in three large islands, and passive case-detection was instituted in Male and in other sprayed islands. All positive cases found are given radical-cure drug treatment.

Mass immunization programmes have been successfully carried out against typhoid in Addu Atoll and Male, and against poliomyelitis in Male and some southern atolls where an outbreak occurred in 1967.

The work of the regular staff provided by WHO has been reinforced periodically by consultants in special fields: malaria, typhoid, tuberculosis, poliomyelitis, environmental health, installation of X-ray facilities at the new hospital at Male, and rehabilitation of poliomyelitis victims suffering from residual paralysis. In this way it has been possible to deal with current health problems and to prepare realistic plans for future action, particularly as regards the extension of services to the outer islands.

By the end of 1968 twenty health assistants had been trained and a course for twelve more was in progress. There were twenty trained nurse-aides and three trained staff nurses working in the health services, and three students were studying basic nursing on WHO fellowships.

Six health centres, located in six different atolls, have been put into service and, as more health assistants become available, it should be possible, subject to the solution of the transport problem, to extend the health services gradually to the other islands.

The foundations are thus being laid for the development of basic health services. The control of communicable diseases, especially of malaria, has made good progress and the training of personnel, both supervisory and auxiliary, for the health services is beginning to show results.

**Community Water Supplies, Ceylon**

A programme for the provision of community water supplies in Ceylon started in 1963 with the assignment of a sanitary engineer by WHO to give advice and assistance to the Department of Water Supply and Drainage, Ministry of Local Government.

This assistance had been requested by the Government because of the high incidence of water-borne diseases throughout the country at that time. It was proposed to plan and implement a countrywide programme for the provision of piped water supplies; before this could be done, it was necessary to make an assessment of the total requirements of water in the various communities, and to prepare a realistic timetable of construction taking into account both technical and financial limitations.

Initially, two years was allowed for this preparatory work. During this time, good progress was made, but it became obvious that a longer period of assistance would be necessary in view of the magnitude of the problem. Accordingly, the Government requested, and WHO agreed to, the continuation of the sanitary engineer's posting.

Several positive results have ensued. In the first place the Government, with the help of WHO, requested from the United Nations Development Programme assistance from the Special Fund component in the preparation of a comprehensive study of the engineering and economic feasibility of an integrated water supply system for the most densely populated area of Ceylon, which lies in the south-west coastal area of the island, together with similar studies for drainage and sewerage of the same area. This request was not immediately approved in its entirety, but a revised submission for "preliminary operations" for the five communities in greatest need within this area was successful, and a Special Fund allocation was made for this purpose.

WHO, as executing agency for these preliminary operations, recruited a firm of consulting engineers to carry out the studies, which included the problems of surface water and sewerage of the City of Colombo, and these investigations have now been completed. Special Fund approval has now been given to carry out the complete pre-investment studies originally requested, and the Government has applied to the International Bank for Reconstruction and Development for a loan to finance construction.

Simultaneously with the preliminary operations, a study has been conducted by the (expanded) Division of Water Supply, Drainage and Local Government Works into the problems of the rural communities in which, it is estimated, nearly 80 per cent. of the total population of the country live. Data have been
collected, priorities established, and a construction programme is under preparation for incorporation into the National Development Plan.

Another feature of the programme has been the training of staff of all grades to implement the construction proposals. During 1968, a WHO consultant was assigned for the specific purpose of initiating a training school, and during the year about one hundred technical officers were trained as treatment plant operators at this school. In addition, fellowships were awarded as part of the preliminary operations, in-service training of various categories of personnel was given, and short courses on sewerage and sewage disposal were conducted for professional engineers,
CHAPTER 17

EUROPEAN REGION

Malaria Eradication

The diminution of the problem of malaria in the European Region is reflected in the fact that, of the nineteen formerly malarious countries, only five—Greece, Turkey, the Union of Soviet Socialist Republics, Algeria and Morocco—have malaria eradication or pre-eradication programmes still in operation. In the last two named, however, the disease remains a major public health hazard and the programmes are still in their early stages. In Algeria, where a WHO-assisted pre-eradication programme started at the end of 1963, the Government decided in 1967 to initiate an eradication programme in four stages, beginning in the eastern part of the country. The first region began its preparatory phase in 1968, and it is planned that by 1971 all malarious areas in the country will be covered. In August 1968, a malaria eradication training centre was opened in Algiers.

In the WHO-assisted pre-eradication programme in Morocco, particular emphasis was laid on the training of personnel. Considerable progress was made in the equipment and staffing of the basic health services and the malaria programme continued to develop as part of the public health services.

Substantial progress was made in the eradication programme in Turkey, which is jointly assisted by UNICEF and WHO, with the co-operation of the World Food Programme. Fewer than two million people now live in areas in the attack phase—in the south-east—and the remainder of the country is covered by an extensive surveillance network.

Communicable Diseases

In connexion with the long-term study of the effectiveness of tuberculosis control programmes in the Region, a working group met in Warsaw in May 1968 to draw up criteria for evaluating and comparing the effectiveness of different tuberculosis control measures, such as vaccination, case-finding and treatment. The criteria selected at the meeting are being tested in several pilot projects and demonstration areas.

Projects for the control of communicable eye diseases in Algeria and Morocco (see page 118) were continued with assistance from WHO, and a study was started on means of adapting general surveillance principles to deal with trachoma in countries such as Spain and Yugoslavia where the prevalence of the disease has been greatly reduced.

Means of improving the surveillance and control of rabies were discussed at a conference organized by WHO in June (see page 116).

Health Protection and Promotion

The Organization’s work on cancer included the provision of assistance to a cancer control project in Albania.

Together with the International Agency for Research on Cancer, WHO began a study on medical certification of causes of death, in which special emphasis is being placed on cancer of the gastro-intestinal tract and on ischaemic heart disease. Five institutions in different countries have agreed to take part in this study.

In preparation for the evaluation of the Region’s intensified programme of activities in the field of cardiovascular diseases, a special protocol was drawn up; this will be used in the collection of information to establish a base-line for the assessment of the programme’s effectiveness.

The establishment of a system for registration of patients with ischaemic heart disease—an important part of the regional programme in the field of cardiovascular diseases—was discussed by a working group in May. It considered the possibilities of developing such a system for the purpose of long-term follow-up of patients in well-defined pilot areas, and designed a “minimum operating protocol”. A study was started in November in Göteborg, Sweden, to test the adequacy of this protocol.

Assistance was given to training courses in coronary intensive care in Paris (in French) and in Moscow (in Russian), and a manual summarizing present knowledge and modern practice in coronary care was prepared, and is to be made available in English, French and Russian. To this end, uniform record forms were designed.

In order to develop a standardized programme for the physical rehabilitation of cardiovascular patients, a working group met in Freiburg-im-Breisgau, Federal Republic of Germany, in March. It drew up a comprehensive programme for the rehabilitation of patients
after myocardial infarction, covering all phases of the disease, from acute to post-convalescent.

A course on the physiological methods of assessing the working capacity of cardiac patients was held in Brussels in October.

The different systems of undergraduate dental education in Europe were reviewed during a conference organized in Copenhagen in November. The topics discussed included the dental curriculum, the internal organization and physical planning of dental schools, the use of auxiliary personnel, the value of audio-visual aids in teaching, and evaluation.

A conference on the planning of mental health services was held in Madrid in April. The guiding principles of mental health organization and practice were reviewed, and stress was laid on the need for integration of mental health—especially the preventive aspects—into the public health services, and on the importance of providing psycho-geriatric services and facilities in special fields, such as alcoholism, drug dependence and psychopathy. The role of each member of the mental health team—the psychiatrist, the nurse, the social worker and the statistician—was discussed, and special emphasis was laid on the importance of organizing community care of patients, with a view to swift rehabilitation and reintegration into their normal social environment.

In the Organization's work in the Region, particular attention was devoted to the problem of accidents—an important cause of death and source of serious physical disablement and economic loss. Following the symposium on human factors in road accidents held in October 1967 in Rome, a liaison meeting was held in Copenhagen in March 1968, with a view to considering the possibility of closer cooperation between the various organizations concerned with road accident prevention in Europe. The meeting was attended by representatives of the Council of Europe, ILO, the Organization for Economic Cooperation and Development, the International Federation of Senior Police Officers, the League of Red Cross Societies, and the World Touring and Automobile Organization. The prevention of accidents in the home was the subject of a symposium organized in Salzburg, Austria, in April, when stress was laid on the need for further epidemiological studies in this field.

The fifth course on the medical and social aspects of the care of the elderly was held in Kiev, USSR, in May and June; it was the second such course in Russian.

Pharmacology and Toxicology

An inter-regional course on the quality control of drugs, financed from the Danish Special Contribution to the Technical Assistance component of the United Nations Development Programme, was organized in Copenhagen during March and April, with the collaboration of the Danish National Health Service. In November at a conference on the quality control of pharmaceutical preparations held in Helsinki, the organization and functioning of services controlling drugs, problems related to good manufacturing practices, and methods for the enforcement of regulations and their co-ordination at the international level were discussed.

Public Health Services

Inter-country programmes in the field of public health administration were mainly concerned with methodology—health planning, health economics, the evaluation of public health services and the use of computers in public health. This reflected the increasing concern regarding the complexity of modern techniques in public health administration, the desire to use existing resources more effectively, and the need for a multidisciplinary approach to health problems.

The methods used for estimating future requirements in health personnel were analysed during a symposium held in Budapest in October. Stress was laid on the concept of the health team, and the subject was considered under its demographic, medical, economic, and educational aspects.

A seminar on health economics was held in Moscow in June and July (see page 117).

At the seminar on the public health uses of electronic computers, held in London in June, discussion was centred on the use of computers for certain aspects of public health practice. It covered the applications of computers to medical record systems and linkage, data-processing in health centres, and the use of computers in connexion with cervical cytology screening and blood transfusion services. Emphasis was placed on the advantages, difficulties and limiting factors in the use of computers rather than on the technical aspects or the type of equipment employed.

In Bulgaria, a Central Institute of Public Health was established in Sofia, on the basis of a regrouping of a number of specialized institutions. WHO, the executing agency for this project, which is being financed from the Special Fund component of the United Nations Development Programme, provided advice on the preparation of the programme of work in the various disciplines involved. As a faculty of the post-graduate medical school, the Institute will train medical and paramedical personnel and carry out research.
Environmental Health

Work was started on the water supply and wastes disposal project in Morocco, the first phase of which was approved for assistance from the Special Fund component of the United Nations Development Programme in December 1967. Operations were begun in order to cover the most urgent fresh water needs of the coastal area between Kenitra and Casablanca. A further request is being prepared for assistance from the Special Fund component in connexion with the extension of the project to the entire country. WHO is the executing agency for this project, as well as for a similar one in Malta, and also for projects for the protection of river water against pollution in Poland, and the preparation of a master plan for water supply and sewerage for the Istanbul area in Turkey.

The Organization also provided advice on the technical and financial aspects of a request to be submitted by Algeria for assistance from the Special Fund component in setting up a national water authority.

The appearance of new river pollutants and the development of new sewage and water treatment methods necessitated a review of the European Standards for Drinking-Water, first published in 1961. A working group therefore met during the year to consider such a revision.

WHO continued to assist Algeria, Morocco and Turkey in the training of sanitarians and, in addition, a WHO-assisted project was started in Turkey for the training of sanitary engineers. It also provided teachers for international courses in sanitary engineering at Delft, in the Netherlands.

Health Statistics

The Organization assisted annual courses in health statistics and epidemiology in the English, French and Russian languages. The programmes of the courses and their adjustment to meet the increasing need for training in the epidemiology of chronic diseases, especially cardiovascular diseases, were considered by the course directors and members of the teaching staffs during a meeting in London in May. The duration of one of the English-language courses in London was extended from four to six months, and the curriculum expanded to include subjects such as operational research, electronic data-processing and demography.

Education and Training

Following the technical discussions at the Regional Committee’s eighteenth session—on current trends in undergraduate medical education—a group of medical educators met in Copenhagen in December to consider the future of medical education in Europe.

A study was begun during the year on the different entrance conditions and formalities for medical schools, and the Organization continued its assistance to medical faculties in Hungary, Morocco, Poland and Turkey.

WHO arranged for a group of twelve teachers of public health and senior officials in the Federal Republic of Germany to visit schools of public health in London, Zagreb (Yugoslavia) and Rennes (France), with a view to the establishment of a Federal School of Public Health in their own country.

Co-operation with other Organizations

Work was carried out in co-operation with the United Nations, FAO, ILO, UNESCO and the World Food Programme on matters of nutrition, industrial hygiene, industrial safety and education, and co-operation with the United Nations Development Programme was further extended during the year. UNICEF and WHO continued to co-operate in BCG vaccination campaigns, the development of maternal and child health services, the production of weaning foods, and the strengthening of basic health services in several countries in the Region.

In collaboration with the Danish Government, ten courses were organized with funds provided from the Danish Special Contribution to the Technical Assistance component of the United Nations Development Programme. Collaboration continued with the Economic Commission for Europe concerning water and air pollution, and with the Council of Europe in the fields of environmental health, public health administration, accidents, and medical care.

The Regional Committee

The eighteenth session of the Regional Committee for Europe was held at Varna, Bulgaria, from 24 to 28 September 1968. Twenty-eight Member States in the Region were represented, as well as the United Nations Development Programme and a number of intergovernmental and non-governmental organizations. The Director-General attended the session.

A special meeting was held to commemorate the twentieth anniversary of WHO.

In the discussion on the Regional Director’s annual report for the period 1 July 1967 to 30 June 1968, particular attention was paid to long-term planning and evaluation. The Committee requested the Regional Director to examine the practicability of a greater concentration of effort on one or more specific fields of interest to all Member States; environmental
pollution and the mental health of young people were suggested for consideration as possible fields of action. Such activities would be on similar lines to those regarding cardiovascular diseases, but without limiting that programme. The first progress report on the five-year plan in the field of cardiovascular diseases was noted with satisfaction by the Committee, which urged all Member States to give administrative and financial support to national institutions co-operating in the implementation of the plan.

The Committee stressed the importance of maintaining flexibility in long-range planning by reviewing long-term activities during its annual discussions. It also expressed the belief that the inclusion in the annual programme and budget estimates of the Director-General of proposals for a second yearly period would be advantageous in the development of long-term plans for health programmes.

Stress was laid on the importance of activities in the fields of national health planning, health economics and noise control. The Committee reviewed a proposed programme on noise control, a serious public health problem in the Region, and a report on fatal home accidents in Europe, summarizing information received from ten countries. After considering a report on the prevalence of phenylketonuria in the Region, the Committee recommended that Member States take further action to provide for early diagnosis of this condition. With regard to the public health uses of electronic computers, the Regional Director was requested to continue to give active consideration to developments in this field.

Other subjects in which the Committee evinced particular interest were education and training, the prevention of chronic pulmonary diseases and lung cancer, and the carrying out of epidemiological surveys on the effects of smoking.

The proposed programme and budget estimates for the Region for 1970 were approved for transmission to the Director-General.

"Current trends in undergraduate medical education" was the subject of the technical discussions, which included consideration of the use of modern audio-visual methods in medical education. The Committee confirmed the selection of "Road traffic accidents as a public health problem" as the subject for the technical discussions at its nineteenth session.

The Committee also confirmed its acceptance of the invitation of the Government of Hungary to hold its nineteenth session in Budapest, in 1969.

Administrative Developments in the Regional Office

The working structure and procedures of the Regional Office were reorganized during the year in order to bring about a greater degree of delegation of authority and responsibility. The health services were accordingly divided into five branches, each responsible for a major technical sphere of activity. Construction work on the new Regional Office building was started in September 1968.

Some Aspects of Work in the Region

A list of projects current during the year will be found in Part III. The following have been selected for fuller description.

Conference on the Surveillance and Control of Rabies, Frankfurt-am-Main, Federal Republic of Germany

The present wave of rabies infection began to penetrate into Central Europe at the beginning of the Second World War, and is still spreading; unlike previous epizootics, it affects foxes and other wildlife more frequently than domestic animals. The problem was discussed at two symposia held in the European Region during 1966: one on virus disease control, organized by WHO, and another—jointly organized by FAO and WHO—on collaboration between veterinary and public health services. At both these meetings it was agreed that the rabies problem required special attention.

In June 1968, therefore, WHO organized a conference on the surveillance and control of rabies. The meeting, which was held in Frankfurt-am-Main, was attended by participants from twenty countries in the European Region, as well as by representatives of FAO and the International Office of Epizootics, and a number of observers. The purpose of the conference was to discuss the recent trends in the incidence of rabies in Europe and relevant ecological factors, and to consider methods of improving national rabies surveillance programmes and various other aspects of the wildlife rabies problem, including inter-country co-operation on wildlife rabies control in border areas.

From the discussions it emerged that, whilst the red fox was the main reservoir of rabies infection in central and western Europe, stray dogs constituted the main reservoir in southern Europe; in Algeria, Morocco and Turkey, wolves also played an important role in rabies epizootics. The participants emphasized the importance of surveillance and improved reporting, and agreed that serological, virological and ecological studies in wildlife, particularly foxes, were essential to provide the basic information required for effective, long-term control measures.
It was also agreed that methods of fox control should be adjusted to local conditions. Whereas the gassing of foxes under strict supervision could bring about a rapid and substantial reduction in the fox population in border or outbreak areas where habitat conditions were fairly uniform, hunting by shooting, trapping and ferreting might be more appropriate in areas of a less uniform nature, or where fox populations and rabies were already being controlled.

Stress was laid on the importance of co-operation between countries having common frontiers, and with interested international agencies, in the exchange of information concerning the control measures adopted, and in research programmes.

Following the conference, informal discussions were held in Geneva in order to establish an FAO/WHO co-ordinated research programme on wildlife rabies in Central Europe, and veterinary public health officials, virologists and wildlife biologists from countries that have agreed to participate in the programme drew up a plan of collaborative research in co-operation with FAO and WHO.

Seminar on Health Economics, Moscow

With a view to promoting better knowledge of the relatively new discipline of health economics, WHO organized a seminar in Moscow during June and July 1968. It enabled public health administrators, economists, and other personnel involved in health planning in sixteen countries in the European Region to exchange views and experiences and learn more about the tools of their respective professions, and helped them to reach a common understanding on the tasks confronting them.

The economic aspects of the different components of a health service were reviewed, and the application of economic reasoning to the field of health was studied. Manpower received special attention, since it was recognized as constituting one of the most important factors in health care expenditure, and the training of the highly skilled personnel required had to be planned long in advance. Medical, social, and psychological problems related to the size of hospitals were examined, and it was agreed that the usual method of measuring hospital activity by the number of patient-days was inadequate and did not reflect basic differences in the scope and balance of services. Participants considered reports of experiments aiming to relate the cost of hospital care to the diagnosis in respect of each patient, and not to the duration of stay. They also learned of studies which tended to show that, in developed countries, every 100 units spent on health were returned as 220 units in terms of national income.

It was agreed that planning in the health field constituted a serious challenge to the resourcefulness of planners. Stress was laid on the need for reliable statistical information and on the inadequacy of knowledge on the relationship between population trends and medical care needs.

Cost/benefit analysis was recognized to be one of the most useful tools available for evaluation purposes, and to be important for developing as well as for developed countries. The different methods of measuring the cost/benefit ratio were studied, and particular emphasis was laid on the possibilities offered by the development of computer techniques.

Nutrition Advisory Services, Algeria

Five years ago the nutritional situation in Algeria was serious to an extent that led to studies undertaken with a view to ascertaining the magnitude of the problem and the population groups most affected. Preliminary investigations identified these as children from the time of weaning up to the age of three years, those just reaching the age of puberty, and pregnant women and nursing mothers; the regions most affected as Oasis and Saoura—mainly the rural and mountainous areas and overpopulated districts in big towns; and the most frequent pathological conditions as protein deficiency, rickets, deficiency anaemias, osteomalacia during pregnancy, and endemic goitre.

A plan of operations was drawn up and WHO provided an adviser to assist in the continuation of preliminary surveys, the training of personnel, the elaboration of methods of nutrition education, and establishment of a national nutrition programme. From the beginning, emphasis was placed on the integration of this project within the public health programme, and thus in the national development plan.

Thanks to the introduction of nutrition as a subject into the curriculum of schools for training paramedical personnel and the opening of a school for dietitians, it has been possible during the past five years to train locally most of the personnel required. Fellowships were made available for the training of two medical nutritionists and an instructor for the school, and through national courses and seminars the collaboration of medical personnel concerned with maternal and child health was secured.

A nutrition bureau was set up under the Ministry of Health, and the National Institute of Public Health opened a nutrition department and a centre for nutritional rehabilitation. Nutrition education was included in the day-to-day activities of the maternal and child health centres.
Two measures warrant particular mention. One, the result of studies carried out by the Nutrition Bureau, is the Government’s decision to make the iodization of edible salt compulsory in order to combat endemic goitre. The other is the development of a formula for a protein-rich food (Superamin) which is now being mass-produced in Algeria—as the result of co-operative work carried out by the Nutrition Bureau, FAO, UNICEF and WHO—at the rate of approximately ten tons a month. The food—made almost entirely from indigenous raw materials—is provided to young children, particularly those of weaning age (through the maternal and child health services), and schoolchildren. It is distributed to the latter through an ever-growing number of school canteens, where more than 500,000 children are now being fed. Teaching staff have participated actively in the project.

Despite difficulties in recruiting qualified personnel, improving traditional dietary habits and, in general, expanding the programme, the results so far achieved in this project are encouraging. In other countries also, similar projects—providing for nutrition education and protein-rich foods—are under study.

Communicable Eye Disease Control, Morocco

In the past, nearly all children in southern Morocco suffered from bacterial conjunctivitis; before the age of six months, most of them had contracted trachoma, which usually lasted their whole lifetime. A large proportion of the population suffered severe loss of vision caused by these infections and the resulting complications. In 1952, a project for the control of communicable eye diseases was started in Morocco with assistance from UNICEF and WHO. It was one of the first of its kind, and has led to important scientific developments with regard to the prevention and control of these diseases.

Numerous field studies and surveys carried out by WHO since the beginning of the project made an essential contribution to the development of the control programme, and epidemiological studies helped to clarify the role of the various factors determining the severity of disease. A number of comparative trials were conducted in order to discover simplified methods of prophylaxis and treatment, and the “intermittent” schedule of treatment with antibiotics, which was first developed in Morocco, has since been adopted in many countries. In several pilot areas the population has been kept under observation for a number of years for the purposes of long-term evaluation. Since 1960, random sample surveys have been made in order to estimate the overall improvement brought about in the whole population as a result of control activities.

In the area where antibiotic treatment has been used for the longest period, a constant watch has been maintained for the development of resistance, but up to the present no clinical evidence of this has been found.

The results of these studies—which were published in the Bulletin 1 or reported in working documents at WHO conferences on communicable eye diseases—served as a basis for discussions in committee meetings and policy decisions concerning communicable eye disease control.

Parallel with this field research, the Organization has assisted the Government of Morocco in developing a routine control programme started in 1953. Collective treatment is given to all children entering primary schools, and is repeated in each of the first three grades; about one million children are now covered. In addition, about 3.5 million inhabitants of the more afflicted areas are included in mass self-treatment schemes covering each household. Communicable eye disease control campaigns are included as part of the public health services wherever these are set up in new areas.

In countries where communicable eye diseases are highly endemic it is scarcely possible to achieve any massive reduction in incidence without a radical change in living conditions, and any control project must be of a long-term nature. On the other hand, a control programme can bring about a marked reduction in blinding complications. In Morocco, an increasingly high proportion of children now escape infection in their early years; as a result of treatment, the disease is cured much earlier in life, and the risk of blinding complications has been remarkably reduced, so that it is now between one twentieth and one fiftieth of what it used to be.

EASTERN MEDITERRANEAN REGION

Malaria Eradication

Further progress was made in the malaria eradication programme. No indigenous cases have been detected in Lebanon or Israel for four consecutive years, and these countries could therefore be considered as having eradicated malaria. In Jordan and Libya the situation was reported as satisfactory, although some cases were imported from neighbouring countries, and appreciable progress was also made in the malaria eradication programme in Pakistan. In Iran total coverage operations were expanded throughout the malarious areas, resulting in a great reduction of transmission. In Iraq, the epidemiological situation remained complex, but it is hoped that the sustained efforts to improve the operations qualitatively, and the use of other insecticides in addition to DDT, may bring the transmission of malaria to an end despite the resistance of the vector to DDT. In Syria transmission persisted in the Derik and Ghab areas; epidemiological and entomological studies to establish the reasons for transmission were carried out with WHO assistance. In Ethiopia the malaria eradication programme, started in 1967, proceeded according to plan. Progress in the malaria pre-eradication programmes in Saudi Arabia, Somalia and Sudan was generally slow as they were connected with the development of basic health services. The malaria eradication programme in Tunisia is the first integrated mass campaign in the Region planned for execution by the general health service, although technically it comes under a central directing body of the malaria eradication programme and has the support of spraymen engaged on a temporary basis.

Participants from countries of the Eastern Mediterranean Region attended the inter-regional malaria conference, held in December in Beirut and also attended by participants from the countries of the European Region with malaria eradication programmes, and from Afghanistan.

WHO-assisted malaria eradication training centres in Ethiopia, East and West Pakistan, and Sudan provided training for both professional and technical staff.

Inter-country co-ordination meetings, sponsored by the Organization, brought together national malaria eradication staff of Burma, India and Pakistan; India and Pakistan; Iran and Iraq; Saudi Arabia and Jordan; and Syria, Lebanon, Iraq, Jordan and Turkey.

Communicable Diseases

The total number of smallpox cases notified in 1968 was considerably lower than the figure for 1967, although in Pakistan over 10,000 cases were reported during the year. Smallpox was introduced into Sudan and outbreaks were reported in four provinces, namely Upper Nile, Blue Nile South, Blue Nile North and Kassala. In Southern Yemen, an outbreak was reported in January 1968. WHO assisted in epidemiological investigations and in control and surveillance measures. Vaccination activities were speeded up to limit the spread of the disease and WHO provided several million doses of freeze-dried smallpox vaccine for the countries affected. Advice on vaccine production was provided to Iran and Pakistan. A smallpox eradication project which was started under WHO auspices in East Pakistan is to be extended to West Pakistan. Other projects were initiated in Somalia in 1968, and are planned to start in Yemen and Saudi Arabia early in 1969. Participants from Somalia and Sudan attended the seminar on smallpox eradication, held in Kinshasa in November, for national health personnel responsible for smallpox eradication activities in the countries of eastern and southern Africa.

In the tuberculosis demonstration and training centres in Ethiopia, Libya, Saudi Arabia, Somalia and Syria, large numbers of patients received routine examination and systematic treatment. Home visiting and health education for the population were improved. In most countries of the Region, the practice of direct BCG vaccination—often combined with vaccination against other diseases, particularly smallpox—is gradually being adopted. In Sudan, for instance, plans were made to carry out a BCG mass campaign as part of the smallpox eradication campaign, and to provide BCG vaccination for children under 15 years of age who represent more than 40 per cent. of the population.
Communicable eye diseases remained widespread in the Region, particularly in rural areas, and WHO continued assistance to the control programmes in Sudan and Syria.

Participants from Iran, Iraq, Pakistan and the United Arab Republic attended the travelling seminar on cholera control which was held in Moscow and in Calcutta (India) in June and July. The seminar enabled medical officers concerned with the epidemiology, laboratory diagnosis and clinical management of cholera to discuss the latest developments and trends. Following the outbreak in Pakistan and Afghanistan during which Vibrio cholerae was identified, WHO was instrumental in providing cholera vaccine to Afghanistan: Iran donated 250,000 doses, Iraq 250,000 and the United Arab Republic 500,000.

The WHO-assisted schistosomiasis control project in the United Arab Republic included a study on the public health importance of the disease in the project area. Malacological investigations were undertaken and an overall prevalence study pursued in two sections of the project area, namely Kom Ishu and Kom El Birka, where it appeared that molluscicides had a marked effect in reducing both the incidence and prevalence of Schistosoma mansoni infections in particular. No decrease in endemicity was found in an adjacent area where molluscicides had not been used. A hundred patients infected with *S. mansoni* were treated with lucanthone (a drug which has given good results in East Africa) in a trial the results of which were being assessed at the end of the year.

Pharmacology and Toxicology

WHO assistance on quality control of pharmaceutical preparations continued to be provided to Cyprus, Ethiopia, Iran, Jordan, Lebanon, Pakistan, Sudan and Syria.

Public Health Services

In most countries of the Region long-term health planning is receiving increasing attention. WHO continued assistance to Libya in preparing a long-term health plan, and also assisted with health planning in Ethiopia. It participated in the emergency mission organized by the United Nations Development Programme which visited Southern Yemen to review the health services and the urgent needs for assistance following the country's independence; it paid special attention to the maintenance of essential health services in Aden and the consolidation of the existing hospitals and other health institutions.

With regard to the development of rural health services, priority was given in Saudi Arabia to the training of auxiliary health personnel, and in Cyprus the Government policy on rural health was reviewed and guidelines were suggested for the development of an effective rural health service. In Yemen, WHO gave assistance to the health centres at Hodeida, Sana'a and Taiz.

A seminar on health services in rural areas was organized in Tunis in October, with assistance from WHO, for participants from fifteen countries in the Region, and from Afghanistan, Algeria, Morocco and Turkey.

Assistance in preparing comprehensive lists of supplies for newly constructed hospitals has been requested by Ethiopia, Iraq, Libya, Pakistan, Syria and the United Arab Republic. The training centre for the repair and maintenance of medical equipment set up in Tunisia (see page 124) showed the need for a central technical service to ensure proper maintenance of equipment throughout the Region, and plans are
being made for a regional training centre to serve this purpose.

Two new public health laboratories, in Islamabad and Mogadishu, were established with WHO assistance. The laboratory in Islamabad, which provides diagnostic and public health services, is also to serve as reference centre for East and West Pakistan. Other public health laboratories assisted by WHO included those in Jordan, Lebanon, Saudi Arabia and Syria. In Ethiopia the work of public health laboratories and training of laboratory technicians were reviewed with the help of WHO. In Sudan assistance was given in the formulation of a request for financing from the Special Fund component of the United Nations Development Programme for a public health laboratory service in Khartoum.

Vaccine production is increasing: Ethiopia, Pakistan, Syria and the United Arab Republic now produce freeze-dried smallpox vaccine which meets minimum requirements drawn up by WHO. In the United Arab Republic plans were made to produce poliomyelitis vaccine.

An inter-country course in Amman for laboratory technicians was sponsored by WHO (see page 123).

Fifty-six WHO nurse educators and public health nurses participated in twenty-eight long-term projects in nursing education and training, maternal and child health services, medical care and rural health services, nutrition, and communicable disease control in the Region in 1968. In Israel, Lebanon and Sudan WHO helped to plan measures for strengthening nursing education and services on the basis of an assessment of the national nursing resources and requirements.

Facilities for training in health education were developed. An intensive training programme organized in January in Kuwait for doctors and dentists of the school health section of the Ministry of Public Health emphasized the health education aspects of their work. The WHO-assisted School of Public Health of the University of Teheran introduced post-graduate training in health education leading to a master’s degree in public health in the academic year 1967-1968. Other possibilities of majoring in health education in the Region are provided by other institutions which are being or have been assisted by WHO: the School of Public Health, American University of Beirut, the High Institute of Public Health, Alexandria, and the Department of Social and Preventive Medicine, Hadassah Medical School, Jerusalem. A course for senior health educators on measurement and evaluation techniques in health education, organized with assistance from WHO in Teheran in November, concentrated on the planning and evaluation of health education in the context of general health programmes, and on applied research in health education.

Refresher courses for staff of maternal and child health services were organized in Iran, Libya, Pakistan, Syria, Tunisia and the United Arab Republic. A regional seminar on the health needs of the pre-school child was organized by WHO in Karachi (Pakistan) in February at which the countries of the Region discussed the specific health problems of this highly vulnerable part of the population.

A survey was undertaken in the United Arab Republic to assess the needs of children and youth, and provide a basis for the development of health services for these age-groups.

Environmental Health

WHO provided long-term assistance in the general field of sanitary engineering in Ethiopia, Iraq, Jordan, Libya, Pakistan, Saudi Arabia, Sudan and Tunisia, the projects in Jordan, Libya and Saudi Arabia being concerned mainly with water and sewage problems. Assistance was also given in training in Iraq, Libya, Somalia, Syria and Yemen. A course on the collection and disposal of solid wastes was held in Damascus in May, with participants from twelve countries.

Towards the end of a WHO-assisted training programme for waterworks personnel in Sudan a seminar was sponsored by the University of Kartoum for national personnel of all disciplines connected with community water supplies. WHO co-operated in planning and organizing the seminar.

WHO provided advice in connexion with the preparation of requests to the United Nations Development Programme for assistance from the Special Fund component for the following: Ethiopia (town water supplies), Iran (sewerage for Teheran), Iraq (rural water supplies) and Lebanon (disposal of solid and liquid wastes).

Health Statistics

Assistance with the improvement of health statistics was continued in Ethiopia, Pakistan and Sudan and a new project for the development of health statistical services was started in Tunisia. A consultant biostatistician provided by WHO helped to teach health statistics at the School of Public Health, Teheran.

An inter-regional conference on the training of health statistical personnel, held in Kampala, Uganda, in April 1968, enabled participants from Iran, Iraq, Lebanon, Pakistan and the United Arab Republic to discuss the trained statistical personnel needed for the health services, the training of such personnel, and the organization of training facilities.
Education and Training

The medical schools in Tunisia and Ethiopia, which started functioning in 1964 and 1965 respectively, continued to receive WHO assistance: teaching staff, fellowships for the preparation of teachers, and teaching supplies and equipment. The new WHO-assisted medical school in Aleppo (Syria) received its first students in October. The new medical school in Basra (Iraq), also assisted by WHO, started functioning in 1968. WHO experts visited Kuwait in October to consider the possibility of establishing a medical school in that country, and Libya in February for the same purpose. An interim organizing committee was constituted to prepare for the establishment of an Association of Medical Schools in the Middle East, and in June the committee met in the Regional Office to revise the Association's draft constitution which was later submitted for consideration to a meeting on medical education held in Khartoum in December.

A survey was made of schools of pharmacy in nine countries of the Region to obtain information on the different curricula and methods of teaching with a view to standardizing and streamlining pharmaceutical education.

Co-operation with other Organizations

WHO continued to co-operate in the Region with other agencies working in the health field—particularly with UNICEF—and with FAO, the World Food Programme, ILO and UNESCO in jointly assisted projects in nutrition, occupational health and health education. It also collaborated with the United Nations with regard to the health aspects of community development projects. In particular, relationships and co-ordination with the resident representatives of the United Nations Development Programme stationed in the countries of the Region have been very good. Close relationships were maintained with the Economic Commission for Africa and the Economic Commission for Asia and the Far East. Further, WHO participated in the various training activities organized by the International Children's Centre and collaborated with the United States Agency for International Development in several educational and malaria projects.

The Regional Committee

Sub-Committee A of the Regional Committee for the Eastern Mediterranean met in Nicosia, Cyprus, from 20 to 23 August. Sub-Committee B did not meet, the Government of Israel having expressed its intention not to participate and no other Member State having expressed a desire to participate. Sub-Committee A was attended by representatives of Cyprus, Ethiopia, France, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Pakistan, Somalia, Sudan, Syria, Tunisia, the United Arab Republic and Yemen. The two Associate Members, Bahrain and Qatar, were also represented. Representatives from the United Nations, the United Nations Development Programme, the United Nations Children's Fund, and the United Nations Relief and Works Agency for Palestine Refugees were present, as well as representatives or observers from four non-governmental organizations and other interested institutions. The Deputy Director-General attended.

Sub-Committee A examined the report of the Regional Director covering the period from 1 July 1967 to 30 June 1968. The importance of long-term health plans was emphasized and attention drawn to resolution WHA21.49 on long-term planning in the field of health. The need for co-ordination of health activities among neighbouring countries and regions was also emphasized. Availability of medical and paramedical personnel was recognized as a vital factor in long-term health planning, and in view of the scarcity of health manpower in the Region, the need for education and training activities was again underlined.

The importance of the control of communicable diseases was emphasized, and the progress achieved in malaria eradication, smallpox eradication, treatment of tuberculosis and BCG vaccination was noted. The role of laboratory services, the need for appropriate legislation in the field of radiation protection, and nutrition problems, including a paper on the nutrition of the weaning child, were also considered.

Other subjects considered included the applications of electronic data processing in public health and medical care services, and health examinations and screening procedures for chronic non-communicable diseases.

The proposed programme and budget estimates for the Region for 1970 were considered and endorsed as presented for transmission to the Director-General.

"Health hazards due to contamination of foodstuffs with pesticides" was the subject of the technical discussions. "Review of the education and training of nurses to meet the needs of the Region" was chosen as the theme for the technical discussions in 1969. The main zoonotic diseases in the Eastern Mediterranean Region and occupational health services in developing countries were selected for the technical discussions in 1970 and 1971 respectively.

Sub-Committee A further considered a document on long-term planning and evaluation and adopted a resolution urging appropriate action in the formulation and execution of national health plans. A report on
biennial programming was approved as submitted by the Regional Director, and it was agreed that, while it should not be binding, a programme projection for a further year ahead would be advantageous for long-term health plans.

Sub-Committee A confirmed the previous decision to hold its 1969 session in the Regional Office in Alexandria, and accepted the invitations of the Governments of Lebanon and Tunisia to meet in those countries in 1970 and 1971 respectively.

Administrative Developments in the Regional Office

Arrangements are being made for the construction of four additional offices in the Regional Office building, without altering the basic appearance of the main building.

Some Aspects of Work in the Region

A list of projects current during the year will be found in Part III. The following have been selected for fuller description.

Tuberculosis Control, Ethiopia

After the completion of a UNICEF/WHO-assisted BCG mass campaign, a national tuberculosis demonstration and training centre was opened in 1959 in Addis Ababa, also with the assistance of UNICEF and WHO. The main objective was to demonstrate simple and inexpensive techniques that could be adopted throughout the country, to study the epidemiological pattern of the disease, and to train physicians and technicians in immunization, diagnostic and treatment procedures. From the beginning of the project health education of the patients, their families, and the general public has been emphasized.

In 1961 a second tuberculosis centre, with sixty beds, was established along the same lines in the region of Harar. The following year a 180-bed hospital, supervised by the staff of the tuberculosis centre, was created in Addis Ababa. A policy of strict selection of patients for short periods of hospitalization and health education was adopted and proved successful.

A random sample survey, conducted in Addis Ababa during 1963 and 1964, showed a high prevalence of tuberculosis. From 1964 to 1966 a pilot project was in operation in the immediate surroundings of Addis Ababa. Some 50,000 persons were examined and different methods of controlling tuberculosis among rural populations were studied.

In 1964 an additional tuberculosis training and demonstration centre, for which UNICEF and WHO provided assistance, was opened in Asmara to serve the provinces of Eritrea and Tigre.

BCG vaccination without prior testing was adopted as a policy by the health authorities and has been successfully combined with trachoma and smallpox campaigns.

Experiments in new methods of chemotherapy included adding thioacetazone as a cheap companion drug to isoniazid. As the results were good, this combination of drugs was recommended and recently adopted for use on a nation-wide scale.

Training of Laboratory Technicians

Advanced training for medical laboratory technicians from the Eastern Mediterranean Region was first organized in October 1962. The course was conducted at the Central Public Health Laboratory in Beirut. The curriculum of the eighteen-month course covered elements of bacteriology, biochemistry, haematology and serology, parasitology, mycology, and an introduction to animal technology and histopathology. Lectures were also given on laboratory management.

The course was designed to prepare laboratory technicians as tutors who on their return to their own countries would participate in the training of laboratory personnel or be entrusted with supervisory responsibilities. As the first session proved the value of the training, it was repeated for a second group.

As the first session proved the value of the training, it was repeated for a second group, with modifications dictated by the experience gained in the first. Twenty-two students from ten countries attended and successfully completed these two sessions.

In view of the prevalence of anaemias due to malnutrition, haemoglobinopathies and other blood disorders in the Region and also the rapid develop-
ment of blood banks and transfusion centres in the different countries, haematology, immunohaematology, and serology were chosen as subjects for the first of these nine-month courses. The plan of study was based on four phases of these disciplines, covering most of the subjects and investigations required in a modern hospital laboratory. Teaching on a tutorial basis was given in the ratio of about one hour of theory to three of practical work. Seven trainees from five countries in the Region completed the course, which was also attended by Jordanian technicians.

Another course was organized, starting in October 1968, with instruction in bacteriology and parasitology at an advanced level. Eleven candidates from ten countries in the Region were enrolled.

Cancer Control, Sudan

The project started in 1959 when, in response to a request from the Government of Sudan for WHO assistance in establishing a cancer treatment service, a preliminary assessment was made of the problem and advice was given on the building, equipment, and staffing of a department at the Khartoum General Hospital. Previously and until the new service was set up, cancer patients had either been treated by surgery or were sent out of the country, usually to the United Arab Republic or the United Kingdom, for deep X-ray therapy or treatment with isotopes. 504 cancer patients had been reported by hospitals during the year 1955-1956.

In 1962 a joint IAEA/WHO mission visited Sudan and made recommendations on the design of the building, installations, and staffing of the proposed cancer department. Fellowships were awarded by WHO and IAEA for advanced training of national personnel for the service, including a pathologist, two radiotherapists, a nurse tutor, and a hospital physicist.

The building for the radiation and isotopes centre located on the premises of the Khartoum Hospital was ready for the installation of equipment for diagnosis and treatment in 1966, and towards the end of the year IAEA sent a hospital physicist to assist in the initial operation and maintenance of the radiotherapy units. A radiotherapist was assigned by WHO to the project in May 1967.

The aims of the project, for which a plan of operations was signed in 1966, were the early detection, diagnosis, and treatment of cancer by modern methods, the establishment of cancer statistics, research, and the training of undergraduates and post-graduates for work in this field. The centre was designed to serve the whole of Sudan.

By 1968 the centre was in full operation. About three hundred cancer patients received radiotherapy and about a thousand were diagnosed or received treatment with radioisotopes under the supervision of the radiotherapist during 1967-1968. The national counterpart received advanced training abroad in radiotherapy and the medical uses of radioisotopes, but the X-ray technicians required for the centre were trained locally by the internationally recruited and national project staff.

Plans are under way to set up with WHO assistance new facilities for radium treatment.

Training Centre for the Repair and Maintenance of Medical Equipment, Tunisia

At the end of 1962 a survey carried out with WHO assistance of all the hospital and health establishments in Tunisia provided information on the medical equipment in the country and showed the need for a repair and maintenance service to ensure the proper functioning and rational use of medical equipment and installations. Because of the lack of personnel qualified for such work WHO assistance was requested in establishing a centre and in training the necessary technicians. WHO has provided a medical equipment technician of engineer level for this project since 1963.

Studies were first made of the various types of electro-mechanical and other medical equipment in the twenty-four main and forty-five subsidiary hospitals in the country, as well as in other public health establishments. The aims of the project were to repair as quickly as possible all the apparatus and installations in institutions under the Ministry of Health, to set up their regular servicing, and to train technicians specialized in this work. A counterpart and trainees have been assigned to the project, and the Government has undertaken to provide employment for all the technicians trained in this centre and to post at least one to each hospital.

After a general basic training technicians are specialized to service groups of equipment, such as medical appliances (including X-ray, electrocardiograph and encephalograph apparatus, and laboratory equipment); air-conditioning and refrigeration installations; hospital lifts of all types; general electricity installations; and diesel engines. Training has included practical experience gained both by work under supervision in the repair shops and by accompanying technicians when called upon for the emergency repair of equipment in public health establishments.

Plans are being made to set up a regional training centre for the repair and maintenance of medical equipment, to promote the better functioning of the health services in countries of the Region.
The Assembly Hall of the Palais des Nations was decorated for the occasion.

WHO'S TWENTY YEARS

The twentieth anniversary of WHO was officially celebrated on 7 May 1968, during the Twenty-first World Health Assembly. Participants in the special session at the Palais des Nations, Geneva, included representatives of the Swiss Federal Council and of the Republic and Canton and the City of Geneva, delegates of Member States to the Health Assembly, and representatives of various United Nations bodies and other organizations. A message of congratulations was received from the Secretary-General of the United Nations, and special addresses were given. The Convivium Musicum, appearing by courtesy of the Administrative Council of the City of Geneva, provided musical interludes.

Professor E. Aujaleu, Chief Delegate of France, was President of the Twenty-first World Health Assembly and presided at the special session.
Medical students carry out a blood pressure survey in a village in Uganda as part of the Research and Training Centre's general study of heart conditions in African populations.

A research worker in Kampala takes a blood sample in order to check fibrinolytic activity.

Dissection of an elephant's heart in Kampala, where cardiovascular research includes the study of heart conditions in African animals.

The pathologist at the collaborating laboratory in Israel examines material and case histories of cardiomyopathies from Uganda and Brazil. The panel on his work-table shows sections of hearts from Chagas' disease cases.

An electron microscope is used for examination of material from countries participating in WHO-assisted co-operative research on cardiomyopathies.

Immunofluorescent techniques being used in the study of myocardial tissues from cardiomyopathy cases.

Cardiovascular diseases are a growing health problem in developing as well as in more highly industrialized countries. WHO's cardiovascular disease programme includes assistance to research on the etiology and pathogenesis of ischaemic heart disease and cardiomyopathies in different parts of the world. These photographs show aspects of the work of the WHO Research and Training Centre for Cardiovascular Diseases in Kampala, Uganda, and at a collaborating laboratory in Israel, where material from several countries is being examined in investigations sponsored by WHO.

RESEARCH IN CARDIOVASCULAR DISEASES

Dissection of an elephant's heart in Kampala, where cardiovascular research includes the study of heart conditions in African animals.
NURSING EDUCATION IN THE WESTERN PACIFIC REGION

In the Western Pacific Region, Cambodia and Malaysia were among the countries assisted by WHO in 1968 with plans to meet long-term needs for nursing personnel and with the development of nursing education. Training for nurses under the programme in Cambodia is given at the Royal Nursing School in Phnom-Penh, where two of these photographs were taken.

1. A Cambodian nurse instructor demonstrating techniques to a group of students at the Royal Nursing School in Phnom-Penh.

2. Studying a chart of muscle insertion in the library of the Royal Nursing School in preparation for an anatomy lesson.

3. A nurse instructor showing student nurses how to measure the blood pressure of a patient at the University Hospital in Kuala Lumpur.
CHAPTER 19

WESTERN PACIFIC REGION

Malaria Eradication

Improvements were made in the administrative management and some operational aspects of the malaria eradication programme in the Philippines. The programmes in East Malaysia (Sabah and Sarawak) were accorded a high priority, as they are considered an integral part of national socio-economic development plans; particular attention is being given to the establishment of an effective surveillance mechanism. Attack phase operations were started in the north of West Malaysia. In the pre-eradication programme in the Republic of Korea, work was begun on an assessment of the function of the basic health services in a future eradication programme, and on studies on the feasibility of interrupting malaria transmission using case-detection as a principal measure. The Borneo Malaria Eradication Co-ordination Meeting was revived.

Communicable Diseases

The danger of the spread of quarantinable diseases from one country to another was particularly stressed by the Regional Committee at its nineteenth session (see page 128). Although no cases of smallpox were reported in the Region during the period under review, intensive vaccination campaigns are being undertaken in Cambodia and Laos, and freeze-dried vaccine is now being produced in a number of countries, with assistance from WHO in the form of advice on the maintenance and operation of the production units and fellowships for the training of staff.

There was again a high incidence of Japanese encephalitis in China (Taiwan) (where WHO provided assistance in the production of vaccine), in Japan, the Republic of Korea (where the Organization co-operated in the planning of studies on the vector and on the transmission of the infection), and in the Ryukyu Islands.

Human cases of schistosomiasis have recently been reported in Cambodia, and a WHO team started to carry out surveys in both Cambodia and Laos.

Recent developments with regard to filariasis control were discussed at the regional seminar organized by the South Pacific Commission and WHO in Apia during August. The results obtained in filariasis control projects in the Region were reviewed; in Western Samoa a marked reduction in the rate of microfilarial infection was noted, following mass drug therapy (see page 15).

The upward trend in the incidence of gonorrhoea and syphilis continued, and WHO provided assistance to China (Taiwan) and the Republic of Viet-Nam in assessing the problem and organizing control programmes. The second regional seminar on venereal disease control was held in Manila in December.

With regard to tuberculosis, the project in the New Hebrides, where at least 75 per cent. of the tuberculin negative population have been protected by BCG vaccination, is a good example of how special campaigns can stimulate the development of a balanced and integrated health service. Following the first stage of the tuberculosis campaign, immunization against other communicable diseases and simple maternal and child health activities were introduced. In the next stage, the Condominium Department of Hygiene was established. The practice of direct BCG vaccination of infants and young children, without preliminary testing, has now been adopted in nearly all the projects in the Region assisted by UNICEF and WHO.

Cases of cholera El Tor were reported in some countries in the Region, and WHO provided advice to Cambodia, Laos and the Republic of Viet-Nam on cholera vaccine production. Bacteriological and epidemiological studies were continued in the Philippines under the joint Philippines/Japan/WHO cholera study project (see page 28), and a summary of recent findings was presented to the Regional Committee at its nineteenth session.

Although the increase in the number of cases of plague reported in the Republic of Viet-Nam continued, the disease has so far not spread to neighbouring countries. WHO assisted the Government in the practical aspects of deratting and flea control, a mass immunization campaign was started in certain areas, and port sanitation and quarantine practices are being improved.

The Organization's assistance to the epidemiology project in Cambodia was continued, and a similar project was started in the Republic of Korea.
Health Protection and Promotion

WHO provided advice to the Government of the Philippines on its cancer control programme, the first WHO-assisted project of this type in the Region. A pilot area was established in a province close to Manila where staff are trained in cancer control measures and various techniques are demonstrated.

In the field of mental health, in addition to the project in the Philippines which has been assisted by WHO since 1949, WHO provided advice to Japan and Malaysia. The project in China (Taiwan), which is nearing completion, has led to the development of a sound training component capable of providing a broader approach through community services.

With regard to nutrition, in the Philippines key centres throughout the country, in particular all the government normal schools, are now involved in an applied nutrition project, and a national training centre has been established at Baguio. The applied nutrition project in Cambodia, jointly assisted by FAO, UNICEF and WHO, is being developed by a multidisciplinary team in the Bureau of Nutrition. A new WHO-assisted programme was started in Malaysia. Agriculture, education and health personnel are collaborating in the project. Assistance was given to French Polynesia in strengthening the nutrition activities of the health services and in carrying out a study of the food patterns and the socio-cultural and other factors affecting the nutritional state of vulnerable groups.

The analysis of data collected in epidemiological surveys of dental diseases in various countries in the Region was continued, with the aim of obtaining the basic information required for the development of adequate dental health services in the countries concerned.

The first regional seminar on the prevention and control of cardiovascular diseases due to infection, with particular emphasis on rheumatic heart disease, was held in Manila in November. Participants reviewed the situation in the Region with regard to some non-infectious diseases of the heart, and considered the resources available for their control and possible preventive measures. Little attention had hitherto been given to cardiovascular diseases in the regional programme, and it is hoped that the seminar will have provided the starting point for further activities in this field.

Public Health Services

A regional programme of training in health planning has been established in collaboration with the University of the Philippines. It consists of an annual course including an introduction to economics, public administration, demography and sociology; a theoretical presentation of economic, physical and social development, with emphasis on national health and manpower planning; and field practice in health planning. A two-month course in September and October 1968 was attended by selected WHO staff, and the first annual three-month course for national personnel is to be held in 1969.

In reply to a questionnaire sent out to governments on the subject of integrated planning for health, twelve governments reported that they had a national planning body, and in ten of these a health sector had been established. Ten governments expressed interest in receiving WHO assistance in national health planning, and during 1968 such assistance was provided to Cambodia and the Republic of Korea.

In West Malaysia UNICEF and WHO have been jointly assisting a project for the strengthening of the rural health services and the training of personnel since 1964. During 1968, WHO completed an evaluation of the rural health services, and operational research was started with the aim of studying the operation of general health services at the local level.

In Laos, the former WHO-assisted rural health development project was redefined, and the long-term objectives of the new project are the strengthening of facilities for the training of health personnel and the development of health services at all levels, including the improvement of co-ordination between special health programmes and the general health services. In line with the Government’s five-year development plan, activities are being concentrated in the Vientiane plain and in the area where the first large dam is being built under the Lower Mekong Basin development programme.

The ECARE Committee for the Coordination of Investigations of the Lower Mekong Basin endorsed the proposals contained in the report prepared by WHO on the health implications of the United Nations Lower Mekong Basin development programme. One of the recommendations was the creation of a public health element in the Secretariat of the Mekong Committee. A public health administrator and a sanitary engineer are to operate in close co-operation with the WHO representatives in all the countries concerned and, through them, with the national Mekong committees and the health authorities.

In Western Samoa, WHO made an assessment of the rural health services, and work was begun on the reorganization of the Health Department.

During 1968, WHO provided assistance for ten nursing projects in the Region. The nursing education
project in West Malaysia was completed in April (see page 211).

Health education services have now been established in most Member States in the Region, and during the year the assistance of UNICEF and WHO was terminated in the school health education project in the Philippines (see page 130). A sound health education programme is now operating in Singapore, where the two Organizations have been providing long-term advisory assistance.

Family planning is being adopted as an official policy by an increasing number of countries in the Region.

The project for the provision of advisory services on maternal and child health in the South Pacific area is described on page 129.

Environmental Health

Assistance was given to twenty-three projects in the field of environmental health. There was particular emphasis on the planning of large municipal projects that would qualify for support from the Special Fund component of the United Nations Development Programme (UNDP), such as the project for the preparation of a master plan for a sewerage system for the metropolitan area of Taipei.

Arrangements were made for WHO to co-operate in two other projects financed under the Special Fund component of UNDP — a pre-investment survey of the Naktong River Basin in the Republic of Korea, and an urban renewal and development project in Singapore. These projects are being executed by FAO and the United Nations respectively.

A new inter-country project was started in January for providing to governments advisory services on water supply and sewerage plans, including information on the economic and administrative aspects, and on financing.

WHO provided advisory assistance in connexion with the establishment of a public health engineering service in the Ministry of Health in Malaysia (see page 128) and in Cambodia. In the latter a WHO-assisted project for the training of sanitarians was completed (see page 129), and the Organization also provided advice in connexion with the implementation of a United Nations urban development project in Sihanoukville.

Education and Training

Medical schools continued to experience a shortage of qualified teachers, and the strengthening of national training centres remained one of the priorities in the regional programme. Through the provision of full-time lecturers, fellowships and advisory services, WHO has helped to strengthen the teaching programmes in medical schools and public health institutions in five countries in the Region. The Governments of Laos and the Republic of Viet-Nam have decided to set up institutes to train various categories of health workers. The project in Viet-Nam, which should be of major importance for the further development of the health services, has received considerable financial support in the form of contributions made through the Voluntary Fund for Health Promotion by the Governments of the Netherlands and of the United States of America. The WHO-assisted Public Health Institute in Kuala Lumpur is expanding its activities and additional senior staff are being recruited by the Government.

Co-operation with other Organizations

Co-operation with the World Food Programme was intensified, and new policies were developed for supplementary feeding for vulnerable groups.

All WHO-assisted nutrition projects in the Region were planned in collaboration with FAO, and the regional nutrition advisers of both organizations visited most areas of the Region together.

Collaboration with the ECAFE Committee for the Co-ordination of Investigations of the Lower Mekong Basin is mentioned above (see page 126).

Co-operation was maintained with the South Pacific Commission in a number of fields of mutual interest — for example, in the organization of the regional seminar on filariasis (see page 125).

The Regional Committee

The nineteenth session of the Regional Committee for the Western Pacific was held in Manila from 1 to 8 October 1968. The session was attended by representatives of all Member States in the Region, and by representatives of Member States responsible for territories in the Region. Representatives of the United Nations, the United Nations Development Programme, UNICEF, the International Committee of Military Medicine and Pharmacy, the South
Pacific Commission and eleven non-governmental organizations in official relations with WHO were also present. The Director-General and an Assistant Director-General attended the session.

The afternoon of the first day was devoted to the celebration of the twentieth anniversary of WHO.

The Committee examined the report of the Regional Director for the period 1 July 1967 to 30 June 1968. Considerable attention was paid to the problem of communicable disease control and the continued threat of the spread of quarantinable diseases.

Representatives of several countries emphasized the need to undertake more work in connexion with Japanese encephalitis — in particular, to carry out field trials — and also suggested that more attention should be given to leprosy. A summary of recent findings in the joint Philippines/Japan/WHO cholera study project was presented to the Committee.

The Committee approved the proposed programme and budget estimates for the Region for 1970 for transmission to the Director-General.

After reviewing the proposal made by one Member government regarding the establishment of a WHO medical school in the Region, the Committee decided that, since the proposal had not obtained support from Member States, no further action was required; it recommended that, instead, WHO should continue to assist in strengthening national medical schools within the Region.

The Committee reviewed a report summarizing information received from Member States regarding assistance provided by voluntary organizations in the field of health, and recommended that national health administrations should make full use of the information collected, with a view to utilizing these resources more effectively.

With regard to long-term planning and evaluation, the Committee recommended that the next general programme of work for a specific period be built up in three successive steps — national, regional and global; emphasis should be placed on organization and administration (including the extension of health services to the periphery and improvement in their management); education and training; and selected programmes such as communicable disease control, the organization of medical care, environmental health, and health promotion, with particular attention to child health. The Committee also noted with interest the proposal that Member countries might wish to pursue joint studies on selected subjects of particular interest to groups of countries — for example, haemorrhagic fever, Japanese encephalitis and filariasis. The concept of biennial programming was endorsed by the Committee, which suggested that budgetary data for the current year — i.e., the year in which the programme and budget proposals were prepared — should be retained, so that a four-year cycle would be presented.

The Committee expressed its appreciation of the initiative taken in planning for 1970 a course on the health aspects of population dynamics, and the hope that regional activities in this field would be expanded. After reviewing the question of the cost of regional committee sessions held away from regional headquarters, the Committee reaffirmed the principle approved at its fourth session: namely, that any extra costs over and above those normally incurred when a regional committee session was held at regional headquarters should be borne by the host government. It considered, further, that the extra costs borne by the host government should be offset by any savings accruing to the Regional Office allocation for the Regional Committee for the financial year concerned.

"Health planning as an administrative tool" was the subject of the technical discussions. National health planning was recognized as an important administrative tool for strengthening the health services and ensuring co-ordination of health activities with general socio-economic development, and stress was laid on the importance of the training of medical and other staff in this field.

"The planning and organization of a national epidemiological service" was selected as the theme for the technical discussions in 1969.

The Committee decided that its twentieth and twenty-first sessions should be held at the regional headquarters in Manila, unless invitations were received for them to be held elsewhere.

Some Aspects of Work in the Region

A list of projects current during the year will be found in Part III. The following have been selected for fuller description.

Environmental Health Advisory Services, Malaysia

The long-term objective of this project, which was started in 1965, is to assist the Government of Malaysia in developing policies and methods for the organization, administration and operation of sanitary engineering services, in establishing efficient advisory and surveillance services in environmental health throughout West Malaysia, and in training professional and subprofessional personnel for these purposes.
As a means to this end, a study was made of the present and future needs and priorities in these fields. A plan was subsequently prepared for the establishment of a public health engineering service within the Ministry of Health, and the first post was filled in December 1966 by the transfer of an engineer from the Public Works Department.

The first activities of the newly established service included a survey to ascertain the emergency health measures required following a flood disaster, and the provision of assistance in designing a sewerage scheme for the Sungei Buloh leper colony, which has a population of 2500. The public health engineer also attended technical committees and carried out investigations and reconnaissance surveys in connexion with sewage disposal and rural water supply projects. In all these matters, he was advised and assisted by a sanitary engineer assigned by WHO.

In addition to assisting the Ministry of Health, WHO advised the Public Works Department, the economic planning unit, the Commissioner of the Federal Capital of Kuala Lumpur, and the city authorities of Ipoh on matters related to sewerage and sewage disposal, and rural water supplies, and also provided assistance in connexion with the training of sanitation personnel.

Since the establishment of the new service, three sewerage schemes have been developed at a total cost of approximately US $231 000, and plans have been prepared for regional sewerage development in Kuala Lumpur, to serve a population of 520 000, and for a similar development in Ipoh, which will benefit 250 000 people. Inventory and assessment surveys have been carried out on two privately managed water supplies, and a proposal for a revolving loan fund to assist small towns and local authorities in the financing of sewerage construction has been worked out and is under consideration by the Government.

Much remains to be done in this, and similar fields — such as water pollution control, sanitary legislation, housing policy, industrial waste and air pollution control, and industrial hygiene — but assistance to this project had to be withdrawn earlier than planned, since no funds were available.

Environmental Sanitation Training, Cambodia

Since 1965 WHO has been assisting a project in Cambodia for the training of sanitarians. Previously, training had been confined to medical subjects, but during the course of the project, for which WHO provided a sanitarian tutor, a revised training programme was developed, specially designed to suit the needs and resources of the country, and with emphasis on subjects specifically related to environmental sanitation.

Theoretical training (given in Phnom-Penh) consisted of lectures, followed by discussions and comments by the trainees. Particular emphasis was placed on field work in order to encourage contacts with the community, and a demonstration area was developed in co-operation with the Takhmau health centre. Demonstrations included the use of equipment for simple physical and chemical water examinations and the membrane filter technique for bacteriological analysis, and visits were made to laboratories working in these fields, to waterworks and to various establishments dealing with food. In the course of their field work, the trainees took part in the construction of moulds, bowls and slabs for water-seal latrines, and in the work on the construction and maintenance of dug and driven wells. These practical activities, designed to serve the communities of a demonstration area, constituted an innovation in training in Cambodia.

With the assistance of fellowships provided by WHO, technical instructor counterparts received similar training, with particular emphasis on the planning and organization of training courses and work programmes, to enable them to continue the training activities, and also to direct and supervise the construction of sanitary facilities in rural areas.

During the course of the project — which was completed in February 1968 — 164 sanitarians were trained, bringing the total in Cambodia to about 450. The Organization is providing advice to the Government in connexion with the establishment of an environmental sanitation division in the Ministry of Public Health.

Maternal and Child Health Advisory Services, South Pacific

For seven years, WHO and the South Pacific Commission have been jointly assisting a project for the provision of maternal and child health advisory services in the South Pacific area. Three successive teams, consisting of a medical officer and a public health nurse/midwife, were provided by WHO, while the Commission provided the administrative services required. UNICEF also assisted with supplies and equipment under a "block allocation" for the whole South Pacific area.

During the first phase of the project the team studied existing maternal and child health services, reviewed training programmes for health personnel, assessed the principal causes of maternal and child
mortality and morbidity and the effectiveness of the maternal and child health programme, and suggested measures for improving the situation in accordance with the economic and social possibilities in each territory.

Between April 1962 and September 1963 the team visited American Samoa, the British Solomon Islands Protectorate, the Cook Islands, Fiji, French Polynesia, the Gilbert and Ellice Islands, Guam, New Caledonia, the New Hebrides Condominium, Papua and New Guinea, Tonga, the Trust Territory of the Pacific Islands, and Western Samoa.

The assessment covered: the population, its location, characteristics, income, occupation, etc.; vital and health statistics; both curative and preventive medical services; the number, distribution and training of local health personnel; and nutrition.

The geographical features and limited economic resources of the South Pacific area — whose population is scattered in relatively small groups over large areas and shares a wide variety of languages, cultures and customs — pose major problems in communication, education, and the organization and administration of health services.

The team found that the main maternal and child health problems were related to preventable diseases, including enteric diseases, anaemia, intestinal parasites, tuberculosis, inadequate diet and, in some areas, malaria. Marasmus in pre-school children appeared to be more frequent than protein-calorie malnutrition. Child-birth attendants were mostly untrained. Safe water supplies existed in only a few places, and inadequate methods of sewage and garbage disposal were a constant potential source of infection. The team's main recommendations were for the integration of maternal and child health services into the general health services wherever these were sufficiently developed. Reliable statistical data are not yet available to measure the impact of this project, but many more mothers and children are being reached by the maternal and child health services, and the quality of the services is steadily improving.

School Health Education, Philippines

Since 1963 UNICEF and WHO have been assisting a school health education project in the Philippines. The primary objectives of the programme are to develop and strengthen the training of school health and educational personnel, and to supply the necessary materials so that teachers and health specialists might together provide adequate health education for young children and adolescents. The Department of Health, the Department of Education, the Institute of Hygiene and the Graduate School of Education of the University of the Philippines, and the Philippine Normal College have co-operated in the programme.

WHO provided assistance in the planning of curricula and the organization of training in school health education, and awarded fellowships for advanced studies abroad for health instructors in teacher training institutions and administrators of school health education. UNICEF support of the training included assistance in the establishment of library facilities, and the provision of equipment and supplies.

School health education service units, staffed by qualified personnel, were set up, and are now engaged in implementing the school health education programme in the Bureaux of Public, Private and Vocational Schools, in the Department of Education.
By the time the seven-year programme was completed in 1968, over 3500 school and health personnel had received special training. A course on health education is now included in the curricula of teacher training institutions throughout the country.

The Government has established an inter-departmental committee to co-ordinate the efforts of the Departments of Education and Health. The combined resources are being used to improve the health status of young children and adolescents through improved school sanitary facilities, health services and health education.

Health instruction guides have been developed for use by the teachers of the eight million schoolchildren and adolescents of the country.

As part of a scheme for community health development, school health councils have been set up. These work in close co-operation with parents and official and voluntary agencies in identifying health needs, formulating priorities and implementing programmes.
PART III

PROJECT LIST
PROJECTS IN OPERATION IN 1968

This part of the report contains a list of the projects—country, inter-country and inter-regional—that were in operation during the whole or part of the period from 1 December 1967 to 30 November 1968. Continuing projects for which the only assistance given during the period was technical advice from headquarters or regional offices are not normally shown.

In country projects, the purpose for which the government or governments undertook the project is stated. Details of the assistance provided by the Organization and of the work done are given for completed projects and refer to the whole period over which the project was assisted by the Organization. Such details are not given for continuing projects.

As in former Annual Reports, an attempt has been made to summarize the immediate results of projects for which the Organization's assistance terminated in the period under review and, where the nature of the work has permitted, to assess or evaluate how far the project has succeeded in the purposes for which it was undertaken. It has not been possible to do this for all completed projects; there has not been time, for example, to assess those that ended late in the period covered.

The projects are grouped by region in the following order: Africa, the Americas, South-East Asia, Europe, Eastern Mediterranean and Western Pacific. In order to give a balanced account of the health programme in the Americas, the list for that region includes the projects assisted by PAHO in addition to those assisted by WHO. For each region, projects in individual countries are given in the alphabetical order of countries; the projects that concern more than one country follow, and are lettered AFRO, AMRO, SEARO, EURO, EMRO or WPRO. Inter-regional projects are given at the end of the list.

Under the heading "Fellowships" are shown those fellowships awarded during the period 1 December 1967 to 30 November 1968 that do not form part of assistance to a larger project. A table showing all the fellowships awarded during the same period, by subject of study, is given in Annex II.

The starting date of each project is shown, between brackets, after its title, the finishing date being also shown for completed projects and, where possible, indicated in italics for uncompleted projects. Names of co-operating agencies, whether or not they have contributed funds, are given, between brackets, after the source of funds.

The abbreviations used include the following: R—regular budget; MESA—Malaria Eradication Special Account; UNDP/TA—Technical Assistance component of the United Nations Development Programme; UNDP/SF—Special Fund component of the United Nations Development Programme; AID—United States Agency for International Development. Other abbreviations are explained in the list on page II.
AFRICAN REGION

Botswana 0002  Trypanosomiasis Control
(1955 - May 1968) UNDP/TA
To study the trypanosomiasis problem and to advise on control measures. (See page 89.)

Botswana 0016  Pre-investment Survey of Utilities for Mining Development (July 1968) UNDP/SF
A consultant was provided to make a study of the health implications of the development of the mining industry in the Shashi valley.

Botswana 0200  Fellowships R: Maternal and child health (twelve months), nursing services administration (twelve months), tropical public health (nine months), trypanosomiasis control (one month).

To develop rural health services, with special emphasis on maternal and child health, and to train staff at all levels.

Burundi 0005  Environmental Sanitation and Training (Nov. 1968 - 1972) UNDP/TA UNICEF
To train sanitation personnel.

Burundi 0010  Community Water Supply (Feb. 1968 - 1972) UNDP/TA
To plan and construct water supply systems for Bujumbura Kitega and other towns.

Burundi 0013  Smallpox Eradication (Nov. 1967 - 1972) R
To plan and implement a programme of smallpox eradication in the country.

Burundi 0200  Fellowships R: Entomology (twelve months), gynaecology and obstetrics (twelve months), midwifery (twelve months), public health (one for six weeks, one for three months), sanitary engineering (twelve months), undergraduate medical studies (three for twelve months).

Cameroon 0010  Health Services (1961 - 1972) UNDP/TA
To reorganize and strengthen the health services in West Cameroon.

Cameroon 0016  Nursing Advisory Services (1962 - 1972) UNDP/TA
To develop programmes for the education of midwifery and nursing personnel and to strengthen nursing services.

Cameroon 0019  Medical School, Yaoundé (July 1966 - 1972) R UNDP/SF
To establish a university centre for health sciences in Yaoundé, and to train professional and auxiliary personnel.

Cameroon 0023  Environmental Sanitation (1968 - 1972) UNDP/TA
To establish a central environmental health unit, develop a long-term sanitation programme and train personnel.

Cameroon 0028  Development of Basic Health Services (Jan. 1968 - ) R UNDP/TA
To develop basic health services and train the necessary personnel; evaluate the progress made in the mass malaria chemotherapy campaign in schoolchildren; complete epidemiological investigations in the northern savanna areas; and continue geographical reconnaissance in the areas in which basic health services are to be further developed.

This project incorporates the project for a malaria pre-eradication programme (Cameroon 0002), which was assisted by WHO from December 1962 to the end of 1967.

Cameroon 0200  Fellowships R: Anatomy and surgery (twelve months), immunology (twelve months), surgery (twelve months).

Cameroon 0201  Fellowships UNDP/TA: Dentistry (twelve months).

To establish an environmental health service, draw up a long-term sanitation programme, and train sanitation personnel.

To upgrade and develop the programme for basic nursing education at the School of Nursing in Bangui.

WHO provided a consultant to evaluate the reportedly high incidence of sterility in certain population groups and to make recommendations for public health action.

Central African Republic 0201  Fellowships UNDP/TA: Public health (twelve months), undergraduate medical studies (twelve months).

Chad 0003  Maternal and Child Health Services (Feb. 1965 - 1972) UNDP/TA UNICEF
To improve maternal and child health services and to train personnel.

To develop and strengthen the municipal health services in Fort Lamy, establish a central sanitation unit, plan and carry out a long-term sanitation programme, and train personnel.
Chad 0014 Nursing Education (Jan. 1962 - 1972) R UNICEF
To raise the standard of nursing education to state-diploma level and to train midwives.

Chad 0025 Smallpox Eradication (1968 - ) R
To carry out a smallpox eradication programme.

Chad 0200 Fellowships R: Engineering (two for twelve months), environmental sanitation (two for twelve months), undergraduate medical studies (twelve for twelve months).

Congo (Brazzaville) 0018 Rural Health Services (March 1965 - 1972) UNDP/TA UNICEF
To organize health services, with emphasis on maternal and child health, tuberculosis control, environmental health, health education and nutrition, and to train staff.

Congo (Brazzaville) 0022 Nursing Education (1967 - 1972) R UNICEF
To upgrade training programmes for nurses, midwives and social workers to the level for state registration.

Congo (Brazzaville) 0024 Poliomyelitis Control (1968) R
WHO provided supplies of vaccines to assist in controlling an epidemic of poliomyelitis early in the year.

Congo (Brazzaville) 0200 Fellowships R: Dietetics (twelve months), social paediatrics (ten weeks), statistics (three for twelve months), undergraduate medical studies (twelve months).

Congo (Democratic Republic of) 0006 Public Health Administration: Operational Services (1960 - 1970) Funds-in-trust
To maintain the curative and preventive health services and train personnel.

Congo (Democratic Republic of) 0008 Smallpox Eradication (1967 - 1973) R
To carry out a smallpox eradication programme combined with BCG immunization, develop epidemiological surveillance, and evaluate the programme.

Congo (Democratic Republic of) 0009 Education and Training (1960 - ) Funds-in-trust
To continue teaching activities at the Faculties of Medicine of Lovanium University, Kinshasa, and the University of the Congo, Lubumbashi.

Congo (Democratic Republic of) 0010 Nutrition Programme (March 1968 - 1972) R
To integrate nutrition work, with emphasis on training in nutrition at all levels.

Congo (Democratic Republic of) 0011 Development of Nursing Services (Jan. 1968 - 1974) R
To train nurses and midwives at state-diploma and auxiliary levels and to set up a nursing unit at the Ministry of Public Health; to develop the nursing components of the basic health and maternal and child health services.
This project incorporates part of the public health administration advisory services project (Congo, Democratic Republic of, 0001), assisted by WHO between 1960 and 1967.

Congo (Democratic Republic of) 0012 Organization and Development of Environmental Health Services (Jan. 1968 - 1972) R
To plan and develop environmental health services, train personnel and organize a sanitation programme in which special attention will be given to water supplies and waste disposal.
This project incorporates part of the public health administration advisory services project (Congo, Democratic Republic of, 0001), assisted by WHO between 1960 and 1967.

Congo (Democratic Republic of) 0014 Development of Basic Health Services (Jan. 1968 - ) R UNDP/TA
To develop the basic health services, including maternal and child health services; to assess the epidemiology of malaria and organize malaria control measures as required; and to train all categories of personnel in centres and demonstration areas.
This project is a combination of the malaria advisory services project and part of the public health administration advisory services project (Congo, Democratic Republic of, 0005 and 0001) assisted by WHO between 1960 and 1967.

Congo (Democratic Republic of) 0015 Medical Services (Jan. 1968 - 1969) R
To train hospital personnel, including hospital administrators and radiological assistants, and provide refresher courses.
This project incorporates part of the public health administration advisory services project (Congo, Democratic Republic of, 0001), assisted by WHO between 1960 and 1967.

Congo (Democratic Republic of) 0016 Epidemiological Services (Jan. 1968 - 1974) R
To develop central epidemiological services, including services for the control of tuberculosis, leprosy and trypanosomiasis, and to strengthen health laboratories.
This project incorporates part of the public health administration advisory services project (Congo, Democratic Republic of, 0001), assisted by WHO between 1960 and 1967.

Congo (Democratic Republic of) 0017 Poliomyelitis Control (1968) R
WHO provided supplies of vaccine to assist in controlling an epidemic of poliomyelitis.

Congo (Democratic Republic of) 0018 Medical Training Institute, Kinshasa (April 1968 - 1970) R
To train various categories of health personnel.

Congo (Democratic Republic of) 0020 Fellowships R: Anaesthesiology (twelve months), hospital administration (three for twelve months), paediatrics (twelve months), paediatrics and nutrition (nineteen months), sanitation (twelve months), surgery (twelve months), trypanosomiasis (two months), urology (twelve months).

To carry out a smallpox eradication programme.

Dahomey 0021 Pilot Development of Ground-water (May 1967 - 1969) UNDP/FAO
To study the environmental health aspects (particularly as regards the construction of water supply and excreta disposal
systems) of the water resources project that is being carried out with assistance from the United Nations Development Programme (Special Fund component) with FAO as the executing agency.

**Dahomey 0022 Development of Basic Health Services**
(Jan. 1968 - ) R

To develop the basic health services, including the maternal and child health services; to develop an environmental sanitation programme in urban and rural areas; to train health personnel of all categories; and to improve methods and facilities for the diagnosis and treatment of malaria.

This project is a combination of former projects Dahomey 0001 (Malaria pre-eradication programme), Dahomey 0004 (Maternal and child health services) and Dahomey 0007 (Environmental sanitation).

**Dahomey 0200 Fellowships R:** Haematology (twelve months), hospital administration (twelve months), nursing education (twelve months), public health (twelve months), radiology (twelve months), sanitary engineering (twelve months), undergraduate medical studies (three for twelve months), water analysis (two for six months).

**Gabon 0003 Maternal and Child Health Services**
(1961 - 1972) R UNICEF

To develop the maternal and child health services and train staff.

**Gabon 0006 Environmental Sanitation**

To set up a sanitation unit in the Ministry of Public Health and Population, train sanitation personnel, and develop a long-term sanitation programme.

**Gabon 0008 Laboratory Services (April 1965 - ) UNDP/TA**

To set up a national health laboratory and train technical laboratory personnel.

**Gabon 0016 Nursing Education (1961 - 1971) R**

To develop basic programmes for the training of professional and auxiliary nurses.

**Gabon 0200 Fellowships R:** Anaesthesiology (fifteen months), sanitary inspection (three for twelve months), undergraduate medical studies (nine for twelve months).

**Ghana 0003 Maternal and Child Health Services**

To develop the maternal and child health services and to train personnel.

**Ghana 0005 Schistosomiasis Control**
(1957; May 1959 - 1972) UNDP/TA

To carry out a schistosomiasis control programme, based on the results of previous studies on intermediate snail hosts and local epidemiology of the disease.

**Ghana 0011 Tuberculosis Control**
(1962 - 1972) UNDP/TA UNICEF

To organize a tuberculosis control programme, integrated into the general health services.

**Ghana 0027 Post-basic Nursing Education (1963 - 1972) R**

To develop post-basic nursing education in the University of Ghana.

**Ghana 0031 Master Plan for Water Supply and Sewerage for the Accra-Tema Metropolitan Area**
(Jan. 1967 - 1970) UNDP/SF

To provide technical assistance to the Water Supply and Sewerage Corporation for the Accra-Tema water supply and sewerage scheme, and to train personnel for responsible positions in the Corporation. This is the second phase of a project which started as Ghana 0029.

**Ghana 0032 Development of Basic Health Services**
(Jan. 1968 - 1972) R

To develop the basic health services; to organize a central establishment for training of multipurpose health-post attendants, health centre superintendents and other auxiliary health personnel; and to establish at Kintampo a pilot training area for the project.

This project incorporates the project for a malaria pre-eradication programme (Ghana 0001) assisted by WHO between 1963 and 1967.

**Ghana 0033 University of Ghana Medical School**
(Oct. 1968 - 1972) R

To strengthen the faculty and improve the teaching facilities at the Medical School.

**Ghana 0038 Assistance to Teaching Hospital, Accra**
(Dec. 1967 - March 1968) R

WHO provided a consultant to advise and assist in the planning and development of the Board of Management of the teaching hospital at Korte Bu, including the direction of the functions and powers of the Board. He also advised on the services to be rendered to the public by the teaching hospital and on a long-term plan for the organization and functioning of the hospital.

**Ghana 0039 Health Education (Nov. 1967 - 1972) UNDP/TA**

To reorganize the health education service; to intensify the training of medical and paramedical staff for the health educational aspects of their work; and to improve the training in health education given to undergraduate medical students.

**Ghana 0040 Water Supply and Sewerage Corporation**
(April 1968 - 1969) UNDP/TA

To improve water supply and sewerage systems. Under this project assistance in formulating and executing programmes and in training staff will be provided to the Ghana Water Supply and Sewerage Corporation.

**Ghana 0042 Training of Sanitary Engineers and Waterworks Operators (July 1968) R**

WHO provided a consultant to assess the possibilities of extending the present arrangements for sanitary engineering
education at the University of Science and Technology, Kumasi, and the facilities for training waterworks operators at the Weija and Owabi schools.

**Ghana 0043** Rural Water Supply and Sanitation Pilot Scheme (March - May 1968) R
A consultant was provided to study rural water supply problems, advise on the establishment of a sanitation pilot scheme, and assist in the preparation of a request for assistance to the United Nations Development Programme (Special Fund component).

**Ghana 0200** Fellowships R: Anatomy (twelve months), biochemistry as applied to human nutrition (nine months), maternal and child health (twelve months), national health planning (four months), patient monitoring and intensive care (three weeks), pharmacology (two for twelve months), post-basic nursing (twelve months), public health problems of man-made lakes (two months), tuberculosis statistics (two months).

**Guinea 0008** Environmental Sanitation (1960 - 1968) UNDP/TA UNICEF
To set up an environmental health unit in the Ministry of Public Health and Social Affairs, draw up a long-term sanitation programme, including a water supply programme, and train sanitation personnel.
As from 1969 this project is scheduled to be incorporated into the project for the development of basic health services (Guinea 0027).

**Guinea 0012** Onchocerciasis Control (Nov. 1967 - 1971) R
To carry out epidemiological and entomological studies of onchocerciasis and to draw up and implement a programme for the control or eradication of the disease.

**Guinea 0024** Kindia Institute (1968 - 1970) UNDP/TA UNICEF
To organize the production of freeze-dried smallpox vaccine.

**Guinea 0027** Development of Basic Health Services (1968 - ) R UNDP/TA
To evaluate the progress made in the development of rural health services in the demonstration areas, and bring the services to the level required to support a malaria eradication programme and mass campaigns against other diseases; to train rural health personnel; to extend to the whole country the facilities for the diagnosis and treatment of malaria; and to carry out antimalaria work.
This project incorporates the project for a malaria pre-eradication programme (Guinea 0014) assisted by WHO between 1965 and 1967.

**Guinea 0028** Poliomyelitis Epidemic (June - July 1967; Jan. - Feb. 1968) R
One hundred thousand doses of trivalent oral polio vaccine (Sabin type) were provided in June and July 1967 to assist in controlling an epidemic of poliomyelitis in Conakry. In January and February 1968 a WHO consultant made an epidemiological investigation of the outbreak and submitted recommendations on the mass vaccination of children.

**Guinea 0029** Smallpox Eradication (1968 - ) R
To carry out a smallpox eradication programme.

**Guinea 0200** Fellowships R: Otolaryngology (twelve months) public health (six weeks).

**Ivory Coast 0004** Maternal and Child Health Services (March 1964 - 1971) R UNICEF
To develop the maternal and child health services and to train personnel.

**Ivory Coast 0008** Vital and Health Statistical Services (Feb. - June 1968) UNDP/TA
A consultant assisted in the development of the vital and health statistical services and in the training of staff at the national school of statistics.

**Ivory Coast 0012** Environmental Sanitation (Jan. 1963 - 1972) UNDP/TA UNICEF
To establish a central environmental health unit; to train sanitation staff, and to develop a long-term sanitation programme.

**Ivory Coast 0024** Nutrition Unit, Institute of Public Health, Abidjan (June 1967 - 1972) UNDP/TA
To establish a nutrition unit in the Institute of Public Health, Abidjan, and to carry out nutrition programmes as part of the public health services.

WHO provided a team of consultants from October 1967 to January 1968 to study the water supply and sewerage problems for Abidjan and neighbouring communities and to help to formulate a request to the United Nations Development Programme (Special Fund component) for assistance in the preparation of a pre-investment survey. In December 1968 a further consultant was provided to review the original request and make recommendations concerning an earlier beginning of Special Fund assistance under a preliminary operation.

**Kenya 0002** Environmental Sanitation (Sept. 1960 - 1972) R UNICEF
To improve rural water supply and excreta disposal systems; to organize sanitation services; and to train national personnel. (See page 90.)

**Kenya 0004** Tuberculosis Control (1957 - 1972) UNDP/TA UNICEF
To continue the country-wide BCG vaccination campaign and to study, in the Muranga pilot area, the possibility of integrating tuberculosis control measures into the health services.

To ascertain the main deficiency diseases in Kenya and to study their frequency, severity and distribution; to determine the place of malnutrition in relation to health and socio-economic conditions; to train local personnel for a national nutrition service and to organize a co-ordinated programme to combat malnutrition.
Kenya 0016 Basic Health Services (1962 - 1972) R UNICEF
To strengthen and develop the basic health services, and integrate into them the maternal and child health and public health nursing services; and to train health personnel of all categories, particularly at the Karuri centre.

Kenya 0032 Post-basic Nursing Education (Oct. 1967 - 1975) R
To train nurse educators and administrators.

Kenya 0034 Medical School, Nairobi (Nov. 1965 - 1970) R
To set up a medical school in Nairobi.

Kenya 0036 National Health Planning (April 1966 - Sept. 1968) UNDP/TA
A medical officer was assigned to Kenya for thirty months to provide assistance to the Government in the study of health problems and the evaluation of the existing health services, and to advise on the planning of the further development of the services.

Kenya 0038 Surveys and Pilot Demonstration Schemes leading to the Reclamation of the Yala Swamp (Feb. - May 1968) UNDP/SF (FAO)
Following the assessment made by two WHO consultants in 1967, a further consultant made a study of the risks of recurrence of schistosomiasis, onchocerciasis, trypanosomiasis and malaria in connexion with the project for reclamation of agricultural land in the Yala swamp, Nyanza Province, that is receiving assistance from the United Nations Development Programme (Special Fund component) and for which FAO is the executing agency.

Kenya 0040 Smallpox Eradication (1967 - ) R
To plan and carry out a smallpox eradication programme and to build up an epidemiological surveillance system.

Kenya 0041 Operational Research on Human and Animal Trypanosomiasis Eradication, Western Provinces (March 1967 - 1971) UNDP/SF (FAO)
To develop methods for effective and economical control of human and animal trypanosomiasis in the western provinces.

Kenya 0043 Master Plan for Sewage Disposal for Nairobi and Kisumu (July - Sept. 1968) R
WHO provided a team of consultants to make a study of water supplies and sewerage for Nairobi and Kisumu and to help to formulate a request to the United Nations Development Programme (Special Fund component) for assistance in the preparation of a master plan.

Kenya 0045 Community Water Supply (Sept. 1968 - 1969) UNDP/TA
To study the water supply programme and prepare a national programme for urban and rural areas.

Kenya 0200 Fellowships R: Applied parasitology and entomology (nine months), epidemiology (twelve months), health visiting (twelve months), post-basic nursing (twelve months), public health (three for nine months, one for twelve months), radiography (twelve months), tropical public health (twelve months).

Lesotho 0014 Development of Basic Health Services (1968 - 1973) R
To set up in urban and rural areas integrated basic health services, with emphasis on maternal and child health, public health nursing services, organization of laboratory services and training of personnel.

WHO provided a consultant for five weeks to assist in evaluating the leprosy control programme.

Lesotho 0200 Fellowships R: Demography (twelve months), public health inspection (twelve months).

Liberia 0015 Environmental Sanitation (1958 - 1968) R UNICEF
To set up a sanitary engineering unit in the National Public Health Service; to formulate a long-term national sanitation programme, and to train personnel.

As from 1969 this project is scheduled to be incorporated in the project for the development of basic health services (Liberia 0033).

Liberia 0031 Mental Health (Sept. - Nov. 1968) R
A WHO consultant made a study of the needs of the country in mental health services and psychiatric education and submitted recommendations for meeting them.

Liberia 0033 Development of Basic Health Services (Jan. 1968 - ) R
To develop basic health services in accordance with the national health plan, with emphasis on strengthening basic health service facilities that can support mass campaigns against communicable diseases and into which maternal and child health services can be integrated; to train health service personnel, develop laboratory services and carry out anti-malaria activities.

This project is a continuation of the malaria pre-eradication programme (Liberia 0020) assisted by WHO between 1962 and 1967.

Liberia 0035 Epidemiological Services (Jan. 1968 - 1972) UNDP/TA
To co-ordinate the work of existing communicable disease units and to set up an epidemiological service.

This project incorporates the communicable disease control project Liberia 0003, assisted by WHO between 1952 and 1967.

Liberia 0037 Pre-investment Studies for Water Supplies in Six Localities (Nov. 1968 - 1969) Special Account for Community Water Supply
A consultant is being provided to make pre-investment and detailed studies related to water supplies in six localities.

Liberia 0038 Smallpox Eradication (1968 - ) R
To carry out a smallpox eradication programme.
Liberia 0200 Fellowships R: Bacteriological laboratory techniques (twelve months), dental laboratory technology (twelve months), food inspection, including meat inspection (nine months), forensic chemistry and toxicology (twelve months), haematology and blood banks (twelve months), public health (two for twelve months).

Mali 0021 Fellowships UNDP/TA: Public health (two for twelve months), undergraduate medical studies (three for twelve months).

Mauritania 0008 Nursing Education (Nov. 1963 -1972) R UNICEF
To organize nursing services and improve nursing education.

Mauritania 0010 Development of Basic Health Services (Feb. 1968 - ) R
To develop basic health services in a demonstration area, and to integrate maternal and child health work into those services; to improve the diagnosis and treatment of malaria; and to train personnel.
This project incorporates the maternal and child health services project (Mauritania 0003) and the project for a malaria pre-eradication programme (Mauritania 0009) assisted by WHO since 1963 and 1962.

Mauritania 0012 Smallpox Eradication (1968 -1972) R
To implement the attack phase of the national smallpox eradication programme, develop epidemiological surveillance and evaluate the programme.

Mauritania 0200 Fellowships R: Midwifery (three for twelve months).

Mauritius 0002 Tuberculosis Control (1956 - 1959; 1960 - 1964; April 1966 -1972) UNDP/TA
To integrate tuberculosis control measures (BCG vaccination, bacteriological diagnosis, treatment and recording and surveillance of cases) into the regular work of peripheral health establishments.

Mauritius 0007 Malaria Eradication Programme (1960 - 1968) R
The aim was the eradication of malaria from Mauritius. WHO provided a medical officer and a laboratory technician, fellowships and supplies and equipment. A detailed description of this project was given in the Annual Report for 1966.\(^1\) Attack measures ended in 1965, and in 1968, since no indigenous cases had been found for three consecutive years of reliable surveillance coverage, the whole island entered the maintenance phase. To provide the vigilance services necessary during maintenance, the entire malaria staff has been incorporated into the general health services.

Mauritius 0015 Environmental Sanitation (March 1965 -1977) UNDP/TA
To establish a central division of environmental health and to develop a training programme for sanitation personnel.
The staff assigned to the project will participate in the health aspects of the land and water survey and water resources development project assisted by the United Nations Development Programme (Special Fund component), for which FAO is the executing agency.

Mauritius 0022 Organization of Family Doctor Service (March - April 1968) R
A WHO consultant assisted the Government in organizing a family doctor service.

Mauritius 0200 Fellowships R: Nursing (four and a half months), physical therapy (two for twelve months), plague epidemiology (nine months), public health (nine months), radiography (four for twelve months), schistosomiasis control (two months).

Niger 0005 Tuberculosis Control (1964 - 1972) UNDP/TA UNICEF
To study the application of simplified and standardized tuberculosis control measures in a pilot area, and to set up a tuberculosis control programme to cover the whole country.

Niger 0018 Environmental Sanitation (March 1966 - 1972) R UNICEF
To establish a central environmental health unit, plan a long-term sanitation programme, with emphasis on the development of water supplies, and train sanitation personnel.

Niger 0023 School of Nursing, Niamey (Aug. 1966 - 1971) UNDP/SF
To reorganize and develop the School of Nursing, Niamey.

Niger 0030 Smallpox Eradication (1968 - ) R
To carry out a smallpox eradication programme.

Two WHO consultants made a study of problems of water supplies and waste disposal in the five main cities and secondary urban centres, as well as in villages and areas inhabited by the nomadic population.

Niger 0200 Fellowships R: Pharmacy (twelve months).

Nigeria 0028 Health Education (1962 - 1972) UNDP/TA
To strengthen the federal health education and school health education bureau and to provide advisory services in these fields to the states.

Nigeria 0045 Physical Rehabilitation Services (March 1968 - 1969) UNDP/TA
To develop services for physical therapy and rehabilitation of the physically handicapped and to train staff.

Nigeria 0060 Mental Health, University of Ibadan (Sept. 1968 - 1970) R
To develop post-graduate teaching in the Department of Psychiatry, Neurology and Neurosurgery of the University of Ibadan Medical School.

To provide for co-ordination of the health components of the Kainji Lake research project, which is being undertaken with assistance from the United Nations Development Programme (Special Fund component) with FAO as the executing agency. In 1966 WHO provided a consultant who made a survey of health conditions and services in the project area.

Nigeria 0073 Medical School, University of Zaria (Dec 1967 - 1970) R
To establish a medical school at the University of Zaria.

Nigeria 0074 Development of Basic Health Services, Western State (Jan. 1968 - ) R UNDP/TA UNICEF
To develop basic health services, with emphasis on building up the rural health infrastructure, and to train personnel, using the experience obtained in the demonstration area; to train sanitation staff, set up a sanitary engineering unit and plan a long-term sanitation programme.

This project is a combination of projects for rural health services (Nigeria 0021) and for a malaria pre-eradication programme (Nigeria 0026), assisted by WHO since 1961 and 1964.

Nigeria 0075 Development of Basic Health Services, Northern States (Jan. 1968 - ) R UNDP/TA UNICEF
To plan health services; to improve health administration; to train professional and auxiliary health staff in preventive and curative medicine; to develop the rural health infrastructure; and to carry out environmental sanitation work.

This project is a combination of projects for environmental sanitation (Nigeria 0023), a malaria pre-eradication programme (Nigeria 0032) and public health administration (Nigeria 0048), assisted by WHO since 1963, 1962 and 1965.

Nigeria 0077 Development of Basic Health Services, Mid-west State (Jan. 1968 - 1972) R
To plan and develop health services, to improve health administration and to train personnel of all categories.

This project incorporates the public health advisory services project (Nigeria 0056), assisted by WHO since 1965.

Nigeria 0078 Development of Basic Health Services, Federal (1968 - 1972) R
To co-ordinate the development of basic health services throughout Nigeria. The staff assigned to the project will also assist with the teaching at the Training Centre for Health Service Personnel, Lagos (see project AFRO 0105 below).

To organize epidemiological services for communicable disease control programmes, including the elimination of the residual foci of yaws; to develop a pattern for integrated laboratory services; and to train personnel.

This project is a combination of projects for communicable disease control (Nigeria 0001) and health laboratory services (Nigeria 0024) assisted by WHO since 1954 and 1966.

Nigeria 0080 Epidemiological Services, Western State (Jan. 1968 - 1972) R UNICEF
To develop epidemiological services; to plan, co-ordinate and evaluate measures for the control of communicable diseases, including leprosy and tuberculosis; and to develop vital and health statistics services.

This project incorporates the tuberculosis control project (Nigeria 0014) assisted by WHO between 1957 and 1967.
Nigeria 0081 Epidemiological Services, Mid-west State  
(Jan. 1968 - 1972) UNDP/TA UNICEF

To organize epidemiological services for communicable disease control programmes, including elimination of residual foci of yaws and control of leprosy and tuberculosis.

This project incorporates the leprosy control project (Nigeria 0044) assisted by WHO in 1966 and 1967.

Nigeria 0082 Epidemiological Services, Northern States  
(Jan. 1968 - 1972) R UNICEF

To organize epidemiological services for communicable disease control programmes, including elimination of residual foci of yaws and control of leprosy; and to develop vital and health statistics services.

This project incorporates the leprosy control project (Nigeria 0062) assisted by WHO in 1967.

Nigeria 0084 School of Radiography (Jan. 1968 - 1972) R

To train technicians in radiography and in the maintenance and repair of X-ray and electromedical equipment.

Nigeria 0086 Quality Control of Pharmaceuticals  
(July - Aug. 1968) R

WHO provided a consultant to survey the needs of the country as regards quality control of imported and locally manufactured drugs and to make recommendations for future action.

Nigeria 0092 Smallpox Eradication (1968 - 1972) R

To carry out a smallpox eradication programme.

Nigeria 0200 Fellowships R: Hospital administration (two for twelve months), medical administration (two months), nursing (two for twelve months, one for fifteen months), public health (two for nine months, one for twelve months, one for fifteen months), rehabilitation (six months), tuberculosis bacteriology (six weeks).

Réunion 0007 Malaria Pre-eradication Survey  

The aims were to evaluate the malaria situation and to demarcate the area of transmission, to prepare a plan of operation for an eradication programme and to train personnel. WHO provided a malarialogist and a laboratory technician and six microscopists to form the nucleus of laboratory staff and thirteen malaria field workers were trained. As the result of the survey a malaria focus was discovered in one isolated area and delimited, but transmission could not be detected in the rest of the country. A plan for eradication was prepared and submitted to the Government.

Réunion 0200 Fellowships R: Paediatric cardiology (twelve months).

Rwanda 0001 Tuberculosis Control  
(1965 - 1972) UNDP/TA UNICEF

To build up a national tuberculosis control programme, with emphasis on BCG vaccination, and to train nursing and auxiliary staff in methods of diagnosis and treatment.

Rwanda 0003 Maternal and Child Health Services  
(Feb. 1964 - 1972) R UNICEF

To expand the maternal and child health services and train personnel.

Rwanda 0005 University of Butare (1967 - 1970) UNDP/TA

To develop the medical school of the University of Butare and promote the teaching of public health there and at the other institutions for training health personnel. The professor of public health assigned to the project will also assist with public health administration and health planning.

Rwanda 0008 Smallpox Eradication (1968 - 1970) R

To carry out a smallpox eradication programme.

Rwanda 0200 Fellowships R: Radiology (nine months).

Senegal 0004 Environmental Sanitation  
(1962 - 1972) UNDP/TA UNICEF

To establish a central sanitation unit, improve conditions of sanitation in rural areas, and train personnel.

Senegal 0011 Vital and Health Statistics  
(May 1965 - March 1968) R

WHO provided a statistician who assisted in establishing a vital and health statistics unit in the Ministry of Health and Social Affairs, in improving the collection and analysis of vital and health statistical data and in giving training in vital and health statistics to nurses and statistical officers. He also advised on various problems, including the publication of statistical or scientific articles and estimation of the number of health personnel required. In addition, a three-month fellowship for a vital and health statistics course was awarded to a medical officer.

The project helped to make possible the establishment of a national vital and health statistics commission—the first of its kind in the Region.

Senegal 0012 Public Health Nursing (May 1964 - 1971) R

To develop nursing and midwifery education programmes that will include the teaching of public health.

Senegal 0016 Nutrition Education (June 1964 - 1970) R

To develop nutrition training in the University of Dakar and specialized institutions.

Senegal 0019 Tuberculosis Control  
(Nov. 1966 - 1972) R UNICEF

To establish in a pilot area a nationally applicable tuberculosis control programme with emphasis on BCG vaccination, training of personnel and testing of simplified and standardized tuberculosis case-finding and treatment measures, with the aim of extending these activities to other areas.


To develop a phased improvement programme within a long-term plan for the water supply and sewerage for Dakar and the surrounding areas. The work also includes management, legal and finance studies for the development of a self-supporting water and sewerage authority.

Senegal 0025 Medico-social Development Programme, Pikine  

A WHO consultant in maternal and child health undertook a survey of health and social problems in the township of Pikine...
and of the services available to deal with them. He also took part in studies aimed at defining morbidity patterns in childhood, in planning services and in training staff, and submitted recommendations for the organization of health services, and particularly of maternal and child health services, in the area.

**Senegal 0026 Development of Basic Health Services**  
(Jan. 1968 – ) R

To evaluate the progress made in developing basic health services in a demonstration area and to strengthen them to the level required to support mass campaigns against communicable diseases; to train personnel, and to improve the facilities for the diagnosis and treatment of malaria.

This project incorporates the project for a malaria pre-eradication programme (Senegal 0013), assisted by WHO in 1966 and 1967.

**Senegal 0027 Institute of Tropical Odontology and Stomatology, University of Dakar** (Dec. 1967 - 1972) R

To establish an institute of tropical odontology and stomatology at the University of Dakar and to train personnel in dental health.

**Senegal 0200 Fellowships R: Epidemiology and tuberculosis control (three and a half months), laboratory techniques (four for twelve months), nursing (three for twelve months).**

**Seychelles 0010 Development of Health Services**  
(April 1967 - 1970) UNDP/TA

To develop the health services, giving priority to the treatment and control of communicable diseases, the organization of public health nursing and environmental sanitation services, and the training of personnel.

**Seychelles 0013 Filariasis Survey** (Oct. 1968 - 1969) R

To carry out a parasitological and entomological survey in the island of Mahe to identify the vector of *Filaria bancrofti* with a view to planning a control programme.

**Seychelles 0200 Fellowships R: Public health laboratory techniques (twelve months).**

**Sierra Leone 0007 Nursing Education** (1961 - 1972) R

To develop nursing education programmes, with emphasis on the preventive and curative aspects of nursing.

**Sierra Leone 0029 Development of Basic Health Services**  
(Jan. 1968 – ) R

To implement the national health plan, particularly in relation to further development of basic health services in the demonstration area in the Port-Loko district; to train personnel; and to strengthen specialized services, integrating them into a general service which can support mass campaigns for the control or eradication of communicable diseases.

This project is a combination of projects for environmental sanitation training (Sierra Leone 0014), a malaria pre-eradication programme (Sierra Leone 0019) and public health advisory services (Sierra Leone 0026), assisted by WHO since 1961, 1963 and 1965.

**Sierra Leone 0030 Epidemiological Services**  
(Jan. 1968 - 1972) R UNDP/TA

To develop epidemiological services to support mass campaigns for the control of communicable diseases, including elimination of residual foci of yaws; and to strengthen health laboratories and vital and health statistics services.

This project incorporates projects for communicable disease control (Sierra Leone 0001) and public health laboratory services (Sierra Leone 0011) assisted by WHO since 1956 and 1960.

**Sierra Leone 0033 Smallpox Eradication** (1968 – ) R

To carry out a smallpox eradication programme.

**Sierra Leone 0036 Pre-investment Studies for Water Supplies in Six Towns** (Nov. 1968 - 1969) Special Account for Community Water Supply

A consultant is being provided to prepare pre-investment and detailed studies related to water supplies in six towns.

**Sierra Leone 0200 Fellowships R: Biology (twelve months), food inspection, including meat inspection (nine months), laboratory techniques (twelve months), psychological medicine (twelve months), radiography (twelve months), rehabilitation three months).**

**St Helena 0009 Training of Auxiliary Personnel** (1968 - 1970) R

To provide basic training in pharmacy to auxiliary health staff.

**Swaziland 0002 Tuberculosis Control**  

To reorganize the rural health services, starting from a pilot area comprising Mbabane and the surrounding areas, and to train health service staff in tuberculosis control work. (See p. 89.)

**Tanzania 0004 Malaria Eradication Programme, Zanzibar and Pemba** (June 1957 - June 1968) R UNDP/TA UNICEF

The aim was to maintain total insecticide coverage, supported by full surveillance operations, in order to interrupt transmission of malaria and eradicate it from the islands of Zanzibar and Pemba. WHO provided a malarionologist, an entomologist, three laboratory technicians and three field technicians.

Owing to administrative and operational difficulties the project did not achieve the interruption of malaria transmission and the establishment of adequate surveillance coverage. However, the annual parasite incidence in Pemba, where malaria was previously hyperendemic, fell to 1.0 per thousand, which indicated that interruption of transmission was feasible. The project was terminated at the request of the Government.

**Tanzania 0010 Communicable Eye Disease Control, Tanganyika** (Sept. 1965 - 1968) R

To make a survey of communicable eye diseases, find the best methods of prevention and treatment, and establish a control programme.

As from 1969 this project will be incorporated in an epidemiological services project (Tanzania 0048).

**Tanzania 0022 Medical School, Dar-es-Salaam, Tanganyika**  
(Sept. 1965 - 1972) UNDP/TA

To develop the medical school in Dar-es-Salaam.

To study the nutritional status of the population, in particular in the pilot area of Dodoma; to train staff in nutrition so as to launch a programme to control the main deficiency diseases.


WHO provided a consultant entomologist who assisted the municipality of Dar-es-Salaam in surveying vector distribution within the city and advised on insecticide and rodenticide usage as well as on the organization of the vector control services. A small amount of laboratory equipment was also supplied.

Tanzania 0037 Vital and Health Statistics (1968) R

To develop vital and health statistics services and to train personnel.

As from 1969 this project will be incorporated in an epidemiological services project (Tanzania 0048).

Tanzania 0038 Fluorosis Survey, Arusha, Tanganyika (April - May 1968) R

WHO provided a consultant to determine the extent of the reported dental fluorosis in Arusha and recommend practical solutions to the problem.

Tanzania 0039 Schistosomiasis Control, Tanganyika (April 1967 - 1971) R

To evaluate the extent of the schistosomiasis problem, starting in the Mwanza district, and to draw up, for that district, a control programme which could serve as a model for a future programme covering all endemic areas.

Tanzania 0040 Development of Basic Health Services, Zanzibar (June 1968 - 1972) R

To strengthen the rural health services, with emphasis on the organization of services for mothers and children and on training personnel.

Tanzania 0043 Smallpox Eradication, Tanganyika (1967 - 1972) R

To carry out a smallpox eradication programme.

Tanzania 0046 Study of Haemoglobinopathies, Tanganyika (Oct.-Nov. 1968) R

WHO provided a consultant for one month who conducted a number of courses, for doctors, biochemists, laboratory technologists and trainee technologists, in the laboratory diagnosis of haemoglobinopathies and carried out an investigation of the incidence of sickle-cell trait and other haemoglobin variants.

Togo 0017 Fellowships R: Anaesthesiology (two for twelve months), hospital administration (twelve months), laboratory techniques (two for twelve months), pharmacy (twelve months), thoracic surgery (twelve months), undergraduate medical studies (one for eight months, one for eight and a half months, nine for twelve months).

Uganda 0024 Health Education (Aug. 1965 - 1972) UNDP/TA

To develop the health education unit in the Ministry of Health, extend the use of health education methods and expand health education training at the University of East Africa.

Uganda 0028 Master Plans for Water Supply and Sewerage for the Greater Kampala and Jinja Areas (March 1968 - 1971) UNDP/SF

To make engineering and feasibility studies required for the preparation of master plans, phased investment studies and a construction programme for water supplies and sewerage for the Greater Kampala and Jinja areas; and to formulate policies on related legal, managerial and financial matters.


WHO provided a consultant who made a survey of occupational health problems in Uganda, Kenya and the United Republic of Tanzania and discussed with the government departments concerned the question of establishing an East African institute of occupational health.

Uganda 0035 Development of Basic Health Services (Jan. 1968 - ) R

To develop basic health services which can provide support for mass campaigns against communicable diseases; to improve facilities for improving the diagnosis and treatment of malaria; to develop a sanitation programme; and to train personnel.

This project incorporates the project for a malaria pre-eradication programme (Togo 0017) and a former epidemiological services project (Togo 0024), assisted by WHO in 1967 and since 1962.

Togo 0032 Smallpox Eradication (1968 - ) R

To carry out a smallpox eradication programme.

Togo 0020 Fellowships R: Anaesthesiology (two for twelve months), hospital administration (twelve months), laboratory techniques (two for twelve months), pharmacy (twelve months), thoracic surgery (twelve months), undergraduate medical studies (one for eight months, one for eight and a half months, nine for twelve months).

Togo 0029 Development of Basic Health Services (Jan. 1968 - ) R UNDP/TA UNICEF

To develop basic health services which can provide support for mass campaigns against communicable diseases; to improve facilities for improving the diagnosis and treatment of malaria; to develop a sanitation programme; and to train personnel.

This project incorporates the projects for a malaria pre-eradication programme (Togo 0003) and for environmental sanitation (Togo 0015) assisted by WHO between 1962 and 1967.
Uganda 0036 Epidemiological Services  
(Jan. 1968 - 1974) R UNDP/TA  
To develop epidemiological services to the level required to co-ordinate measures against communicable diseases; to develop vital and health statistics services; and to strengthen health laboratory services.

Uganda 0038 Department of Psychiatry, University of East Africa (1968 - 1970) R  
To strengthen undergraduate and post-graduate teaching in psychiatry at Makerere College, University of East Africa.

WHO provided a consultant for seven months to assist in evaluating the leprosy control programme and to make recommendations for future work.

Uganda 0200 Fellowships R: Cancer chemotherapy (twelve months), radiography (five months), sanitary engineering (twelve months), tuberculosis (three months), water pollution control (five months).

To carry out a smallpox eradication programme.

Upper Volta 0011 Nursing Education  
To revise programmes for the preparation of nurses and midwives; and to develop practical training facilities in hospitals, maternity units and health centres.

Upper Volta 0021 Development of Basic Health Services  
(Jan. 1968 - 1972) R UNDP/TA UNICEF  
To develop the health services, with emphasis on maternal and child health, environmental sanitation and staff training; and to extend integrated health services to rural areas by establishing a demonstration and operational research area.

This project incorporates the public health advisory services project (Upper Volta 0008) assisted by WHO between 1961 and 1967.

WHO provided consultants to study the water supply and sewerage problems of Bobo-Dioulasso and Ouagadougou and to assist in the preparation of a request for assistance to the United Nations Development Programme (Special Fund component).

Upper Volta 0020 Fellowships R: Dental surgery (two for twelve months).

Zambia 0008 Environmental Health Services  
(1966 - 1968) R UNICEF  
To set up an environmental health unit at the central level; to plan a long-term sanitation programme and to train health inspectors.

As from 1969 this project is scheduled to be incorporated in a project for the development of basic health services (Zambia 0014).

Zambia 0009 Public Health Nursing Services  
(Oct. 1965 - 1972) R  
To develop a public health nursing service and to establish education and training programmes to meet its needs.

Zambia 0010 Medical School (Jan. 1968 - 1970) R  
To set up a medical school in Lusaka.

Zambia 0013 Smallpox Eradication (1967 - 1972) R  
To implement the smallpox eradication programme launched in 1965, and to build up an epidemiological surveillance system.

Zambia 0200 Fellowships R: Forensic pathology (twelve months), leprosy control (eight for four months, one for seven months).

AFRO 0053 Epidemiological Centre, Nairobi  
(June 1960 - ) R  
To assist in technical planning and in the design and reporting of epidemiological investigations; and to process, evaluate, analyse and follow up the epidemiological and statistical material received from the projects concerned.

AFRO 0087 Centre for Post-basic Nursing Education, University of Ibadan (April 1962 - 1972) R UNICEF  
To develop the Department of Nursing at the University of Ibadan as a centre for preparing nurses of a high educational level to provide professional guidance in the improvement and extension of nursing services.

AFRO 0094 Schistosomiasis Advisory Services  
(Feb. 1967 - 1972) R  
To assist in assessing the schistosomiasis problem in various countries, in studying the epidemiological pattern of the disease and in evolving suitable control methods; also to carry out surveys on health problems resulting from the development of power or irrigation schemes.

AFRO 0105 Training Centre for Health Service Personnel, Lagos (Oct. 1961 - ) R  
To organize special courses for various categories of public health workers required for the development of basic health services, particularly in the countries of the Region, and to provide training in malariology and antimalaria measures and techniques.

AFRO 0125 Treponematoses Advisory Team  
(Sept. 1965 - 1972) UNDP/TA  
A mobile team to evaluate treponematoses control projects and advise governments on their further development.

AFRO 0128 Training Centre for Health Service Personnel, Lomé (1962 - ) R  
To organize special courses for public health workers required for the development of basic health services, particularly in the countries of the Region; to provide training in malariology and antimalaria measures and techniques.

AFRO 0131 Onchocerciasis Advisory Team  
(1966 - 1972) UNDP/TA  
To assist governments in assessing the problem of onchocerciasis and in drawing up control programmes.

The Commission, jointly sponsored by FAO, WHO and the Scientific, Technical and Research Commission of the Organization of African Unity, facilitates contacts between specialists interested in nutrition problems in Africa. The Commission
is also responsible for the preparation and distribution in two languages of material on all nutrition work in Africa.

To assist in planning and/or carrying out smallpox eradication projects.

AFRO 0156 Training of Public Health Personnel (1964 - ) R
To enable senior public health personnel to study methods employed, in the countries of the Region, for the development of basic health services for the support of mass campaigns against communicable diseases.

AFRO 0162 Plague Control (1968 - 1972) R
To assist in controlling epidemics of plague in countries of the Region.

AFRO 0166 Department of Preventive Medicine, Makerere College, University of East Africa, Kampala (1966 - 1969) R
To assist the Department of Preventive Medicine of Makerere College.

AFRO 0167 Advisory Services in Nutrition (April 1965 - 1972) R
To assist and advise on the development of nutrition work in national public health services; to organize nutrition units, train local staff and develop nutrition education and nutrition rehabilitation programmes.

AFRO 0171 Leprosy Evaluation Team (Jan. 1968 - ) UNDP/TA
To assist governments in evaluating the leprosy situation in their countries, in planning and implementing leprosy control programmes, in standardizing methods and criteria, and in evaluating the results.

To assist with courses for training in vital and health statistics, held at the Centre international de Formation statistique, Yaoundé, established by the Economic Commission for Africa and the Government of Cameroon.

AFRO 0188 Teaching of Epidemiology (July 1967 - ) R
To promote the organization of undergraduate and postgraduate programmes in epidemiology and vital and health statistics for students from East African countries.

AFRO 0191 Seminar on Basic Health Services in Relation to Mass Communicable Disease Campaigns, Brazzaville (24 April - 4 May 1968) R
See page 91.

AFRO 0196 Meeting of Professors of Public Health, Brazzaville (7-12 Oct. 1968) R
The meeting was attended by eighteen professors of public health from the Democratic Republic of the Congo, Ghana, Ivory Coast, Kenya, Madagascar, Mali, Nigeria, Rwanda, Uganda, United Republic of Tanzania, and Zambia. The place of public health in medical education in the Region was considered, including steps to be taken to ensure adequate coverage of the subject in the medical curriculum and methods for evaluating the training provided. The type of training to be given to professors of public health was also defined and a minimum programme of research in public health was determined. Finally, methods of improving the collaboration among medical faculties in the Region, including the co-ordination of their activities, were discussed.

AFRO 0197 Centre for Post-basic Nursing Education, Dakar (1967 - 1972) R UNICEF
To assist in establishing a centre which will provide facilities for post-basic education in all fields of nursing for French-speaking nurses and midwives from African countries.

AFRO 0203 Department of Obstetrics and Gynaecology, Makerere College, University of East Africa, Kampala (1966 - ) R UNICEF
To assist the Department of Obstetrics and Gynaecology of Makerere College in strengthening the teaching of paediatrics, obstetrics, gynaecology and midwifery for medical and paramedical staff and in extending research activities.

AFRO 0204 Regional Malaria Advisory Team (Oct. 1967 - ) R
To provide for the assessment of the malaria situation in the countries of the Region, and to assist in the planning, implementation and evaluation of antimalaria activities feasible under local conditions.

AFRO 0212 Meeting of Deans of Medical Schools of the African Region, Brazzaville (25 - 29 Nov. 1968) R
The purposes of the meeting were (i) to promote collaboration among the medical schools in the Region and to help to eliminate progressively the separation between the schools where teaching is given in English and those where it is given in French; (ii) to provide for an exchange of views on the problems affecting medical schools in the Region, including those connected with the readjustment of teaching programmes, the preparation of specialists, the training of auxiliaries, the exchange of teaching staff between medical schools, and co-operation in research; and (iii) to make WHO's work better known and inform the Deans of medical schools about the assistance that WHO can provide. Representatives of medical schools from the Democratic Republic of the Congo (Kinshasa), Ivory Coast (Abidjan), Kenya (Nairobi), Nigeria (Ibadan, Lagos and Zaria), Rwanda (Butare), Senegal (Dakar), United Republic of Tanzania (Dar-es-Salaam) and Zambia (Lusaka) took part in the meeting, which was attended by the Regional Director for Africa.
Argentina 0200 Malaria Eradication Programme (1951 - ) PAHO UNICEF
To eradicate malaria from the country by stages.

Argentina 0300 Smallpox Eradication (1954 - 1972) R
To vaccinate at least 90 per cent. of the population through the regular health services in three years, and to consolidate the results by vaccination of the newborn, revaccination of 20 per cent. of the population of each area annually and application of appropriate quarantine measures; and to organize provincial epidemiological and supporting services.

Argentina 0400 Tuberculosis Control (1960 - 1970) R UNICEF
To organize and develop, in the demonstration area of the Province of Santa Fé, a national tuberculosis control centre for obtaining epidemiological data, applying and evaluating tuberculosis control methods, and training personnel from Argentina and from other countries.

Argentina 0700 Pan American Zoonoses Centre (1966 - 1971) UNDP/SF PAHO
To strengthen the Pan American Zoonoses Centre (see project AMRO 0700 below).

Argentina 2200 Water Supplies (1961 - 1971) R
To prepare and implement plans for the construction and expansion of water supply and sewerage systems.

Argentina 3100 Health Services (1966 - 1970) R PAHO
To improve the health services. Under this project assistance is provided to the Ministry of Welfare and Public Health in health planning, the supervision and evaluation of programmes, training and research.

Argentina 3101 Fellowships R: Health education (one for two months, one for ten months), maternal and child health (six months), medical education (two for two months), mental health (two months), nursing education (one for ten months, one for ten and a half months, one for eleven months), psychiatric nursing services (twelve months), public health administration (two for three months), trypanosomiasis epidemiology (one month), tuberculosis bacteriology (two for one month); PAHO: Public health nursing (six weeks).

Argentina 3102 Health Services, North-western Provinces (1957 - 1970) UNDP/TA PAHO UNICEF
To organize regionally based health services to serve the provinces of Tucumán, Salta, Jujuy, Catamarca and Santiago del Estero.

Argentina 3104 Health Services, Cuyo Region (1961 - 1968) PAHO UNICEF
To organize regionally based health services to serve the provinces of San Juan, Mendoza, San Luis, and Neuquén.

The work of this project will be continued under a project for regional health services (Argentina 3108).

Argentina 3500 Health Statistics (1960 - 1971) PAHO.
To improve and develop the statistical services, and to train technical and auxiliary personnel, in accordance with a five-year plan.

Argentina 3504 Data Processing Centre (1968 - 1972) R
To develop a data processing centre for collecting and processing data in the health field, effectively using computers existing in the various health agencies, training personnel in systems analysis, programming and general administration of computer systems, and carrying out research on the use of computers in the health sciences.

Argentina 4200 Nutrition (1966 - 1970) PAHO
To organize or reorganize, at the central and regional levels, nutrition institutes and interministry agencies to guide the national food and nutrition policy; and to carry out integrated applied nutrition programmes, including the training of personnel.

Argentina 4300 Mental Health (1966 - 1970) PAHO
To formulate a national mental health plan and to carry out epidemiological research on mental illness.

Argentina 4303 Mental Health Research (1964 - ) Grant to PAHO: Foundations' Fund for Research in Psychiatry (Yale University, USA)
To investigate patterns of communication within families of schizophrenic patients.

Argentina 4500 Radiation Protection (1967 - ) PAHO
To develop radiation protection services in hospitals and other institutions and to train personnel for these services.

Argentina 4600 Industrial Hygiene (1968) PAHO
A two-month fellowship was provided under this project, for which consultant services to assist in defining the industrial hygiene problems in Greater Buenos Aires were provided in 1966 and 1967.

Argentina 4601 Air Pollution (1967 - 1968) R
The Organization provided supplies and equipment for an air sampling station for Greater Buenos Aires and advised in its installation and operation. This station has become part of the Pan American air sampling network for the regional study of the air pollution problem.
The Secretariat of State for Public Health intends to establish twelve more stations, some of them in Greater Buenos Aires and the others in other important industrial centres.

Argentina 4700 Food Control (1967 - 1969) UNDP/TA
To train personnel in various aspects of food inspection.
Argentina 4801 Rehabilitation (1966 - 1970) UNDP/TA

To train technicians in prosthesis and in the production of orthopaedic devices.

Argentina 4803 Latin American Centre for Medical Administration (1967 - ) PAHO

To establish and develop a centre that will study national problems in the provision and administration of medical care services and train personnel for technical and administrative posts in hospitals and other health institutions, and that will eventually serve as a Latin American centre for operational research in the management of medical services and for training in medical administration.

Argentina 6100 School of Public Health (1958 - 1970) R

To strengthen the School of Public Health of the University of Buenos Aires, in order to enable it to prepare adequately professional and auxiliary health workers for the country's developing health programmes.

Argentina 6200 Medical Education (1958 - 1970) R

To improve the medical education programmes of the schools of medicine by planning teaching and scientific research so as to meet the country's needs for physicians and research workers; and to improve the organization and administration of the schools.

Argentina 6201 Health Manpower Study (1968 - 1971) R PAHO

To make a study of health manpower requirements and the means of meeting them; and to collect data to enable the medical education and health personnel training programmes to be reoriented.

Argentina 6300 Nursing Education (1957 - 1970) UNDP/TA

To improve teaching in the schools of nursing of the Universities of Buenos Aires, Córdoba, Litoral and Tucumán, and the schools of nursing of the Army and of the Ministry of Welfare and Public Health.

Argentina 6400 Sanitary Engineering Education (1960 - 1970) PAHO

To strengthen the teaching at the School of Sanitary Engineering of the University of Buenos Aires.

Argentina 6700 Training of Statistical Personnel (1965 - 1971) PAHO

To strengthen the teaching of health statistics at the School of Public Health of the University of Buenos Aires, which provides courses in health statistics for personnel of various levels in the national and provincial health administrations, including a nine-month annual course for training intermediate-level statisticians and personnel responsible for statistics offices and departments of hospital statistics.

Barbados 2200 Water Supplies (1964 - ) UNDP/TA PAHO Community Water Supply Fund

To prepare plans for water supply systems.

Barbados 2300 Aedes aegypti Eradication (1968 - 1971) PAHO

To eradicate Aedes aegypti.

This project continues assistance with Aedes aegypti eradication previously provided under the inter-country project AMRO 2300.

Barbados 3100 Health Services (1968 - ) R PAHO

To train staff for implementing the health part of the four-year development plan (1968-1971).

Barbados 4801 Hospital Administration (1965 - 1970) UNDP/TA

To organize and operate the Queen Elizabeth Hospital as the central medical care institution of Barbados and as a teaching hospital for the University of the West Indies.

Barbados 6300 Nursing Education (1965 - 1970) PAHO

To strengthen basic and post-basic nursing and midwifery education, in order to improve patient care.

Bolivia 0200 Malaria Eradication Programme (1957 - ) PAHO UNICEF

To eradicate malaria from the country.

Bolivia 0300 Smallpox Eradication (1962 - 1970) R UNDP/TA

Following the completion of the attack phase of the smallpox eradication programme, to organize a maintenance programme and a programme of epidemiological surveillance.

Bolivia 0901 Typhus (1968) R

The Organization provided a consultant for two weeks in July, and supplies and equipment, to assist in making a serological survey and a field evaluation of typhus vaccine prepared with a living attenuated strain, in preparation for a typhus control programme.

Bolivia 3100 Health Services (1955 - 1975) R PAHO

To improve the national health services at the central and local levels; and to train professional and auxiliary personnel.

Bolivia 3101 National Plan for Rural Development (1953 - ) UNDP/TA (UN) (FAO) (ILO) (UNESCO)

To promote the economic, social and health development of the rural populations of the Andean Highlands, so as to facilitate their integration into the national community.

Bolivia 3102 Fellowships R: Clinical and social paediatrics (three months), dental public health (eleven months), hospital administration (one for ten weeks, one for fifteen months), nursing education (twelve months), nursing services (eleven weeks), paediatric education (twelve months), public health administration (four and a quarter months), public health nutrition (two months), sanitary engineering (two for two weeks), sanitary engineering education (one month), tuberculosis bacteriology (one month), veterinary education (nine and a half months), zoonoses epidemiology (two weeks).

Bolivia 3104 Health Services, Cochabamba and Tarija (1967 - 1970) UNDP/TA UNICEF

To develop the health services in the Cochabamba-Tarija area.
Bolivia 3500 Health Statistics (1968 - ) R
To reorganize biostatistical services at the national and local levels.

To develop radiation protection services in hospitals and other institutions and to train personnel for these services.

Bolivia 6200 Medical Education (1968 - ) R
To revise the programme of the three medical schools and incorporate concepts of social and preventive medicine into the curricula.

Bolivia 6400 Sanitary Engineering Education (1964 - 1971) PAHO
To improve the technical training of engineering personnel by means of short intensive courses at the University of San Andrés, La Paz, and the Technical University of Oruro.

Bolivia 6500 Veterinary Medicine Education (1967 - ) R (AID)
To improve the teaching at the School of Veterinary Medicine of the University of Santa Cruz de la Sierra.

Bolivia 6600 Dental Education (1968 - ) R
To improve the training of dentists by placing more emphasis on the public health, preventive, and social aspects of dentistry, including pedagogy and design of educational research in the curriculum, and providing for practical work; and to establish a co-ordinated programme of continuing and post-graduate dental education.

Brazil 0200 Malaria Eradication Programme (1958 - ) R PAHO Special Malaria Fund (AID)
To eradicate malaria from the country by a phased programme. (São Paulo State has been covered by project Brazil 0201—see below.)

Brazil 0201 Malaria Eradication Programme, São Paulo (1958 - 1968) R PAHO Special Malaria Fund (AID)
The aim was to eradicate malaria from São Paulo State. The Organization provided a sanitary engineer from 1958 to 1964, two sanitary inspectors in 1958, three from 1959 to 1961, two in 1962 and 1963 and one in 1964, as well as antimalarial drugs.
Preparatory work was begun in 1958 and attack-phase operations in 1960. Areas were gradually transferred to the consolidation phase, and by the end of 1967 only areas inhabited by 4.7 per cent. of the population of the originally malarious areas remained in the attack phase. Reintroduction of malaria from other parts of Brazil is, however, very liable to occur in areas in the consolidation phase, and none can yet be placed in the maintenance phase. In view of the extension of the federal programme, the project has been merged with project Brazil 0200 (see above).
An evaluation of the malaria eradication programme in São Paulo State has shown it to have been highly successful, with a reduction in slide positivity rate from 7.2 per cent. in 1960, the first year of attack measures, to under 1 per cent. in 1967. Active surveillance activities, and continuing attack measures in especially vulnerable areas, are necessary to prevent reinfec-
tion, and these have been provided for. When the importation of cases can be reduced, there should be no difficulty in achieving complete eradication. The health status of the population has benefited from removal of the risk of malaria. Endemic malaria

Brazil 0202 Training Programme for Malaria Eradication (1958 - 1968) PAHO PAHO Special Malaria Fund
The aim was to train professional and auxiliary personnel for the malaria eradication programmes of Brazil and other Latin American countries.

Brazil 0300 Smallpox Eradication (1956 - 1970) R
To intensify the smallpox eradication campaign.

Brazil 0400 Tuberculosis Control (1966 - ) R
To organize a pilot operational research area for carrying out epidemiological studies and measures of tuberculosis prophylaxis which may later be extended to other parts of the country.

Brazil 0701 Rabies Control (June - Aug. 1968) R
A consultant was provided for two months to the health authorities of Rio Grande do Sul to assist in organizing a canine rabies control campaign.

Brazil 0900 Schistosomiasis (1961 - ) PAHO
To plan and carry out a pilot programme on schistosomiasis and to expand research work on the disease.

Brazil 0901 Plague Research (1965 - 1971) R
To plan and carry out a research programme that could serve as a basis for a reorientation of the control of plague in the country.

Brazil 2100 Environmental Sanitation (1952 - 1973) PAHO
To improve the organization of the environmental sanitation services of the Ministry of Health, and to train professional and auxiliary engineering personnel.
Brazil 2101 Air and Water Pollution Control (1963 - 1970) UNDP/TA
To plan and carry out programmes for the control of air and surface water pollution in the state of São Paulo, its capital and neighbouring municipalities.

Brazil 2200 Water Supplies (1962 - ) PAHO PAHO Community Water Supply Fund
To draw up plans for water supply systems.

Brazil 3101 Health Services, North-eastern States (1958 - 1970) R UNDP/TA PAHO UNICEF
To establish, for the states in the north-east, a general programme into which can be integrated programmes of health, basic sanitation, training of personnel and development of biomedical research, whilst permitting the operation of specific programmes in individual states or institutions.

Brazil 3105 Fellowships R: Biophysics (five and a quarter months), clinical and social paediatrics (three months), environmental sanitation (three weeks), health education (three months), health facilities design (two months), health statistics (sixteen months), laboratory services (one for two months, one for three months), leprosy (six weeks), mental health (two months), mental health (two months), nursing education (one for ten weeks, one for three months), nursing services (three months), public health administration (four months), rabies control (two months), sanitary engineering (one for two weeks, two for ten weeks), tuberculosis bacteriology (one month), zoonoses epidemiology (three months).

Brazil 3200 Nursing (1953 - ) PAHO
To develop basic research in nursing and the education of professional and auxiliary nursing and midwifery personnel, and to improve the organization of nursing services.

Brazil 3301 National Virus Laboratory Services (1959 - 1968) UNDP/TA
The aim was to expand laboratory facilities for the diagnosis of virus diseases, the development of research programmes and the production of vaccines at the Oswaldo Cruz Institute. The Organization provided advisory services, a virologist for the duration of the project, eight fellowships to staff members of the Institute and supplies and equipment.

Between 1959 and 1961 the virologist assisted in planning and selecting equipment and in obtaining stains and reagents for the laboratory. Local staff were trained and from 1961 diagnostic and research work was carried out. The latter included the working out of techniques for the isolation and typing of enteroviruses, a study of the viral etiology of respiratory diseases and the role of respiratory syncytial virus, and research on the development of continuous cell lines. In 1964 and 1965 the Institute’s laboratory gave support to the poliomyelitis immunization programme and through work on cell lines it was possible to increase the number of cytopathogenic agents isolated from hospitals in Brasilia and Rio de Janeiro. Several courses were held during the course of the project, including a one-year course for new staff members, a ten-week course in medical virology for eight virologists from Latin American countries and a course in virology for fifteen laboratory technicians.

Brazil 3302 Yellow Fever Laboratory (1950 - 1970) PAHO
To support the continent-wide campaign against yellow fever by providing laboratory diagnostic services and supplying yellow fever vaccine.

Brazil 3400 Health Education (1968 - 1970) R
To develop well-planned and organized health education services as essential elements of federal and state health programmes; and to improve and extend health education training for all categories of health personnel.

Brazil 3500 Health Statistics (1963 - 1972) R
To improve the vital and health statistics services, especially those related to the notification of communicable diseases; and to train personnel in vital and health statistics and in medical records and hospital statistics.

Brazil 3700 Health Planning (1967 - 1972) PAHO
To formulate national and state plans and to train health personnel.

Brazil 4000 Training Centre in Nursing/Midwifery (1967 - 1972) R
To establish and develop a training centre in nursing/midwifery under the administration of the Ana Neri School of Nursing of the Federal University of Rio de Janeiro.

Brazil 4200 Nutrition (1960 - 1970) R UNICEF (FAO)
To improve the nutritional status of the population of the north-eastern part of Brazil through the maximum use of locally available foods, nutrition education and the organization of nutrition courses for professional and auxiliary personnel engaged in health work, education, and agriculture.

Brazil 4201 Nutrition Courses (1963 - 1970) PAHO
To develop nutrition courses for physicians at the Universities of Pará, Minas Gerais, Rio Grande do Sul and Pernambuco.

Brazil 4203 Institute of Nutrition, Recife (1964 - 1970) PAHO
To develop the public health nutrition section of the Institute of Nutrition, University of Pernambuco (formerly the University of Recife), to intensify the Institute’s research on local food and nutrition problems and to reorganize its training programmes for health personnel.

Brazil 4800 Medical Care Services (1966 - 1972) PAHO
To plan and organize medical care services, integrating as far as possible the services provided by the general health programmes, social security agencies and social welfare institutions, and to train personnel.

Brazil 4802 Training in Orthopaedic Brace-making (1964 - 1968) R UNICEF (World Rehabilitation Fund)
The aim was to expand rehabilitation services for the handicapped by providing courses in orthotic techniques and in the manufacture, modification, fitting and adjustment of low-cost high-quality prosthetic appliances. The Organization provided a consultant, a twelve-month fellowship in rehabilitation, and advisory services of staff members, as well as fellowships for the courses. Other such fellowships were provided by the World Rehabilitation Fund and by UNICEF, which also provided for each course 200 sets of semi-finished brace parts for the trainees to work on. (The finished braces were supplied free to Brazilian children.)
Three five-month courses, similar to a course provided by the World Rehabilitation Fund in 1962, were held, in 1965, 1966 and 1968, in the workshops of the Brazilian Association for Assistance to Handicapped Children. They were attended by a total of twenty-four trainees from Brazil and nineteen from Argentina, Bolivia, Chile, Colombia, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Peru, Uruguay and Venezuela. Most of the trainees have obtained full-time employment as orthotists.

It is expected that, if there is a need for more orthotists in other Latin American countries, they can be trained at the Prosthetics School in Buenos Aires.

Brazil 6100 School of Public Health, Rio de Janeiro (1956 - 1977) PAHO

To improve the training given by the School of Public Health, by engaging full-time teaching staff, providing better practice areas and reorganizing the laboratory and library services.

Brazil 6101 School of Public Health, São Paulo (1958 - 1970) R

To strengthen the School of Hygiene and Public Health of the University of São Paulo, with emphasis on its use as an international centre for the training of public health workers.

Brazil 6200 Medical Education (1965 - 1971) R PAHO

To strengthen medical education in the country, particularly as regards the teaching of preventive and social medicine.

Brazil 6202 Paediatric Education, Recife (1963 - 1970) PAHO UNICEF

To improve the teaching of paediatrics in the School of Medicine of the University of Pernambuco (formerly the University of Recife), and to provide training in paediatrics, outside the regular medical courses, to professional and auxiliary personnel.

Brazil 6203 Research Training (1965 - ) PAHO

To develop a regional training centre for teachers and research workers in microbiology, using the facilities of the Institute of Microbiology in Rio de Janeiro.


To develop the Library of Medicine, established in the School of Medicine of the University of São Paulo. The Library, which will have a computer system for information storage and retrieval, will serve as a source of medical information and as a demonstration and training centre for the Latin American countries.

Brazil 6300 Seminar on Curriculum Development for Schools of Nursing (1968) PAHO

The Organization provided a grant to the School of Nursing of the University of São Paulo for a seminar, attended by representatives of the thirty-two schools of nursing in Brazil, that was convened for the purpose of planning a curriculum in line with new legislation affecting university-level education programmes.

Brazil 6302 Training of Nursing Auxiliaries (1963 - 1970) PAHO

To increase the number and improve the quality of the training of nursing auxiliaries.


To develop the Institute of Sanitary Engineering, which carries out applied research and field and laboratory work and provides technical advice for the Superintendency of Urban Development and Sanitation of Guanabara State and other agencies, and which is responsible for arranging courses for sanitary engineers in conjunction with the University of Guanabara and for training other professional and auxiliary sanitation personnel.

Brazil 6401 Sanitary Engineering Education (1965 - 1971) PAHO

To organize short post-graduate courses, for engineers, in water supplies, disposal of liquid wastes, hygiene of housing, solid wastes disposal, food control, vector control and other environmental sanitation subjects.

Brazil 6500 Veterinary Medicine Education (1960 - 1970) PAHO

To improve the teaching of veterinary medicine and related subjects in the schools of veterinary medicine.

Brazil 6600 Dental Education (1963 - 1970) PAHO

To develop and improve dental education in the thirty-nine schools of dentistry in the country, and to strengthen the work of departments of preventive and social dentistry and community oriented research.


To develop research and instruction in the interrelationship between health and population structure and movement, and their association with economic and social processes in Brazil.

British Honduras 0200 Malaria Eradication Programme (1956 - ) R PAHO Special Malaria Fund UNICEF

To eradicate malaria from the country.

British Honduras 2200 Water Supplies (1964 - 1970) PAHO Community Water Supply Fund

To unify under a central authority the management of water supply and sewerage services; to expand the water supply services of Belize, Stann Creek township and Corozal; and to develop a programme for the construction of rural waterworks.

British Honduras 3100 Health Services (1962 - 1970) R PAHO UNICEF

To reorganize, expand, and improve the general health services, including environmental sanitation services.

British Honduras 6400 Sanitary Engineering Education (1966 - ) PAHO

To train sufficient national personnel to meet the country's needs in sanitary engineering.
Canada 3101 Fellowships R: Epidemiology (twelve months), geriatrics (three months), medical care administration (twelve months), sanitary engineering (one for four months, one for twelve months).

Chile 0300 Smallpox Eradication (1967 - ) R
To carry out a campaign aimed at vaccinating at least 80 per cent. of the population against smallpox, develop an epidemiological surveillance service, and produce smallpox vaccine in sufficient quantity to meet the country's requirements.

Chile 0600 Venereal Disease Control (1965 - 1973) PAHO
To intensify the programme for the control of venereal diseases in the light of a rising incidence in recent years.

Chile 2100 Environmental Sanitation (1968 - ) PAHO
To improve general environmental sanitation conditions and to train professional and auxiliary personnel.

Chile 3100 Health Services (1961 - 1972) R UNDP/TA PAHO
To strengthen the health services in the southern part of the country in order to meet the needs of the population of the area devastated by an earthquake in 1960 (34 per cent. of the total population); and to provide water supply and sewerage services to the 960,000 rural inhabitants of the area.

Chile 3101 Fellowships R: Dental education (six weeks), health statistics (three for two weeks), laboratory services (four for one week), medical education (one for six weeks, one for six months, one for twelve months), public health administration (two for three months); PAHO: Public health administration (two months).

Chile 3200 Nursing (1960 - 1970) R UNICEF
To improve the quality of the nursing care given by the health services, and to train professional and auxiliary personnel.

Chile 3301 Microbiology Centre (1968 - 1972) R
To promote basic and applied microbiological research, especially in communicable diseases; to train general and specialized microbiologists and health laboratory technicians; to organize and improve regional and local health laboratories; and to provide reference services.

Chile 4100 Maternal and Child Health (1967 - 1972) PAHO
To develop a programme for education, training and research in maternal and child health problems.

Chile 4102 Paediatric Residencies (1967 - 1971) R
To provide, by means of clinical residencies, intensive and comprehensive training to young paediatricians from Chile and other Latin American countries.

Chile 4103 Clinical and Social Paediatrics Courses (1968 - ) R
To improve the preparation of paediatricians through the provision of three-month post-graduate courses in statistics, epidemiology, and sociology, in order to prepare them better for dealing with problems that affect the health of children and for improving the administration of child health services.

Chile 4200 Nutrition (1960 - ) R
To develop a programme for improving the nutritional status of the population of the provinces of Atacama, Coquimbo and Linares.

Chile 4201 Brain Development in Malnourished Children (1968 - 1971) PAHO
To determine the effects of malnutrition on the growth in number and size of brain cells; and to ascertain the relationship between the circumference of the head and the amounts of protein, DNA, and RNA in the brain.

Chile 4300 Mental Health (1965 - 1970) PAHO
To conduct epidemiological studies on mental diseases and to develop methods and procedures for psychiatric care in the communities.

Chile 4601 Institute of Occupational Health and Air Pollution Research (1961 - ) UNDP/SF
To contribute to the solution of problems of industrial hygiene and occupational health. The Institute trains personnel, carries out research, advises the Government and private organizations on subjects within its competence, and assists in matters relating to labour legislation. (See page 102.)

Chile 4800 Medical Care Services (1966 - ) PAHO
To plan and organize medical care services, train personnel, and carry out research on medical care.

Chile 4801 Rehabilitation (1960 - 1970) UNDP/TA
To develop a speech-therapy unit for the rehabilitation of the deaf and mute.

Chile 4802 Cancer (1965 - 1970) PAHO
To extend a programme, begun in Santiago, for detection of cancer of the cervix uteri, and to train staff for the purpose.

Chile 6100 School of Public Health (1963 - ) R
To strengthen the teaching at the School of Public Health in the University of Chile and expand its facilities for the benefit of students from other countries.

Chile 6200 Medical Education (1962 - 1970) PAHO
To provide courses in medical training methodology at the School of Medicine of the University of Chile, Santiago.

Chile 6201 Training in the Medical Use of Radioisotopes (1962 - 1970) PAHO
To develop the Latin American centre at the Salvador Hospital of the University of Chile, which trains physicians in the medical use of radioisotopes.

To improve environmental sanitation training and research at the School of Engineering of the University of Chile and post-graduate training at the University's School of Public Health.

Colombia 0200 Malaria Eradication Programme (1959 - ) PAHO PAHO Special Malaria Fund UNICEF
To eradicate malaria from the country.
The aim was to assess the usefulness, for the radical cure of *Plasmodium vivax* infections, of a three-day, three-drug treatment which, if proved effective, would enable considerable savings to be effected in treatment costs and radical-cure treatment to be given in circumstances where the classical fourteen-day treatment cannot be used. The Organization provided advisory services and a grant to the national malaria eradication service of Colombia to cover part of the local costs of the study.

The field trial, which began in April 1966 and continued until mid-1968, provided for a comparison of the experimental treatment (chloroquine, primaquine and pyrimethamine administered for three days) with the classical fourteen-day treatment with chloroquine and primaquine. Persons in the study area were, as far as possible, divided into groups of three, matched by sex, age-group and area of residence.

Preliminary results showed no striking difference between the two treatments. The trial did not produce as much data as had been hoped for, primarily because the turnover of population and the continued transmission rate were higher than anticipated. The final analysis of the data is being carried out under the guidance of the expert who advised on the original design of the study. A socio-economic evaluation is dependent upon the results of this final analysis.

Colombia 0300 Smallpox Eradication (1967 - 1972) R

To carry out a campaign aimed at vaccinating at least 80 per cent. of the population against smallpox and to organize epidemiological surveillance.

Colombia 2200 Water Supplies (1960 - 1970) R

To plan and carry out a national water supply programme.

Colombia 2300 Aedes aegypti Eradication (1951 - 1970) PAHO

To eradicate *Aedes aegypti*.

Colombia 3100 Health Services (1951 - 1970) R UNDP/TA PAHO UNICEF

To prepare a national health plan; to strengthen the Ministry of Public Health and the departmental and local services; to extend integrated health services to the entire population; and to train professional and auxiliary personnel.

Colombia 3102 Fellowships R: Sanitary engineering education (eleven months), yellow fever vaccine preparation (one month).

Colombia 3301 National Institute of Health (Carlos Finlay) (1950 - ) PAHO

To strengthen the services (research, laboratory diagnosis, and vaccine preparation) which the yellow fever department of the National Institute of Health provides to other countries in connexion with the yellow fever eradication campaign in the Americas.

Colombia 4101 Clinical and Social Paediatrics Courses (1968 - 1970) R UNICEF

To improve the preparation of paediatricians, through the provision of three-month post-graduate courses in statistics, epidemiology, and sociology, in order to prepare them better for dealing with problems that affect the health of children and for improving the administration of child health services.

Colombia 6100 School of Public Health (1959 - 1970) R

To develop and improve the organization of the School of Public Health of the University of Antioquia.

Colombia 6201 Medical Education (1965 - 1972) PAHO

To strengthen medical education and to provide continuous training to physicians from rural areas.

Colombia 6203 Centre for the Teaching of Pathology (1967 - 1972) PAHO

To establish through the collaboration of the pathology departments of the National University, the University of Valle, and the University of Antioquia an international training centre for pathologists; to develop training programmes in pathology for technical and auxiliary personnel; to stimulate post-graduate studies; and to contribute to the establishment of a multinational programme for the academic training of personnel and studies in Latin America.

Colombia 6204 Experimental Studies of Health Services (1967 - ) Grant to PAHO: AID

To design an operational investigation, based on the results of the study of health manpower and medical education carried out between 1964 and 1967, of the use made of and the training provided for auxiliary personnel in health services.

Colombia 6400 Sanitary Engineering Education (1964 - 1971) PAHO (Inter-American Development Bank)

To improve the training of sanitary engineers; to set up centres for training and applied research in environmental engineering at the National University of Colombia, the University of Los Andes and the University of Valle; and to improve the teaching of sanitary engineering subjects in the regular courses for civil engineers.

Colombia 6600 Dental and Medical Education (1961 - 1971) PAHO UNICEF

To include preventive dentistry in the courses of the School of Dentistry of the University of Antioquia; and to establish a centre for research on dentistry, in which particular attention will be paid to the public health aspects.

Costa Rica 0200 Malaria Eradication Programme (1956 - ) R PAHO Special Malaria Fund UNICEF

To eradicate malaria from the country.


To draw up programmes for providing public water supply and sewerage systems to urban and rural communities; and to establish a national water supply and sewerage service.

Costa Rica 3100 Health Services (1959 - 1970) PAHO UNICEF

To prepare and implement a national health plan as part of the national economic and social development plan; to expand and improve the administration of the health services, including the medical care services; to train professional and auxiliary personnel; and to carry out an extensive rural sanitation programme.
Costa Rica 3101 Fellowships R: Anaesthesiology (twelve months), laboratory techniques (four and a half months), maternal and child health (three weeks), medical education (one for one month, one for two months, one for twelve months), nursing education (ten months), public health administration (one for one month, one for eleven months), sanitary engineering (three and a half months), tuberculosis bacteriology (one for one month, one for seven weeks).

To develop radiation protection services in hospitals and other institutions; and to train personnel for these services.

Costa Rica 4700 Drug Control (1968 - ) UNDP/TA
To organize services for the control of drugs and for the production and testing of biologicals.

Costa Rica 4800 Medical Care Services (1968 - ) R
To improve the return from investments in medical care facilities and promote an integrated plan for health services to be provided by various institutions.

Costa Rica 6300 Advanced Nursing Education (1959 - 1970) PAHO
To establish, at the school of nursing of Costa Rica, programmes to train nurses in teaching and supervision and in specialized fields of nursing.

To improve the teaching of sanitary engineering at the University of Costa Rica; and to broaden and update the technical information locally available to engineers working in the field of sanitary engineering.

Costa Rica 6600 Dental Education (1968 - ) PAHO
To improve the training of dentists, particularly as regards the public health, preventive and social aspects of dentistry, and the co-ordination of theoretical training and practical work; and to establish a programme of continuing and post-graduate dental education.

To prepare a programme for the training of professional, technical and auxiliary level personnel working in vital and health statistics and hospital statistics services.

Cuba 3300 Laboratory Services (1968 - ) R
To expand the facilities for the production of biologicals at the National Institute of Hygiene.

To improve the nutritional status of the population.

Cuba 6100 School of Public Health (1967 - 1970) R
To develop the School of Public Health.

To improve the technical training of professional and auxiliary personnel employed in sanitary engineering work; and to undertake research.

Dominican Republic 0200 Malaria Eradication Programme (1957 - ) R PAHO Special Malaria Fund UNICEF
To eradicate malaria from the country.

Dominican Republic 0400 Tuberculosis Control (1963 - ) UNDP/TA
To carry out a study of tuberculosis epidemiology in some pilot areas; to improve on tuberculosis immunization, diagnosis and treatment as presently practised, and to carry out a training programme for professional, technical and auxiliary personnel.

Dominican Republic 2200 Water Supplies (1961 - 1970) PAHO
To organize a central water supply and sewerage authority; to design water supply and sewerage systems and to obtain loans for constructing them from international credit agencies.

Dominican Republic 3100 Health Services (1953 - 1970) R UNDP/TA PAHO UNICEF Grant to PAHO: Organization of American States
To improve the organization of health services at the central, intermediate and local levels; and to expand the local services in order to provide integrated services to the whole country.

Dominican Republic 4200 Nutrition (1965 - 1970) R
To strengthen the nutrition division of the Department of Public Health; and to train personnel for hospital dietary services.

Dominican Republic 6200 Medical Education (1968 - ) R
To strengthen the programmes of study of the country's two medical schools, particularly as regards the introduction of concepts of preventive and social medicine, and to build up a cadre of full-time medical educators.

Dominican Republic 6300 Nursing Education (1958 - 1969) R Grant to PAHO: Organization of American States
To strengthen the National School of Nursing by preparing nurses for the faculty, improving physical facilities and areas for field practice, and expanding the curriculum to include public health nursing and courses in teaching and supervision.
Dominican Republic 6600 Dental Education (1965 - ) R
   To include the preventive and social aspects of dentistry in the curriculum of the School of Dentistry of the University of Santo Domingo.

Ecuador 0100 Communicable Disease Control
   (1968 - ) UNDP/TA
   To develop, through the health services, programmes to ensure the control of communicable diseases.

Ecuador 0200 Malaria Eradication Programme
   (1956 - ) R UNDP/TA PAHO Special Malaria Fund UNICEF (AID)
   To eradicate malaria from the country.

Ecuador 0300 Smallpox Eradication
   To keep the country free from smallpox by maintaining the necessary level of protection of the population and improving the epidemiological surveillance services.

Ecuador 0400 Tuberculosis Control (1968) PAHO
   Following assistance in 1966 and 1967 in planning a tuberculosis control programme, integrated into the general health services, in the Province of Manabí, some supplies and equipment were provided in 1968.

Ecuador 0900 Plague Control (1965 - ) R UNDP/TA
   To develop an effective plague control programme in the endemic areas.

Ecuador 2100 Environmental Sanitation (1968 - ) R
   To improve environmental sanitation throughout the country by providing specialized advisory services for governmental, provincial, municipal, and university institutions.

Ecuador 2200 Water Supplies
   (1961 - ) PAHO Community Water Supply Fund
   To expand the Quito water supply system and plan for the construction of water supply systems for other cities.

Ecuador 3100 Health Services
   (1953 - 1970) R UNDP/TA PAHO UNICEF
   To develop integrated public health services at the national and local levels, and especially in the Province of Manabí.

Ecuador 3101 Fellowships PAHO: Health education (two months), health statistics (two for three and a half months), medical librarianship (four and a half months), nutrition (twelve months), pharmacology (three months), sanitary engineering (three months).

Ecuador 3102 Rural Medical Services (1956 - ) PAHO (UN) (FAO) (ILO) (UNESCO)
   To promote the economic, social and health development of the rural populations of the Andean Highlands, in order to facilitate their integration into the national community.

Ecuador 3301 National Institute of Health
   (1952 - ) PAHO
   To promote the development of various sections of the National Institute of Health.

Ecuador 4202 Endemic Goitre Prevention (1966 - ) PAHO
   To evaluate the effectiveness of iodized oil, injected intra-muscularly, in the prevention of endemic goitre in rural areas, with special reference to feasibility and action on growth and development.

Ecuador 4203 Nutrition, Portoviejo
   (1966 - 1968) Grant to PAHO: Williams-Waterman Fund
   A study was made of the prevalence of protein-calorie malnutrition in Portoviejo, Province of Manabí, and medicopaediatric care and nutrition education activities were carried out through the health agencies under the Manabí integrated health programme. Advisory services were provided by the nutritionist assigned to the inter-country project AMRO 4204.

Ecuador 6200 Medical Education (Nov. 1968 - ) R
   To improve the teaching programmes of the medical schools in Quito, Guayaquil and Cuenca and to introduce concepts of social and preventive medicine into the curricula.

Ecuador 6300 Nursing Education (1957 - 1970) R PAHO
   To strengthen the teaching in the schools of nursing and to expand in-service training for nurses and nursing auxiliaries.

Ecuador 6400 Sanitary Engineering Education
   (1964 - 1970) PAHO
   To improve the quality of training in sanitary engineering in regular engineering courses and to develop short intensive courses in sanitary engineering at the Central University of Ecuador and the Universities of Guayaquil and Cuenca.

Ecuador 6600 Dental Education (1967 - 1970) R
   To strengthen the curricula of the Schools of Dentistry at the Central University of Ecuador, Quito, and at the University of Guayaquil.

El Salvador 0200 Malaria Eradication Programme
   (1955 - ) R PAHO Special Malaria Fund UNICEF (AID)
   To eradicate malaria from the country.

El Salvador 2200 Water Supplies
   To organize and administer a central water supply and sewage disposal service and to extend the country's water supply systems.

El Salvador 2300 Aedes aegypti Eradication
   (1968 - 1972) PAHO
   To re-eradicate Aedes aegypti from El Salvador, which in 1965 was found extensively reinfested after having been free from the mosquito for several years. This project continues assistance with A. aegypti eradication previously provided under the inter-country and zone projects AMRO 2300 and AMRO 2303.

El Salvador 3100 Health Services
   (1963 - 1970) UNDP/TA PAHO UNICEF
   To plan and carry out integrated health programmes as part of a national health plan.
To develop and improve water supply and sewage disposal systems.

Guatemala 3101 Fellowships R: Health statistics (two for two weeks, one for four months), industrial hygiene (one month), maternal and child health (ten months), medical education (one for two weeks, one for two months, one for six months), sanitary engineering (three for eleven months).

To improve sanitary engineering education in the regular civil engineering courses; and to establish a programme of short courses on water supplies and other aspects of sanitary engineering.

To strengthen dental education, particularly as regards the teaching of the social and preventive aspects of dentistry, at the University of El Salvador.

French Antilles and Guiana 0200 Malaria Eradication Programme (1963 - ) PAHO Special Malaria Fund
To eradicate malaria from the departments.

French Antilles and Guiana 2300 Aedes aegypti Eradication (1968 - 1971) PAHO
To eradicate Aedes aegypti from the French Departments in the Caribbean.
This project continues assistance previously provided under the zone project AMRO 2301.

French Antilles and Guiana 3300 Virus Laboratory Services (1967 - 1971) PAHO
To develop the virus research laboratory being set up by the Pasteur Institute in Cayenne. The first stage of the work comprises the organization of the laboratory, training of personnel, establishment of a catching station, collection of mosquitoes and rodents, isolation of viruses and preparation of antigens. The second stage provides for a study of the population.

Guatemala 0200 Malaria Eradication Programme (1955 - ) R MESA - PAHO Special Malaria Fund UNICEF
To eradicate malaria from the country.

Guatemala 2200 Water Supplies (1961 - ) PAHO Community Water Supply Fund
To develop and improve water supply and sewage disposal systems.

Guatemala 2300 Aedes aegypti Eradication (1968 - 1970) PAHO
To eliminate the reinfestation found in the city of Escuintla in 1967; and to intensify vigilance operations to prevent further infestation.
This project continues assistance in Aedes aegypti eradication previously provided under the zone project AMRO 2303.

Guatemala 3100 Health Services (1954 - 1971) R PAHO UNICEF
To formulate and carry out a national health plan which will include the extension of health services to cover the whole population; and to train professional and auxiliary personnel.

Guatemala 3200 Nursing Services (1968 - ) PAHO
Grant to PAHO: Kellogg Foundation
To improve nursing care through the establishment of a national nursing policy, the development of continuing education and in-service training programmes, the training of a larger number of nurses, and the improvement of teaching methods.

Guatemala 3300 Laboratory Services (1964 - 1970) UNDP/TA Grant to PAHO: AID
To study and evaluate the services provided by the central and local public health laboratories; to plan programmes for the Biological Institute and for all laboratories functioning at other levels; to set up local laboratories where necessary; and to train personnel.

Guatemala 6200 Medical Education (1966 - ) PAHO
To revise the programme of studies and improve teaching methods at the School of Medicine of the University of San Carlos, and to train faculty members.

To improve the technical training of professional and sub-professional personnel engaged in sanitary engineering through intensive short courses at the school of sanitary engineering of the University of San Carlos.

Guatemala 6500 Veterinary Medicine Education (1962 - 1970) PAHO
To strengthen the School of Veterinary Medicine of the University of San Carlos, especially as regards the teaching of public health and preventive medicine.

Guyana 0200 Malaria Eradication Programme (1961 - ) R PAHO Special Malaria Fund UNICEF
To eradicate malaria from the country.

Guyana 3100 Health Services (1963 - ) R UNICEF
To reorganize, expand, and integrate the health and environmental sanitation services in the heavily populated coastal area and in isolated communities in the interior.

Guyana 3200 Nursing Services (1960 - 1970) UNDP/TA PAHO
To develop the nursing services and provide nurses with further training in nursing administration.

Haiti 0200 Malaria Eradication Programme (1961 - ) R PAHO Special Malaria Fund UNICEF (AID)
To eradicate malaria from the country.

Haiti 0300 Smallpox Eradication (1968 - ) R
To carry out a campaign aimed at vaccinating at least 80 per cent. of the population against smallpox.

Haiti 2200 Water Supplies (1960 - ) PAHO PAHO Community Water Supply Fund Grant to PAHO: National Bank of Haiti
To plan, design, and finance an extension of the water supply system of Port-au-Prince and, later, to plan systems for the rest of the country.
Haiti 3100 Health Services (1957 - 1970) UNDP/TA PAHO UNICEF
  To develop integrated public health services at the central, intermediate and local levels, to develop the services in a demonstration area set up in the Western Department, and to train personnel.

Haiti 3102 Fellowships R: Health statistics (eight months), orthopaedic appliances (four months), sanitary engineering (twelve months).

Haiti 3300 Laboratory Services (1953 - 1970) PAHO
  To strengthen the public health laboratory, set up subsidiary laboratories in three local areas, and improve hospital and dispensary laboratories.

Haiti 4200 Nutrition (1961 - 1971) Grant to PAHO: Williams-Waterman Fund
  To improve nutrition by means of direct aid, education and training, and community development; and to integrate nutrition work into the general health services.

Haiti 4204 Nutrition and Maternal and Child Health (1965 - ) Grant to PAHO: Unitarian Universalist Service Committee
  To strengthen the nutrition education work carried out by the Mother and Child Health Centre of the Port-au-Prince General Hospital.

Haiti 6200 Medical Education (1968 - ) PAHO
  To improve the quality of medical teaching.

Haiti 6300 Nursing Education (1968 - 1970) PAHO
  To make an assessment of nursing needs and resources; to improve the three schools of nursing and revise their curricula; to develop the newly established National School for Nursing Auxiliaries; and to provide in-service training to nursing auxiliaries, especially in the rural areas.

Honduras 0200 Malaria Eradication Programme (1956 - ) R PAHO Special Malaria Fund UNICEF (AID)
  To eradicate malaria from the country.

Honduras 0400 Tuberculosis Control (1962 - ) PAHO
  To organize a demonstration area for the purpose of obtaining epidemiological data on tuberculosis, applying and evaluating control methods, and training staff for the extension of the programme to other areas.

Honduras 2200 Water Supplies (1960 - 1972) R
  To plan and carry out national programmes for the construction of water supply systems and for the improvement of existing services.

Honduras 3100 Health Services (1955 - 1970) UNDP/TA UNICEF
  To organize integrated public health services at the central and local levels; to improve environmental health services; and to train professional and auxiliary personnel.

Honduras 3102 Fellowships R: Health statistics (two for two weeks), laboratory services (one for six weeks, one for three months), maternal and child health (three weeks), medical records (three for five months), nursing education (two for five months), nursing services (three months), orthopaedic appliances (four months), tuberculosis bacteriology (one for two months, one for three months); PAHO: Medical education (six and a half months), public health administration (two for four months), zoonoses epidemiology (two weeks).

Honduras 4800 Medical Care Services (1965 - 1970) R
  To improve the medical care services of the social security institutions.

Honduras 6200 Medical Education (1965 - 1970) R
  To strengthen the teaching of the basic medical sciences and organize a department of preventive and social medicine at the Faculty of Medicine of the University of Honduras.

Honduras 6300 Nursing Education (1966 - 1970) PAHO
  To develop the School of Nursing of the University of Honduras.

Honduras 6400 Sanitary Engineering Education (1965 - 1970) PAHO
  To organize short intensive courses for personnel working on water supply and general sanitation programmes; and to carry out research on water supply problems and problems of industrial wastes disposal.

  To improve water supply systems and construct new ones in rural areas.

Jamaica 3100 Health Services (1963 - 1970) R UNICEF
  To make an assessment of health problems, needs and resources and the cost of public health services; and to prepare and implement a national health plan as part of the plan for social and economic development of the country.

Jamaica 4300 Mental Health (1964 - 1970) UNDP/TA PAHO
  To implement a mental health programme, integrated into the general health services, that includes curative and preventive services and training of personnel.

Jamaica 4500 Radiation Protection (1968 - ) PAHO
  To develop radiation protection services in hospitals and other institutions; and to train personnel for these services.

Jamaica 4800 Medical Care and Hospital Administration (1967 - June 1968) PAHO
  The Organization provided a temporary adviser and the services of regional office and project staff in 1967, and a financial management consultant in 1968, to assist the University Hospital of the West Indies in training staff in medical services administration, designing systems and reorganizing its financial structure.

Jamaica 6100 Public Health Training Centre (1967 - ) PAHO
  To improve the training of health inspectors and nurses specializing in public health which is provided by the West Indies School of Public Health (formerly the Public Health Training Centre).
To ensure the production of oral poliomyelitis vaccine of optimum quality and potency to meet the needs of the poliomyelitis eradication programme.

Mexico 0200 Malaria Eradication Programme (1956 - 1970) R

To eradicate malaria from the country.

Mexico 0201 Malaria Eradication in Problem Areas (1965 - 1968) MESA

The aim was to investigate the utility of combinations of attack measures, applied by multipurpose personnel in limited areas, for interrupting the transmission of malaria in areas of persistent transmission. The Organization provided grants to help defray local costs.

A pilot project was carried out in an area of Morelos State. The study area was divided into small sectors, each covered by a resident multipurpose agent who performed active case-detection and who every month visited the houses in his sector, spraying any wall surface added or altered since the last visit. In addition, radical treatment of cases was given by supervisory personnel. In another pilot project, in Guerrero State, the effect of three-monthly cycles of HCH spraying was studied in an area with vectors evidencing excito-repellency effects after DDT spraying.

The methods used in the Morelos trial had some effect in reducing transmission but were unable to eliminate it. A preliminary evaluation of the Guerrero trial indicated that the reduction of transmission was unlikely to be sufficient to justify the high cost of the method, except in very limited circumstances.

Mexico 2200 Water Supplies (1961 - 1970) R PAHO

To plan a national water supply programme.

Mexico 3100 Health Services (1966 - 1970) R UNICEF

To provide for the study of specific problems in specialized fields of health.

Mexico 3102 Fellowships R: Health facilities design (one month), physical therapy (four for one month), radiation protection in industry (four months).

Mexico 3300 Laboratory Services (1958 - 1971) PAHO

To plan new public health laboratories, develop the production of biologicals and train personnel; and to expand the food control services of the National Health Laboratory and the epidemiological studies carried out by the National Institute of Virology.

Mexico 3302 Vaccine Production (1968 - 1970) R UNDP/TA

To ensure the production of oral poliomyelitis vaccine of optimum quality and potency to meet the needs of the poliomyelitis eradication programme.
Nicaragua 4800 Medical Care Services (1968 - 1971) PAHO
To reorganize, extend and improve the hospital system and to train personnel.

Nicaragua 6200 Medical Education (1965 - 1970) R
To strengthen medical education by improving the training of teachers of basic medical sciences and of preventive and social medicine.

Nicaragua 6400 Sanitary Engineering Education
(1965 - 1970) PAHO Grant to PAHO: National Social Security Institute
To strengthen sanitary engineering education; and to organize short intensive courses in sanitary engineering subjects at the Faculty of Physics and Mathematics of the National University.

Nicaragua 6600 Dental Education (1968 - ) R
To organize a department of preventive and social dentistry at the School of Dentistry of the National University, and to improve the training of teachers.

Panama 0200 Malaria Eradication Programme
(1956 - ) R MESA PAHO Special Malaria Fund UNICEF
To eradicate malaria from the country.

Panama 3100 Health Services
(1952 - 1970) UNDP/TA PAHO UNICEF
To prepare and implement a national health plan providing for reorganization, extension and improvement of the health services and to train the necessary professional and auxiliary personnel.

Panama 3101 Fellowships R: Cardiology (twelve months), clinical and social paediatrics (four for three months), health statistics (two weeks), maternal and child health (three weeks), medical education (twelve months), medical records (five months), nursing services (twelve months), paediatrics (twelve months), radiation protection (eight months), zoonoses epidemiology (two weeks).

Panama 4700 Food and Drug Control (1968 - 1970) R PAHO
To strengthen the newly created food and drug control section of the Department of Health in order to enforce new food and drug legislation, and the specialized analysis laboratory of the University of Panama, which is serving as a reference laboratory for the countries of Central America; and to train personnel in food and drug control work.

Panama 6200 Medical Education (1967 - ) R PAHO
To extend the Faculty of Medicine of the University of Panama and revise the curriculum.

Panama 6300 Nursing Education (1968 - 1971) R
To develop the basic nursing degree programme for nurses at the University of Panama.

Panama 6400 Sanitary Engineering Education
(1965 - 1970) PAHO
To organize short courses on subjects relating to water supply programmes.

Paraguay 0200 Malaria Eradication Programme
(1957 - ) R PAHO Special Malaria Fund UNICEF (AID)
To eradicate malaria from the country. The programme had been delayed in the preparatory phase since 1961; a new eradication plan was developed in 1965 and renewed attack phase operations were instituted in October 1968.

Paraguay 0201 Study of the Impact of Malaria on Socioeconomic Development (1968 - ) PAHO Special Malaria Fund
To show quantitatively the effect of malaria in reducing economic productivity in a predominantly agricultural area in process of development, and the economic benefit stemming from eradication of malaria.

Paraguay 0300 Smallpox Eradication (1967 - 1972) R
To carry out a programme for the eradication of smallpox which, after being eliminated in 1961, was reintroduced into the country in 1964; and to undertake maintenance and surveillance operations.

Paraguay 2200 Water Supplies (1968) PAHO
A ten-week fellowship was awarded for the study of water supply systems.

Paraguay 3100 Health Services
(1955 - 1970) UNDP/TA PAHO UNICEF
To develop integrated health services throughout the country, and to train professional and auxiliary health personnel, in accordance with the ten-year health plan which forms part of the national plan for social and economic development.

Paraguay 3101 Fellowships R: Health statistics (two for two weeks, one for nine months), maternal and child health (ten months), paediatrics (one for three months, one for twelve months), public health administration (eleven months), X-ray equipment maintenance (three weeks); PAHO: Maternal and child health (two months), public health administration (two for four months), public health planning (three and three quarter months), zoonoses epidemiology (two weeks).

To strengthen the Department of Sanitary Engineering of the School of Engineering; and to organize short courses in specialized fields of sanitary engineering.

Paraguay 6600 Dental Education (1966 - 1970) PAHO
To strengthen the teaching at the Dental School of the National University of Asunción, to integrate the teaching of preventive and social dentistry into the basic and clinical courses and to develop programmes for giving practical experience to dental students.

Peru 0200 Malaria Eradication Programme
(1956 - ) R PAHO Special Malaria Fund UNICEF
To eradicate malaria from the country by stages.

Peru 0300 Smallpox Eradication (1967 - 1972) R
To carry out a programme for the eradication of smallpox, which has been reintroduced into the country after being eliminated in 1955, and to develop surveillance operations.
Peru 4000  Plague Control (1963 - 1971) R
To plan and carry out an epidemiological study of plague, and to implement a control programme.

Peru 2100  Environmental Sanitation
(1968 - ) UNDP/TA PAHO
To plan and carry out environmental sanitation work including the establishment and improvement of water and sewerage systems, waste disposal, air and water pollution control, housing and urbanization, food sanitation, and training of engineers and auxiliary personnel.

Peru 2200  Water Supplies (1960 - 1970) PAHO
To plan and implement a national programme for the construction of new water supply and sewerage services, and the extension of existing systems.

Peru 3100  Health Services
(1956 - 1970) UNDP/TA PAHO UNICEF
To improve health services at the central, regional and local levels; and to organize health areas, beginning with one in the Department of Junín.

Peru 3101  Fellowships R: Dental education (thirteen months), dental public health (three for eleven months), environmental sanitation (one for one month, one for eleven months), hospital administration (three months), laboratory services (two weeks), medical education (twelve months), nursing education (three months), occupational health (three months), pharmacology (eleven and half months), public health nutrition (five weeks), public health teaching (one month), sanitary engineering (two for ten weeks), tuberculosis bacteriology (one month), water and sewage analysis (two for one week); PAHO: Clinical and social paediatrics (three months), epidemiology (two for two weeks), health education (twelve months), health facilities design (twelve months), sanitary engineering (two for ten weeks, one for four months).

Peru 3102  Andean Region Development Programme
(1955 - ) R UNDP/TA (UN) (FAO) (ILO) (UNESCO)
To promote the economic, social and health development of the indigenous populations of the Andean Highlands, so as to facilitate their integration into the national community.

Peru 3104  National Institute of Health
(1965 - 1968) PAHO (Inter-American Development Bank)
In addition to advisory services the Organization provided a consultant in 1965 and 1966 and two consultants in 1967, to assist the National Institute of Health in expanding its activities.
In 1965 a new programme and new work plans, in which nutrition, biological control, virology, and pathology laboratory services were included, were prepared for the Institute. The quality of biological products—especially rabies, freeze-dried smallpox and diphtheria/perussis/tetanus vaccines—was improved and production was increased. In 1966 a study was begun on the feasibility of constructing a new building for the Institute. In 1968 plans were made for evaluating the effect of the oral poliomyelitis vaccination programme carried out in 1967 and for comparing the results with those obtained in other countries.

To improve the nutritional status of the population in the departments of Junín, Pasco and Puno.

Peru 4202  Development of Nutrition Rehabilitation Centres in the Central Highlands
(1967 - 1968) Grant to PAHO: Williams-Waterman Fund
Two nutrition rehabilitation centres were established in the communities of San Jerónimo de Tunán (Valle del Mantaro) and Junín (Meseta del Bombón) for the purposes of lessening the damage caused to children of pre-school age by protein-calorie malnutrition and of instructing mothers in proper child care. The nutritionist assigned to the inter-country project AMRO 4204 assisted with this project.

Peru 4500  Radiation Protection (1968 - ) R
To develop radiation protection services in hospitals and other institutions; and to train personnel for these services.

Peru 6100  School of Public Health
(1963 - 1970) PAHO UNICEF
To develop the School of Public Health (formerly the Personnel Training Centre of the Ministry of Public Health) which trains professional, technical and auxiliary personnel for the public health services.

Peru 6200  Medical Education (1964 - 1970) PAHO
To improve the medical education programmes of the country's medical schools.

Peru 6300  Nursing Education (1959 - 1970) R PAHO
To organize and strengthen basic nursing education in the nursing schools of the University of San Marcos and other universities.

Peru 6400  Sanitary Engineering Education (1964 - 1971) PAHO
To revise the curriculum of the School of Sanitary Engineering of the National University of Engineering, and to organize courses on subjects bearing on water supply and sewerage.

Peru 6500  Veterinary Medicine Education (1965 - 1970) R
To strengthen the School of Veterinary Medicine of the University of San Marcos, especially as regards the teaching of public health and preventive medicine.

Surinam 0200  Malaria Eradication Programme
(1957 - ) R PAHO Special Malaria Fund UNICEF
To eradicate malaria from the country.

Surinam 2300  Aedes aegypti Eradication
(1952 - 1970) UNDP/TA PAHO
To eradicate Aedes aegypti.

Surinam 3100  Health Services (1965 - 1970) PAHO
To strengthen and integrate the health services and to extend them to rural areas.

Surinam 6200  Medical Education (1968 - ) PAHO
To strengthen medical education at the University of Paramaribo.

Trinidad and Tobago 2200  Water Supplies
(1963 - 1969) PAHO PAHO Community Water Supply Fund
To improve the organization and management of the Central Water and Sewerage Authority and to expand the water supply and sewerage systems.
Trinidad and Tobago 3100 Health Services (1968 - 1970) PAHO
To improve the organization of the health services.

Trinidad and Tobago 3103 Fellowships R: International classification of diseases (two for two weeks), nursing education (three for eleven months), nursing services (seven for three and a quarter months), water and sewage analysis (three for one week), zoonoses epidemiology (two weeks).

Trinidad and Tobago 3200 Nursing Services (1959 - ) PAHO UNICEF
To strengthen and improve the nursing services.

Trinidad and Tobago 4800 Hospital Administration and Medical Records (1965 - 1970) UNDP/TA
To reorganize the general hospital in Port-of-Spain; to organize medical records departments in the hospitals, clinics and health centres of the Ministry of Health and Housing; and to train personnel in medical record keeping.

United States 2300 Aedes aegypti Eradication (1968 - ) PAHO
To eradicate Aedes aegypti.
From 1964 to 1967 assistance was provided by the adviser assigned to the inter-country project AMRO 2300.

United States 3100 Consultants in Specialized Fields (1958 - ) R
To provide consultant services on specialized problems in public health.

United States 3103 Fellowships R: Dental education (ten weeks), medical care administration (three months), midwifery education (one month), nursing education (one for ten weeks, one for three months), occupational health (two months), public health administration (seven weeks), public health nursing (ten weeks), rehabilitation teaching (ten weeks), statistics (two months), water pollution control (two months).

Uruguay 0300 Smallpox Eradication (1967 - 1972) R
To carry out a programme of vaccination against smallpox in order to maintain the level of immunity in the population; to organize a programme of epidemiological surveillance; and to produce smallpox vaccine in sufficient quantity to meet the country's requirements.

Uruguay 2200 Water Supplies (1960 - 1969) PAHO Community Water Supply Fund
To plan and carry out national water supply programmes.

To organize integrated health services in five departments, and later to extend such services to the whole country.

Uruguay 3101 Fellowships R: Dental education (ten months), hospital administration (eight and a half months), laboratory services (two for one week), nursing education (twelve months), physical therapy (two for nine months), public health administration (one for one week, one for ten weeks, two for three months, two for four months, one for ten months, one for ten and a half months, one for thirteen months, one for sixteen months), public health legislation (one month), sanitary engineering (two for two weeks, one for ten weeks), tuberculosis epidemiology (four months).

Uruguay 3102 Development of the St Lucia River Basin (1968 - ) PAHO
To make a comprehensive study of the St Lucia River Basin as a basis for developing the water supply and water-quality management elements of a comprehensive development plan for the area.

Uruguay 3300 Laboratory Services (1968 - ) R
To improve the organization of the public health laboratories and the quality of the services they provide.

Uruguay 3500 Health Statistics (1965 - 1970) R
To improve the collection, processing, tabulation, and publication of statistics of births, deaths, morbidity, resources of health manpower and facilities.

Uruguay 4101 Research in Maternal and Child Health (1968 - 1970) PAHO
To carry out, at the Faculty of Medicine of the University of the Republic, a maternal and child health research and training programme on the relation of disturbances in foetal nutrition and in homeostasis to perinatal mortality.

To develop radiation protection services in hospitals and other institutions; and to train personnel for these services.

Uruguay 4800 Medical Care and Hospital Administration (1963 - 1972) UNDP/TA PAHO UNICEF
To improve the organization and administration of the medical care services of the Ministry of Public Health.

Uruguay 6100 Training of Health Personnel (1960 - 1970) PAHO UNICEF
To strengthen the Dr Carlos Nery School of Nursing, and to train auxiliary personnel for the health services.

Uruguay 6200 Medical Education (1964 - 1970) R PAHO
To strengthen the Faculty of Medicine of the University of the Republic, and to improve the teaching, especially as regards preventive medicine and basic medical sciences.

Uruguay 6400 Sanitary Engineering Education (1965 - 1970) PAHO
To improve the teaching of sanitary engineering in the regular engineering curriculum and to organize intensive short courses for sanitary engineers.

Uruguay 6500 Veterinary Medicine Education (1966 - 1970) R
To improve the teaching of preventive medicine and public health in the School of Veterinary Medicine of the University of the Republic.

Venezuela 0200 Malaria Eradication; Independent Assessment of Programme (1967 - 1968) PAHO PAHO Special Malaria Fund
The aim was to evaluate the current status of the malaria eradication programme, especially in areas in the maintenance and consolidation phases. The Organization provided a team composed of two malarialogists and a laboratory specialist.
Between October and December 1967 members of the team studied all aspects of the malaria eradication activities and collected epidemiological information, state by state. A final report has been submitted to the Government.

Venezuela 2200 Water Supplies (1960 - 1969) R
PAHO Community Water Supply Fund UNICEF
To prepare long-term plans for urban water supply programmes; to establish water rates for financing the extension and construction of water supply systems; and to reorganize the water supply service of Caracas.

Venezuela 2300 Aedes aegypti Eradication (1958 - ) PAHO
To eradicate Aedes aegypti.

Venezuela 2400 Housing and Urbanization (1963 - 1970) R
To plan rural housing and community development and to train personnel. (See page 162.)

Venezuela 3102 Fellowships R: Dermatology (fourteen months), industrial hygiene (two for twelve months), medical education (one for three months, one for four months, one for six months, two for twelve months, two for sixteen months), medical social work (six weeks), mental health (one month), nutrition education (one month), paediatrics (two for three months), physical therapy (two for nine months), public health administration (four months), public health nursing (seventeen months), sanitary engineering (one for eleven and a half months, five for twelve months), zoonoses epidemiology (two for two weeks); PAHO: maternal and child health (two months), pharmacology (three months), public health planning (two for three and three quarter months), sanitary engineering (twelve months).

Venezuela 3103 Medical and Dental Manpower Studies (1968 - 1970) PAHO
To carry out a survey and analysis of medical and dental resources and prepare plans to meet present and future needs.

Venezuela 3300 Laboratory Services (1966 - 1970) UNDP/TA
To strengthen and extend the network of public health laboratories and to integrate them into the public health services.

Venezuela 3301 National Institute of Hygiene (1964 - 1970) PAHO
To develop virological studies and the preparation of freeze-dried vaccines at the National Institute of Hygiene.

Venezuela 4200 Nutrition (1965 - ) PAHO
To carry out a nutrition programme on a national scale and to train personnel.

Venezuela 4300 Mental Health (1954 - 1970) UNDP/TA PAHO
To assess mental health problems and to plan a national mental health programme, integrated into the national health plan, and providing for care and rehabilitation of patients, training of personnel, research, and prevention of mental disorders.

Venezuela 4600 Industrial Hygiene (1962 - ) PAHO
To strengthen the industrial hygiene and occupational health services of the Ministry of Health and Welfare.

Venezuela 4800 Medical Care Services (1966 - 1971) R PAHO
To prepare plans for the operation of hospitals and health centres, with a view to achieving the best possible co-ordination and utilization of the resources available; and to train personnel of various categories.

Venezuela 4801 Rehabilitation (1963 - 1970) R PAHO
To raise the standards of the departments of physical medicine and to train physical and occupational therapists for the rehabilitation services.

Venezuela 6100 School of Public Health (1961 - 1970) R
To broaden the scope of the School of Public Health of the Central University, Caracas, and improve the teaching.

Venezuela 6200 Medical Education (1958 - 1970) PAHO
To improve medical education in Venezuela, in particular as regards preventive medicine and the teaching of basic medical sciences.

Venezuela 6300 Nursing Education (1959 - 1970) PAHO
To establish, at the School of Public Health, advanced courses in nursing education and in administration of nursing services.

To strengthen the teaching of sanitary engineering in the civil engineering curricula in four universities; to develop post-graduate courses at the Central University of Venezuela; to establish an experimental station and laboratories for research and practical training; and to provide continuing education in sanitary engineering.

Venezuela 6500 Veterinary Medicine Education (1966 - 1971) R
To strengthen the teaching of basic veterinary sciences, and of the preventive aspects of veterinary medicine, in three universities.

To develop and improve dental education at university level, especially in preventive and social dentistry, and to train auxiliary dental personnel.

West Indies 0701 Rabies Control (1968 - ) R
To assist the countries and territories of the West Indies in rabies control work, including the training of personnel and the establishment of diagnostic services.

West Indies 2200 Water Supplies (1962 - 1970) UNDP/TA
To plan water supply systems for several islands in the Caribbean.

West Indies 3102 Fellowships R: British Virgin Islands—medical technology (three months); Grenada—medical technology (eleven and a half months); St Lucia—sanitary inspection (eleven months); PAHO: Barbados—nursing education (eleven months), nursing services (eleven months); Grenada—sanitary inspection (eleven months); Montserrat—nursing education (eleven months); St Kitts—nursing education (eleven months); St Lucia—laboratory services (nine months).

Fellowships for courses R: International classification of diseases (four for two weeks to trainees from Antigua, Bermuda and St Lucia), public health administration (five for five weeks to trainees from Bermuda, British Virgin Islands, Grenada,
St Kitts and St Vincent); PAHO: Nursing services (sixteen for two weeks to trainees from Anguilla, Antigua, British Virgin Islands, Dominica, Grenada, Montserrat, St Kitts, St Lucia and St Vincent, six for one month to trainees from Antigua, Bahamas, Dominica, Grenada, Montserrat and St Lucia).

**West Indies 3200 Nursing Services (1959 - ) R**

To develop nursing services in the islands of the eastern Caribbean.

**West Indies 4200 Nutrition (1962 - ) R**

To improve the level of nutrition of the population of the islands of the Caribbean through courses in nutrition for technical personnel and nutrition education in schools and health centres.

**West Indies 4802 Training in Hospital Administration (1967 - ) UNDP/TA**

To train staff in hospital administration for the hospitals in the Caribbean area.

AMRO 0101 Epidemiology, Zone I (1965 - ) PAHO

AMRO 0102 Epidemiology, Zone II (1965 - ) PAHO

AMRO 0103 Epidemiology, Zone III (1961 - ) PAHO

AMRO 0104 Epidemiology, Zone IV (1966 - ) PAHO

AMRO 0106 Epidemiology, Zone VI (1958 - ) PAHO

To stimulate the development and co-ordination of programmes for the eradication or control of communicable diseases in the countries of the zone; to advise the governments on new methods and techniques of control and on problems related to the application of the International Sanitary Regulations; and to promote better reporting of notifiable diseases.

AMRO 0107 Parasitic Diseases (1966- ) PAHO

To assist countries in carrying out surveys and epidemiological studies of parasitic diseases and in developing control programmes.

AMRO 0200 Malaria Technical Advisory Services, Inter-zone (1955 - ) MESA PAHO Special Malaria Fund

To provide technical advisory services and local training in certain aspects of country programmes for which long-term appointments of advisers are not necessary.

AMRO 0203 Malaria Technical Advisory Services, Zone III (1958 - ) MESA PAHO Special Malaria Fund

To provide technical advice to the countries of the zone and to co-ordinate their malaria eradication programmes; and to co-ordinate the research and training activities of these programmes with those of the continent-wide malaria eradication programme.

AMRO 0209 Insecticide Testing Team (1959 - 1968) MESA

The aim was to study the activity of new insecticides in accordance with the WHO scheme for the evaluation and testing of insecticides and to develop and evaluate methods of applying larvicides for use in malaria eradication programmes. The Organization provided a team composed of an entomologist, two assistant entomologists and an entomological aide, short-term consultants as needed, advisory services of staff members, grants towards the salaries of local auxiliary personnel and supplies and equipment.

---

1 A description of the stages of the scheme is given in the footnote on p. 18.

In a test area in El Salvador Stages I-IV tests were carried out on a number of new insecticides and one of them, OMS-33, was also given a village-scale trial (Stage V) and a large-scale operational field trial (Stage VI). The results indicated that OMS-33 is effective in controlling susceptible and resistant Anopheles albimanus for seven to twelve weeks after its application to houses. In addition to its residual effect, it has an airborne lethal effect inside and outside sprayed houses lasting for four to five weeks after spraying. Its toxicity to spraymen was found to be low enough to permit its use without the introduction of stringent new safety measures. Safe spraying practices were developed.

Experience with larvicides, particularly with fenithion, has shown that larviciding for malaria eradication in the rural areas of Central America is seldom feasible because of the large number and variability of the breeding-places and the small number of people that would be protected, all of which increase the per capita cost of this method.

The project has contributed to the solution of the problem of DDT resistance and the information it has provided on new insecticides, particularly carbamate insecticides, will be useful in connexion with programmes for the control of a number of vector-borne diseases. It has also resulted in improvement of techniques and the development of new ones and has provided, incidentally, a certain amount of research training for national personnel.

WHO is continuing large-scale trials of OMS-33 elsewhere, and also field tests of other new insecticides.

AMRO 0210 Malaria Eradication Epidemiology Teams (1960 - 1968) MESA

The aim was to determine the causes of the persistence of malaria transmission in certain areas in Latin America, to recommend additional eradication measures, and to develop methods for the study of the epidemiology of persistence of transmission. The Organization provided an entomologist between 1964 and 1968, an epidemiologist in 1965 and 1966 and short-term consultants.

From 1960 to 1963, intensive studies of two localities and extensive studies of fourteen were carried out in El Salvador in order to identify the causes of persistent transmission and to work out a methodology, based on repeated short visits, for characterizing localities with respect to the presence of such causes. Both entomological and epidemiological factors were studied and taken into account in the methodology developed. As a by-product of these studies, the excito-repellency test box was evolved for testing the degree of interference in mortality caused by an excito-repellent effect of an insecticide on the vector, and this box is now in wide use.

Beginning in 1964, studies were made in Pinotepa Nacional, Mexico, where a pilot trial of measures for interruption of persistent low-level transmission was being undertaken. This trial provided for monthly active case-detection and prompt radical-cure treatment of all cases discovered, to determine if these measures, added to four-monthly spraying with DDT, could interrupt transmission.

The studies carried out in El Salvador greatly assisted the understanding of the transmission chain in problem areas in Central America and provided a basis for decisions as to what attack measures should be applied and under what circumstances. The studies in Mexico showed that the methods employed had reduced the number of cases and of positive localities very markedly, but that transmission still remained in a few localities in the trial area. In both El Salvador and Mexico the project provided facilities for in-service training in epidemiology and entomology for national personnel.
Advanced Courses in Malaria Epidemiology, Venezuela (1965 - 1970) PAHO Special Malaria Fund

To train epidemiologists of national malaria eradication programmes in methods of solving the difficulties encountered in problem areas.

Research in Epidemiology of Malaria Eradication in Problem Areas (1966 - ) PAHO Special Malaria Fund.

To carry out epidemiological research aimed at facilitating eradication of malaria in problem areas; to evaluate the results of trials with new insecticides; and to provide guidance and supervision in connexion with trials of new antimalarial drugs and medicated salt trials.

Field Investigations of Mass Antimalarial Drug Treatment (1966 - ) PAHO Special Malaria Fund

To carry out, in pilot areas, field investigations of mass treatment with various combinations of drugs other than chloroquine-primaquine, as a means of eradicating malaria.

Promotion of Rural Health Services and Malaria Eradication Campaigns (1967 - ) PAHO Special Malaria Fund

To encourage greater participation by the general health services in surveillance and other activities of the malaria eradication services and to assist the general health services in providing the coverage in rural areas that will enable them to assume responsibility for maintaining freedom from malaria when eradication has been achieved.

Smallpox Eradication, Inter-zone (1951 - 1970) R PAHO

To advise governments of the Region on the organization, conduct, and evaluation of national smallpox eradication programmes, and to assist in the production of smallpox vaccine. (See page 100.)

Smallpox Eradication, Zone IV (1968 - ) R

Smallpox Eradication, Zone VI (1967 - ) R

To advise governments of the zone on the organization, conduct, and evaluation of national smallpox eradication programmes and on the production of smallpox vaccine.

Seminars on Smallpox Eradication (1968 - 1970) R

To study the laboratory techniques used for smallpox diagnosis and the contribution that laboratories can make to the smallpox eradication programmes; and to evaluate the progress attained in the countries of the Americas in the production of smallpox vaccine.

Tuberculosis Control, Inter-zone (1957 - 1970) R (Government of Venezuela)

To stimulate the expansion of tuberculosis control programmes in the Region by assisting governments in their planning and execution and promoting the convening of technical meetings on tuberculosis.

Tuberculosis Control, Zone IV (1962 - 1970) R

To assist countries of the zone in studying, organizing, carrying out and evaluating tuberculosis control programmes; in training professional and auxiliary personnel in modern techniques of tuberculosis control; and in integrating tuberculosis control work into the work of the general health services.

Leprosy Control, Inter-zone (1958 - ) PAHO

To determine the prevalence and characteristics of leprosy in the Americas; and to assist governments in planning and implementing leprosy control programmes and in training professional and auxiliary personnel.

Leprosy Control, Zone IV (1960 - 1970) R

Leprosy Control, Zone VI (1962 - ) R

To assist the countries of the zone in planning, implementing and evaluating leprosy control programmes; in training professional and auxiliary personnel in leprosy control; and in integrating leprosy control work into the general health services.

Courses on Rehabilitation and Prevention of Disabilities (Leprosy) (1967 - ) R

To train medical personnel in methods of preventing and treating disabilities caused by leprosy, and of physically rehabilitating patients with disabilities, especially by non-surgical methods.

Seminars on Leprosy Control (1966 - 1968) R

The aim was to exchange ideas and experience on the application to leprosy control programmes of administrative methods recommended by the seminar on leprosy held in Cuernavaca, Mexico, in 1963.

In 1966 three consultants and staff members of the Organization made an evaluation of the leprosy control programmes in Argentina, Ecuador and Venezuela, in which the recommendations of the 1963 seminar were being applied. In 1967 a travelling seminar on leprosy was held in the three countries, during which an analysis of the programmes was made. A further seminar took place from 7 to 13 July 1968 in Guadalajara, Mexico; it was organized in collaboration with the Mexican Department of Health and Welfare and the participants were leprologists and public health specialists from countries of the Americas. The heads of the leprosy programmes in Argentina, Ecuador and Venezuela reported on control work in their countries, and a thorough analysis was made of work and experience since the three countries began following the recommendations of the 1963 seminar.

Venereal Disease Control, Inter-zone (1961 - ) PAHO

To assist the countries of the Region in venereal disease control and in training staff.

Pan American Zoonoses Centre, Azul, Argentina (1956 - ) R PAHO Grant to PAHO: Government of Argentina

To advise countries of the Region on the establishment and improvement of veterinary public health services and zoonoses control programmes; to carry out research on the most prevalent zoonoses; and to train technical personnel for zoonoses control work.

Veterinary Public Health, Zone II (1968 - ) PAHO

Veterinary Public Health, Zone III (1957 - ) R

Veterinary Public Health, Zone IV (1968 - ) R

To assist the countries of the zone in developing veterinary public health services and activities, especially the study and control of zoonoses and the application of protective measures in food control; to promote the teaching of protective measures in food control; to promote the teaching of veterinary public health; and to collaborate in the evaluation of veterinary public health and related programmes.
The aim was to promote the organization of basic health services within a regional administrative system, for the purpose of obtaining maximum coverage of the population; to co-

AMRO 2114 Pan American Sanitary Engineering Centre (1968 - ) PAHO
To establish a regional centre for the provision of technical information and technical assistance and to carry out research in the environmental sciences and engineering.

AMRO 2120 Promotion of Rural Health Services (1967 - 1968) PAHO
The aim was to promote the organization of basic health services within a regional administrative system, for the purpose of obtaining maximum coverage of the population; to co-

AMRO 2106 Sanitary Engineering, Zone VI (1960 - ) PAHO
To assist the governments of countries in the zone in improving the organization of the environmental sanitation services of the ministry of health; to advise the agencies responsible for water supply and sewerage services; and to co-operate with universities and other institutions in training professional and auxiliary personnel for sanitation work.

AMRO 2107 Environmental Sanitation, Caribbean Area (1956 - ) UNDP/TA PAHO UNICEF
To investigate and evaluate environmental conditions and provide technical advice during the development of extensive sanitation programmes in the countries and territories of the Caribbean area.

AMRO 2108 Seminars on Sanitary Engineering, Zone III (1967 - ) R
To study and analyse problems relating to water supply, sewage disposal, water pollution and other environmental sanitation subjects.
A seminar dealing with the status of sewerage projects in countries of the zone was held in San José, Costa Rica, in December 1967.

AMRO 2112 Seminar on Air Pollution, Rio de Janeiro (18-22 Nov. 1968) R
The seminar reviewed the situation as regards air pollution in Latin American countries, including the action being taken to evaluate the problem and legislation and control measures currently in force, and discussed present and future needs for an adequate evaluation and control programme. There were nine participants from Argentina, Brazil, Chile, Colombia, Mexico and Venezuela, and a number of observers.
The Organization provided a consultant and the cost of attendance of the participants, and three staff members helped with the conduct of the seminar.

AMRO 2104 Sanitary Engineering, Zone IV (1960 - ) PAHO
To assist the governments of countries in the zone in improving the organization of the environmental sanitation services of the ministry of health; to advise the agencies responsible for water supply and sewerage services; and to co-operate with universities and other institutions in training professional and auxiliary personnel for sanitation work.

AMRO 2106 Sanitary Engineering, Zone VI (1960 - ) PAHO
To assist the governments of countries in the zone in improving the organization of the environmental sanitation services of the ministry of health; to advise the agencies responsible for water supply and sewerage services; and to co-operate with universities and other institutions in training professional and auxiliary personnel for sanitation work.

AMRO 2107 Environmental Sanitation, Caribbean Area (1956 - ) UNDP/TA PAHO UNICEF
To investigate and evaluate environmental conditions and provide technical advice during the development of extensive sanitation programmes in the countries and territories of the Caribbean area.

AMRO 2108 Seminars on Sanitary Engineering, Zone III (1967 - ) R
To study and analyse problems relating to water supply, sewage disposal, water pollution and other environmental sanitation subjects.
A seminar dealing with the status of sewerage projects in countries of the zone was held in San José, Costa Rica, in December 1967.

AMRO 2112 Seminar on Air Pollution, Rio de Janeiro (18-22 Nov. 1968) R
The seminar reviewed the situation as regards air pollution in Latin American countries, including the action being taken to evaluate the problem and legislation and control measures currently in force, and discussed present and future needs for an adequate evaluation and control programme. There were nine participants from Argentina, Brazil, Chile, Colombia, Mexico and Venezuela, and a number of observers.
The Organization provided a consultant and the cost of attendance of the participants, and three staff members helped with the conduct of the seminar.

AMRO 2104 Sanitary Engineering, Zone IV (1960 - ) PAHO
To assist the governments of countries in the zone in improving the organization of the environmental sanitation services of the ministry of health; to advise the agencies responsible for water supply and sewerage services; and to co-operate with universities and other institutions in training professional and auxiliary personnel for sanitation work.

AMRO 2107 Environmental Sanitation, Caribbean Area (1956 - ) UNDP/TA PAHO UNICEF
To investigate and evaluate environmental conditions and provide technical advice during the development of extensive sanitation programmes in the countries and territories of the Caribbean area.

AMRO 2108 Seminars on Sanitary Engineering, Zone III (1967 - ) R
To study and analyse problems relating to water supply, sewage disposal, water pollution and other environmental sanitation subjects.
A seminar dealing with the status of sewerage projects in countries of the zone was held in San José, Costa Rica, in December 1967.

AMRO 2112 Seminar on Air Pollution, Rio de Janeiro (18-22 Nov. 1968) R
The seminar reviewed the situation as regards air pollution in Latin American countries, including the action being taken to evaluate the problem and legislation and control measures currently in force, and discussed present and future needs for an adequate evaluation and control programme. There were nine participants from Argentina, Brazil, Chile, Colombia, Mexico and Venezuela, and a number of observers.
The Organization provided a consultant and the cost of attendance of the participants, and three staff members helped with the conduct of the seminar.

AMRO 2104 Sanitary Engineering, Zone IV (1960 - ) PAHO
To assist the governments of countries in the zone in improving the organization of the environmental sanitation services of the ministry of health; to advise the agencies responsible for water supply and sewerage services; and to co-operate with universities and other institutions in training professional and auxiliary personnel for sanitation work.

AMRO 2107 Environmental Sanitation, Caribbean Area (1956 - ) UNDP/TA PAHO UNICEF
To investigate and evaluate environmental conditions and provide technical advice during the development of extensive sanitation programmes in the countries and territories of the Caribbean area.

AMRO 2108 Seminars on Sanitary Engineering, Zone III (1967 - ) R
To study and analyse problems relating to water supply, sewage disposal, water pollution and other environmental sanitation subjects.
A seminar dealing with the status of sewerage projects in countries of the zone was held in San José, Costa Rica, in December 1967.
ordinate these services with other development programmes in rural areas, so as to foster rural economic and social progress, and to train professional and auxiliary personnel for the services. The Organization provided a medical officer specialized in public health administration.

Three seminars—two held in 1967 in Colombia and Peru and one held in 1968 in Colombia—dealt with the participation of the general health services in malaria eradication campaigns and with the use of the personnel and resources of the campaigns for organizing rural health services. Seventy-eight professional health workers attended the seminar in Peru and 106 those in Colombia. Advisory services in connexion with rural health problems were provided to several Central American countries.

In 1968 the project was merged with project AMRO 0218 (Promotion of rural health services and malaria eradication campaigns) to permit better utilization of the material and manpower resources of the malaria eradication programmes.

<table>
<thead>
<tr>
<th>AMRO 2200</th>
<th>Water Supplies, Inter-zone</th>
<th>(1959 - ) PAHO</th>
<th>PAHO Community Water Supply Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To advise countries of the Region on the planning, financing and carrying out of national water supply programmes and on the organization and administration of central and local water supply and sewerage authorities.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 2203</th>
<th>Water Supplies, Zone III</th>
<th>(1964 - ) PAHO</th>
<th>PAHO Community Water Supply Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To assist the countries of the zone in their water supply and sewage disposal problems.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 2213</th>
<th>Studies and Investigations of Water Resources</th>
<th>(1964 - 1970) UNDP/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To collaborate with the Economic Commission for Latin America (ECLA) in a study of Latin America’s water resources, particularly with a view to the provision of adequate water supplies.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 2215</th>
<th>Applied Research in Water Supplies</th>
<th>(1968 - ) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To stimulate the carrying out, in universities, of research work in sanitary engineering.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 2300</th>
<th>Aedes aegypti Eradication, Inter-zone</th>
<th>(1954 - ) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To stimulate, co-ordinate, and evaluate Aedes aegypti eradication programmes in the countries and territories of the Region that are still infested with the mosquito.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 2301</th>
<th>Aedes aegypti Eradication, Caribbean Area</th>
<th>(1950 - ) UNDP/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To advise Jamaica, Trinidad and Tobago, and the British, French and Netherlands territories in the Caribbean on Aedes aegypti eradication.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 2303</th>
<th>Aedes aegypti Eradication, Zone III</th>
<th>(1966 - ) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To advise the countries of the zone on Aedes aegypti eradication and on surveillance to prevent reinfection.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 2400</th>
<th>Public Health Aspects of Housing and Urbanization</th>
<th>(1962 - ) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To foster the participation of health authorities in housing and city planning programmes; and to advise countries of the Region on the establishment of health standards for houses and urban areas.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3107</th>
<th>Public Health Administration, Caribbean Area</th>
<th>(1963 - 1970) R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To help countries and territories of the area to analyse their health problems, assess resources, and prepare plans for obtaining the maximum results with the human and material resources available; and to co-operate in implementing and evaluating public health programmes within the national socio-economic development plans.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3110</th>
<th>Co-ordination of International Research</th>
<th>(1962 - ) PAHO Grants to PAHO: Merck and Co.; Cyanamid International</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To stimulate the development of biomedical research and training of specialized personnel; and to provide for an annual meeting of the PAHO Advisory Committee on Medical Research to analyse and make recommendations on suggested projects and on those in operation.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3117</th>
<th>Seminars on Planning and Organization of Health Services, Zone I</th>
<th>(1967 - ) R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To assist the governments in the Caribbean area in establishing machinery for the preparation and operation of health plans.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3122</th>
<th>Development of Río Plata Basin</th>
<th>(1967 - ) PAHO Grant to PAHO: Inter-American Development Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To assist with the health aspects of the project under which the United Nations, through the Economic Commission for Latin America and in association with the Inter-American Development Bank, is helping the Governments of Argentina, Bolivia, Brazil, Paraguay and Uruguay in making a critical inventory of the basic information needed for integrated development of the Río Plata Basin.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3200</th>
<th>Nursing Services, Inter-zone</th>
<th>(1968 - 1970) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To assist countries in the development of short-term and long-term plans to meet the nursing needs of their health services; and to strengthen the administration and organization of nursing services.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3201</th>
<th>Nursing, Zone I</th>
<th>(1959 - ) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMRO 3202</td>
<td>Nursing, Zone II</td>
<td>(1962 - ) PAHO</td>
</tr>
<tr>
<td>AMRO 3203</td>
<td>Nursing, Zone III</td>
<td>(1963 - ) PAHO</td>
</tr>
<tr>
<td>AMRO 3204</td>
<td>Nursing, Zone IV</td>
<td>(1952 - ) PAHO</td>
</tr>
<tr>
<td>AMRO 3206</td>
<td>Nursing, Zone VI</td>
<td>(1963 - ) PAHO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3207</th>
<th>Courses on Nursing Administration and Supervision, Zone I</th>
<th>(1963 - ) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To strengthen nursing services in the Queen Elizabeth Hospital, Barbados, by holding courses in nursing administration and supervision and establishing a permanent in-service education programme.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMRO 3210</th>
<th>Hospital Nursing Services</th>
<th>(1966 - 1970) PAHO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To assist countries of Zone III and Zone IV in improving nursing care.</td>
<td></td>
</tr>
</tbody>
</table>
AMRO 3300 Laboratory Services, Inter-zone (1955 - ) R
To assist governments of the Region in the improvement and extension of public health laboratory services, in the production and control of biological products and in the setting-up or expansion of animal colonies.

AMRO 3301 Laboratory Services, Caribbean Area (1964 - 1970) PAHO
To improve clinical and public health laboratory services in the islands of the eastern Caribbean.

AMRO 3303 Laboratory Services, Zone III (1965 - ) PAHO
To assist in improving public health laboratories in the countries of the zone. The long-term aim of the project is to establish, in each country, a network of laboratories to provide extended services in rural areas.

AMRO 3304 Laboratory Services, Zone IV (1967 - ) PAHO
To assist in improving laboratory services in the countries of the zone.

AMRO 3307 Vaccine Production and Testing (1954 - ) R
To provide vaccine-testing services to laboratories preparing vaccines in the Americas.

AMRO 3311 Training of Laboratory Personnel (1968 - ) PAHO
To improve the training of laboratory personnel by providing short intensive courses on specific subjects.

AMRO 3312 Seminar on the Administration of Immunization Programmes, Montevideo (10-16 Nov. 1968) R
The purpose of the seminar was to work out a methodology that would enable vaccination programmes to cover all susceptible persons and to be carried out at the lowest possible cost and with the best techniques available. The subjects discussed were statistical systems; analysis and selection of techniques; establishment of objectives and time-tables; organization; evaluation; and epidemiological surveillance. The participants came from twenty-nine countries and territories. The Organization provided the cost of attendance of some of the participants and seminar costs, and a number of staff members assisted in conducting the seminar.

AMRO 3400 Health Education (1968 - 1970) R
To assist governments in developing health education services and in training health personnel in health education and related disciplines.

AMRO 3401 Health Education, Caribbean Area (1963 - ) UNDP/TA
To help the countries and territories of the area in developing health education work and training personnel.

AMRO 3403 Health Education Seminar, Zone III (29 July - 2 Aug. 1968) PAHO
The seventh Central American Seminar on Health Education, sponsored by the ministries of health of the Central American countries and of Panama, was held in Tegucigalpa, Honduras. There were twenty-six participants and eleven observers from Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. The subjects dealt with included the educational components of health planning and the supervisory process in health education.

The Organization provided financial and technical assistance for the organization of the seminar, and two staff members gave lectures.

To co-operate in the training of students at the Community Development Training Centre for Latin America.

AMRO 3500 Health Statistics (1960 - ) PAHO
To provide advisory services on the overall programme in health statistics, and for the biennial meetings of the regional Advisory Committee on Health Statistics.

AMRO 3501 Health Statistics, Zone I (1964 - ) PAHO UNICEF
AMRO 3502 Health Statistics, Zone II (1958 - ) R
AMRO 3503 Health Statistics, Zone III (1955 - ) R
AMRO 3504 Health Statistics, Zone IV (1956 - ) R
AMRO 3506 Health Statistics, Zone VI (1959 - ) PAHO
To assist the countries of the zone in improving their vital and health statistics systems; and to advise them on the use of statistical data in national health planning and on the statistical aspects of projects.

AMRO 3513 Inter-American Investigation of Mortality in Childhood (1966 - 1970) Grant to PAHO: AID
To study child mortality in selected urban and rural areas of Latin America and of the United States of America, in order to obtain accurate and comparable data on death rates in relation to nutritional, sociological, and environmental factors which may be responsible for excessive mortality.

AMRO 3514 Study on Multiple Causes of Death (1967 - ) Grant to PAHO: US Public Health Service
To evaluate the completeness and accuracy of reporting of causes of death on death certificates; and to determine the frequency of combinations of causes in relation to age, sex, and city by studying a sample of the records obtained in the Inter-American Investigation of Mortality.

AMRO 3600 Administrative Methods and Practices in Public Health, Inter-zone (1959 - ) PAHO
To help countries of the Region to improve the administrative practices of national health services at all levels.

AMRO 3601 Administrative Methods and Practices in Public Health, Zone I (1968 - ) PAHO
AMRO 3602 Administrative Methods and Practices in Public Health, Zone II (1968 - ) PAHO
AMRO 3603 Administrative Methods and Practices in Public Health, Zone III (1967 - ) PAHO
AMRO 3604 Administrative Methods and Practices in Public Health, Zone IV (1963 - ) PAHO
AMRO 3606 Administrative Methods and Practices in Public Health, Zone VI (1963 - ) PAHO
To help the countries of the zone to improve the administrative methods and practices of their health services.

AMRO 3700 Health Planning, Inter-zone (1961 - ) R PAHO
To assist governments in formulating national health plans and in training personnel for the purpose.
AMRO 3701 Health Planning and Organization, Zone I
(1965 - 1966) R PAHO
AMRO 3703 Health Planning and Organization, Zone III
(1966 - 1966) R PAHO
AMRO 3704 Health Planning and Organization, Zone IV
(1963 - 1963) R PAHO
AMRO 3706 Health Planning and Organization, Zone VI
(1963 - 1963) R PAHO
To assist governments of the countries of the zone in formulating national health plans and in training personnel for the purpose.

AMRO 3707 Task Force on Health: Special Meeting of Ministers of Health, Buenos Aires (14 - 18 Oct. 1968) PAHO
A special meeting, attended by Ministers of Health of the countries of the Americas and the Director-General of the Organization, was called to give special attention to the Declaration of Presidents of the American Republics and the action programmes approved by them at Punta del Este in April 1967. The Ministers made a review of health activities in the Americas in recent decades and specific recommendations on a number of subjects, including control of communicable diseases, malaria eradication, environmental sanitation, maternal and child health and health aspects of comprehensive family education, national health planning and organization and administration of health services. These recommendations were considered later in October 1968 by the Directing Council of PAHO, which resolved to incorporate them into that organization's general policy.

AMRO 3715 Pan American Programme for Health Planning (1968 - 1968) UNDP/SF PAHO
In collaboration with the Latin American Institute for Economic and Social Planning, to provide training in health planning, and to assist countries with health planning research.

AMRO 4103 Maternal and Child Health, Zone III (1968 - 1970) PAHO
To assist the countries of the zone in the improvement of the services provided to mothers and children, including orientation in family planning.

AMRO 4108 Clinical and Social Paediatrics Courses (1961 - 1961) PAHO UNICEF
To assist in organizing courses on social paediatrics for physicians engaged in paediatrics and for paediatricians with teaching responsibilities or in charge of maternal and child health services in Latin America who wish to enlarge their experience.

AMRO 4109 Nursing and Midwifery (1962 - 1970) PAHO
To assist countries of the Region in improving their maternity care services and their institutions for the training of midwives.

AMRO 4111 Training Centre in Nursing/Midwifery, Rio de Janeiro (1968 - 1968) PAHO
To provide specialized training in midwifery, particularly for faculty members of schools of nursing and key personnel in nursing services.

AMRO 4200 Nutrition Advisory Services, Inter-zone (1958 - 1958) R PAHO
To provide advisory services in nutrition to meet specific needs of governments.

AMRO 4201 Nutrition Advisory Services, Zone I (1961 - 1961) R PAHO
To collaborate with the countries and territories of Zone I in the study and evaluation of nutrition problems and needs; in planning, in close co-operation with national and international agencies, nutrition education programmes and programmes to foster the production of protein-rich foods; and in integrating nutrition programmes into health services at all levels.

AMRO 4203 Institute of Nutrition of Central America and Panama, Guatemala City (1949 - 1969) PAHO UNICEF (INCAP Member Governments) (AID) (Baylor University College of Medicine) (Josiah Macy Jr Foundation) (Lederle Laboratories) (Massachusetts Institute of Technology) (Middle America Research Unit) (Nestle Alimentara) (Nutrition Foundation) (US Army Research and Development Command) (US National Institutes of Health) (Williams-Waterman Fund)
To co-operate in developing the Institute of Nutrition of Central America and Panama (INCAP), which trains professional and auxiliary personnel from its member countries and other countries in the Americas and carries out nutrition research for solving the urgent problems created by the inadequate nutritional status of a large part of the population of the Americas.

AMRO 4204 Nutrition Advisory Services, Zone IV (1956 - 1956) R PAHO
To advise the countries of the zone on the development of nutrition programmes, especially at the level of the local health services; on applied research related to nutrition programmes; and on the training of personnel.

AMRO 4207 Nutrition, Caribbean Area (1963 - 1969) R PAHO Grant to PAHO: Williams-Waterman Fund (FAO) (University of the West Indies)
To co-ordinate nutrition work in the Caribbean area, in order to develop a programme that will include training of personnel and scientific research.

To evaluate, jointly with FAO, the applied nutrition programmes operating in sixteen countries of the Americas.

AMRO 4218 Latin American Nutrition Society (1965 - 1965) Grant to PAHO: Williams-Waterman Fund
To establish a professional society of scientists working in the field of nutrition in Latin America; and to advise the society on the development of a journal for the publication of scientific articles in this field.

AMRO 4222 Conference on Nutrition Activities in Local Health Services, Washington, D.C. (17-21 June 1968) PAHO
The purpose of the conference was to draw up guidelines for nutrition work in local health services. It was attended by twelve intermediate-level workers, representing various disciplines, from seven countries of the Americas. The Organization provided the cost of attendance of seven participants, and the services of staff members.
AMRO 4223 Nutrition Education Materials (Sept. 1968) R
Two consultants assisted in preparing for a seminar, to be held in 1969, for the purpose of analysing the instructional materials required for undergraduate teaching, in Spanish, of physicians, nutritionists, dietitians, nurses, and other health personnel.

AMRO 4226 Study on Vitamin A Deficiency (1966 - 1969) R
To study all available reports on vitamin A intake in the countries of the Americas in order to determine the extent and severity of hypovitaminosis A as a public health problem; and to make plans relating to the direction of future studies on the control of the disease in the Region.

AMRO 4300 Mental Health, Inter-zone (1965 - ) PAHO
To assist mental health programmes in countries of the Region.

AMRO 4400 Dental Health, Inter-zone (1954 - ) PAHO
To assist countries of the Region in strengthening dental services by providing technical advisory services and fellowships for training in public health dentistry.

AMRO 4407 Dental Epidemiology (1964 - ) PAHO
To develop, at the University of São Paulo, Brazil, a Latin American centre for training and research in dental epidemiology.

AMRO 4409 Fluoridation of Water Supplies (1967 - 1970) PAHO Grant to PAHO: Kellogg Foundation
To provide technical training in the fluoridation of water supplies to sanitary engineers and other key personnel and to disseminate information on the subject.

AMRO 4411 Human and Material Resources in Dentistry (1967 - ) Grants to PAHO: US Public Health Service; American Dental Association
To study the current position as regards human and material resources in dentistry available in Latin America; and to assist in formulating and implementing plans for the development of dental resources.

AMRO 4500 Health Aspects of Radiation (1958 - ) R PAHO (US Public Health Service)
To stimulate the adoption of international standards and procedures for radiation protection in connexion with the use of X-rays and radioisotopes and the development of regulations for the disposal of radioactive wastes; to promote the teaching of basic health physics, radiobiology, and radiation protection in medical, dental, veterinary public health, and other professional schools; to foster the use of radioisotopes for medical diagnosis, therapy, and research; and to collaborate with countries of the Region in establishing sampling stations for determining the radioactive contamination of air, food, and water.

AMRO 4507 Radiation Health Protection (1964 - ) PAHO
To advise governments on protection against radiation hazards.

AMRO 4509 Radiation Surveillance (1962 - 1970) PAHO
To assist governments in the Region in organizing radiation surveillance programmes.

AMRO 4600 Industrial Hygiene (1961 - ) R PAHO
To help to organize or improve the operation of national industrial hygiene services by providing technical advice and facilities for training of personnel.

AMRO 4613 Manganese Poisoning (1964 - 1970)
Grant to PAHO: US Public Health Service
To determine levels of manganese in various human tissues and body fluids in order to relate them to various stages of toxicity, in an effort to elucidate the mechanisms by which chronic industrial inhalation of manganese ores induces a schizophrenia-like syndrome followed either by Parkinsonism or a "Wilson's disease-like syndrome".

AMRO 4700 Food and Drug Control, Inter-zone (1959 - ) PAHO
To provide technical advice to the national services responsible for the health aspects of production and control of foods, drugs and biologicals, both locally manufactured and imported; and to assist countries in improving national control services.

AMRO 4703 Food and Drug Control, Zone III (1964 - ) R
To assist the countries of Zone III in establishing national food and drug control programmes; and to provide technical advisory services and facilitate training of personnel. The laboratories of the University of Panama act as reference laboratories for the quality control of drugs, and the Institute of Nutrition of Central America and Panama as the reference laboratory for the control of food products.

AMRO 4708 Training Centre for Food Inspectors (1967 - ) R
To assist governments in training inspectors in modern techniques and procedures for the registration, inspection, and control of foodstuffs.

AMRO 4709 Drug Control Centre (1968 - ) R
To assist in the planning and development of an international laboratory for the quality control of drugs, which will carry out research and train personnel.

AMRO 4710 Food and Drug Administration, Zone III (1967 - ) R
To assist the countries of the zone in establishing, in ministries of health, units for the registration and analysis of all foodstuffs and drugs; to provide technical advice and assist in training personnel; to promote the adoption or revision of relevant legislation; and to assist in the organization of local courses and seminars.

AMRO 4800 Medical Care Services, Inter-zone (1961 - ) R PAHO
To assist countries of the Region with studies associated with aspects of planning, organization, training, and applied research in medical care services.
AMRO 4803 Medical Care Services, Zone III (1962 -  ) PAHO
Grant to PAHO: Dr and Mrs Clement C. Clay

AMRO 4804 Medical Care Services, Zone IV (1963 - ) PAHO

AMRO 4806 Medical Care Services, Zone VI (1961 - ) PAHO
To assist countries of the zone in integrating medical care services into the general health services and in formulating standards for medical care.

AMRO 4807 Rehabilitation, Inter-zone (1962 - ) PAHO
To advise the countries of the Region on problems of medical rehabilitation.

AMRO 4810 Chronic Diseases (1967 - ) PAHO
To advise on problems connected with the obtaining, from many different sources (e.g., private physicians, hospitals, social security systems, industrial compensation schemes), of data on chronic diseases and conditions.

AMRO 4813 Hospital Planning and Administration (1968 - ) PAHO
To assist countries in improving hospital and medical care facilities, in establishing maintenance programmes, and in planning new facilities to meet the increasing demand for services.

AMRO 4815 Training for Medical Care and Hospital Administration (1967 - ) PAHO
To assist schools of public health in the Region in developing their training programmes in medical care and hospital administration.

AMRO 4816 Progressive Patient Care (1967 - ) PAHO
Grant to PAHO: Kellogg Foundation
To assist in establishing, in Argentina, Brazil, Chile, Colombia, Costa Rica, Panama, Peru, and Venezuela, systems of progressive patient care and in setting up a pilot centre that will also serve as a training centre for personnel from these countries.

To assist with the organization and conduct of an international course in Mexico for training physical therapists from Latin American countries as teachers.

AMRO 4901 Health and Population Dynamics, Zone I (1968 - 1969) Grant to PAHO: Columbia University, USA
To assist the governments of countries and territories in the Caribbean area in analysing the health aspects of population dynamics and in training personnel for their programmes.

AMRO 6000 Medical Education: Textbooks and Teaching Materials (1967 - ) PAHO Special Fund for Health Promotion
To raise the level of medical education by providing textbooks at a lower cost to students; to develop a co-operative arrangement with medical schools in order to ensure the selection of textbooks of high scientific and pedagogical quality; and to establish a revolving fund to ensure continuity of the programme.

AMRO 6100 Schools of Public Health (1953 - ) R PAHO
To assist schools of public health in the Region, especially the newer ones, to strengthen and improve their organization, administration and teaching.

AMRO 6200 Medical Education, Inter-zone (1953 - ) PAHO
To assist countries of the Region to improve medical education, including the teaching of social medicine.

AMRO 6204 Medical Education, Zone IV (Dec. 1967) R
The Organization provided consultant services to advise medical schools in countries of the zone on the improvement of programmes and methods of medical education.

AMRO 6208 Teaching of Statistics in Medical Schools (1961 - ) PAHO
To promote the teaching of medical statistics in schools of medicine in Latin America.

AMRO 6210 Teaching Methods and Administrative Organization of Medical Schools (1964 - ) PAHO
To organize group discussions and seminars for the purpose of assisting medical schools in the Region to review and improve their teaching methods and administrative procedures.

AMRO 6215 Conference on Teaching of Demography, Bogotá (23-26 June 1968) PAHO
The purpose of the conference was to promote the teaching of demography in medical schools in Latin America, and to stimulate the development of studies on socio-demography, population dynamics and human reproduction. There were 150 participants from seventeen countries of the Americas. They discussed the content of teaching programmes, and teaching methods and materials, and recommended various ways of introducing demography into the medical curriculum.

AMRO 6216 Teaching of Preventive Medicine (1965 - 1970) PAHO Grant to PAHO: Milbank Memorial Fund
To make an assessment of the preventive medicine and community health teaching programmes in the medical schools in Latin America.

AMRO 6300 Nursing Education, Inter-zone (1962 - ) R
To provide advisory services in specialized areas of nursing education, fellowships for members of nursing faculties, and nursing texts in Spanish to schools of nursing in Latin America.

AMRO 6301 Nursing Education, Zone I (1963 - 1970) PAHO
To assess the nursing resources in countries and territories of the Caribbean area; and to carry out a long-term plan for the improvement of nursing services.

AMRO 6310 Programmed Instruction for Nursing Auxiliaries (1965 - 1970) PAHO
To train nurse educators in the technique of programmed instruction for nursing auxiliaries, in order to train the large numbers of untrained nursing personnel working in medical services in Latin America.

AMRO 6312 Seminars on Nursing Education, Zone I (1966 - ) PAHO
To assist governments of countries and territories in the zone in improving nursing education.
AMRO 6400 Sanitary Engineering Education, Inter-zone
(1952 - ) PAHO Grant to PAHO: Inter-American Development Bank
To assist countries of the Region in expanding their institutions for training sanitary engineers and in revising the curricula.

AMRO 6409 Seminar on Teaching of Sanitary Engineering,
Quito, Ecuador (14-19 July 1968) PAHO PAHO Community Water Supply Fund
The purposes of the seminar were to review the teaching of sanitary engineering in Latin America, including developments since the seminar held in Lima, Peru, in 1961; to stress the importance of sanitary engineering research and the possibility of including it in sanitary engineering curricula; to review continuing education programmes and means of strengthening collaboration among universities, public agencies and private enterprise; and to consider methods for raising the academic standard of professors of sanitary engineering in Latin America. The seminar was organized in co-operation with the Central University of Ecuador, the Ecuadorian Institute of Sanitary Works, the Municipal Water Company of Quito and the Ecuadorian section of the Inter-American Association of Sanitary Engineering. There were fifty-five participants from eighteen countries of the Americas and representatives of the Organization of American States, the Government of the United States of America and the Inter-American Development Bank. Three papers were presented on each of the four main subjects: curricula and personnel in sanitary engineering teaching; research; projection of universities to national and international programmes; and continuing education in sanitary engineering. There was also a special conference on the subject of "Water resources development and its challenge to sanitary engineering curricula".

The Organization provided thirteen temporary advisers, the services of staff members, and costs of the seminar.

AMRO 6500 Veterinary Medicine Education (1966 - ) R
To assist schools of veterinary medicine in incorporating public health and preventive medicine into their teaching programmes and in improving teaching methods.

AMRO 6600 Dental Education (1963 - ) R PAHO
To co-operate with university authorities of countries of the Region in improving teaching in school of dentistry.

AMRO 6608 Training of Auxiliary Dental Personnel
(1965 - 1970) PAHO
To promote the training of various kinds of dental auxiliary personnel and their use for work for which a fully qualified dentist is not necessary, so as to permit the extension of dental services to the population and reduce their cost.

AMRO 6609 Latin American Association of Dental Schools
(1968) Grant to PAHO: American Dental Association
Under a grant from the American Dental Association, further assistance was provided in developing the Association's central office.
The work done under this project between 1965 and 1967 is described in the Annual Report for 1967.1

AMRO 6700 Biostatistics Education (1952 - ) UNDP/TA
To improve vital and health statistics in the countries of the Region by training technical and professional personnel in specialized centres.

AMRO 6707 Latin American Centre for the Classification of Diseases (1955 - ) R
To study problems of medical certification of causes of death; to give training on classification of causes of death in accordance with the International Classification of Diseases; and to assist in revising the Classification.

AMRO 6708 Training Programme in Hospital Statistics
(1961 - ) PAHO Grant to PAHO: Kellogg Foundation
To provide training in medical records and in hospital statistics with the aims of facilitating the planning of efficient health and hospital services, improving patient care, and obtaining information on the health status of the population.

AMRO 6709 Research Training Programmes in Health and Population Dynamics (1966 - ) Grant to PAHO: AID
To plan and carry out research training programmes in population dynamics and its relationship to public health and medical care.

Afghanistan 0011 Malaria Eradication Programme
(Aug. 1956 - ) R UNICEF
To eradicate malaria from the entire country and prevent the re-establishment of endemicity.

Afghanistan 0013 Medical Education
To strengthen departments of the faculties of medicine of the Universities of Kabul and Nangarhar, develop teaching programmes and train staff.

Afghanistan 0024 Health Education (April 1968 - 1969) R
To develop health education services, promote health education in teacher-training establishments, train health staff in health education, and develop the health education unit in the Institute of Public Health, Kabul.
Under the first two phases of this project (October 1958 - September 1959 and May 1962 - November 1966) assistance was provided in establishing the health education unit.

Afghanistan 0026 Rural Health
(April 1956 - Dec. 1968) UNDP/TA UNICEF
To further the development of rural health services in which curative and preventive services are integrated at all levels and effectively directed and supervised, and to train personnel.

Afghanistan 0031.1 Institute of Public Health, Kabul
To develop the Institute of Public Health for service, research and training of public health workers.

To reinforce the teaching of sanitary engineering subjects in the undergraduate civil engineering course.

Afghanistan 0033 Tuberculosis Advisory Services
To expand tuberculosis control services in and around Kabul; to organize tuberculosis control in the provinces within the framework of the developing basic health services, and train health personnel in the necessary techniques.

Afghanistan 0035 Nursing Advisory Services
(June 1957 - 1974) UNDP/TA
To strengthen nursing administration, develop midwifery education and co-ordinate and expand nursing education and the nursing services.

Afghanistan 0044 Trachoma Control
To study the epidemiology of trachoma in Herat Province and extend this study to other areas in which the existence of trachoma has been indicated by the health services; also to initiate control activities, develop a programme of health education in communicable eye diseases, and train staff.

Afghanistan 0054 Communicable Disease Control (Smallpox Control) (July 1964 - Dec. 1968) UNDP/TA
To develop a smallpox control programme, plan field epidemiological investigations of the major prevailing communicable diseases other than smallpox, and train personnel in epidemiology and communicable disease control.

Afghanistan 0056 Provincial Maternal and Child Health Services and Training
To develop maternal and child health services and related aspects of the training programme for health personnel in the provinces.

Afghanistan 0059 Development of Basic Health Services
(April - May 1965; March 1966 - 1975) R UNICEF
To establish basic health services throughout the country, initially through the malaria eradication services and in coordination with the rural health services, based on the criteria and guidelines laid down in the master plan of operation.

Afghanistan 0061 Central Authority for Housing and Town Planning, Kabul (Jan. 1967 - 1970) R
To develop the sanitary engineering aspects of the work of the Central Authority for Housing and Town Planning.

Afghanistan 0064 Smallpox Eradication (March 1967 - ) R
To carry out a national smallpox eradication programme and to train personnel.

Afghanistan 0066 Rural Water Supply (Nov. 1966 - 1972) R
To plan and implement rural water supply and sanitation programmes.

Afghanistan 0068 Nursing Administration and Education
(Nov. 1967 - 1972) R
To develop the administration of nursing services and related clinical experience for students in hospitals and out-patient departments, carry out a survey of site conditions and requirements for a school of nursing, and prepare a design and a complete set of drawings and schedules for the school.

Afghanistan 0069 Cancer Studies (Oropharyngeal Cancer) (July 1968 - ) R
To study the prevalence of oropharyngeal carcinoma and associated etiological factors.

Afghanistan 0200 Fellowships: Cardiology (twelve months), epidemiology (nine months), health statistics (seven for six months), laboratory techniques (twelve months), maternal and child health (one for six months, one for twelve months), medical coding (six months), public health administration (twelve months).
Afghanistan 0201 Fellowships UNDP/TA: Environmental sanitation (twenty-one weeks), laboratory techniques (twelve months).

Burma 0017 Leprosy Control (April 1960 - 1972) R UNICEF
To expand and intensify the leprosy control programme to cover all endemic areas of the country and to train personnel for this purpose.

Burma 0022 Vital and Health Statistics, Rangoon
The aim was to develop a system of recording and reporting health statistical data, improve its processing and train staff in statistical methods. WHO provided a statistician from December 1955 to June 1961, from January 1962 to January 1967 and from April to June 1968, and a medical records officer from September 1964 to December 1967.

Between 1955 and 1961 a vital registration system was developed, initially for urban areas. Work on health statistics started in 1962. Sound procedures for the collection of in-patient and administrative statistics from hospitals were introduced and record departments were established in major hospitals. The Health Statistics Branch which was set up in the Directorate of Health Services in 1962 received WHO assistance in processing the steady flow of information from all hospitals under the control of the Directorate. In addition to a one-month course for medical records personnel held in 1966, continuous in-service training was given. In 1968 the WHO statistician helped to review the internal working of the Health Statistics Branch, particularly as regards arrangements for machine data processing and the preparation of reports.

Burma 0028 Institute of Medicine I, Rangoon
To strengthen certain departments of the Institute of Medicine I, Rangoon, improve the teaching of undergraduates, and promote research and post-graduate study.

Burma 0031 Malaria Eradication Programme
(Feb. 1957 - ) R
To eradicate malaria throughout the country in progressive stages.

In accordance with the Government's decision in April 1962 to continue the programme without WHO field staff, WHO assistance in the period under review consisted of an assessment of the programme and of fellowships.

Burma 0037 Mental Health, Rangoon
(Oct. - Dec. 1955; April 1965 - April 1968) R
The aim was to develop basic and post-basic programmes in mental health nursing and strengthen in-service training in order to improve nursing care in psychiatric hospitals. WHO provided a psychiatric nurse tutor, a consultant for three months, and supplies and equipment.

In-service training courses on psychiatric nursing and nursing administration were organized and discussions were held with senior nursing personnel from six hospitals in Rangoon on the introduction of an element of psychiatry into the basic nursing curriculum, but the organization of a post-basic course in psychiatric nursing had to be postponed. Instruction was given to nurses and psychiatric ward attendants in the techniques of group therapy known as "remotivation", and many group sessions were organized.

Burma 0044 Strengthening of Health Services (Epidemiology)
(Feb. - May 1968) UNDP/TA
A consultant was provided to advise on measures to strengthen the Epidemiological Unit which was established in the Directorate of Health Services with assistance from WHO (under this project) between January 1961 and March 1965.

Burma 0065 Tuberculosis Control
(Jan. 1964 - 1972) UNDP/TA UNICEF
To develop community-oriented tuberculosis services, starting in Rangoon and Mandalay, as training and pilot areas, and to extend tuberculosis control work to other parts of the country.

Burma 0066 Health Education
(Nov. 1966; May 1968 - 1971) R
To organize courses in health education for staff from faculties of teacher-training institutions and for those holding key posts in the school organization and in the general health services.

Burma 0067 Paediatric Education
(June 1964 - Nov. 1968) R UNICEF
The aim was to strengthen the departments of paediatrics in the three medical colleges of the country and to improve the teaching of paediatrics, particularly its preventive aspects, by developing services for training. WHO provided a professor of paediatrics who taught in Rangoon between June 1964 and June 1966, three fellowships—for twelve months, eleven months, and seven weeks respectively—and supplies and equipment. Assistance was also given by the WHO paediatric nurse working on the nursing advisory services project Burma 0056.

Following a study of paediatric services and teaching facilities, a syllabus integrating paediatrics into the medical curriculum was formulated, and was approved by the Government as part of the reorganization of medical education which started at about the same time as this project. Health centres in Rangoon and Mandalay were expanded to provide field training for medical students and nurses under the supervision of the child health departments of the medical colleges. Two new paediatric units and a premature birth unit were established in Rangoon and linked with the Children's Hospital. The paediatric units at the divisional hospitals in Bassein and Moulmein were improved, and a similar unit was set up at Megui Hospital.

Burma 0069 Trachoma Control
To develop a trachoma control programme.

Burma 0074 Strengthening of Laboratory Services
To strengthen laboratory services.

Burma 0075 School of Preventive and Tropical Medicine
To establish a school of preventive and tropical medicine.

Burma 0077 Burma Pharmaceutical Industry
To develop modern methods of production and control testing of immunobiological agents, bacterial and viral vaccines, toxoid preparations, antitoxins and other biological products. Also to introduce modern methods for the utilization of these vaccines in immunization programmes.

Consultant services were provided under this project in 1964.
Burma 0079 Medical Education  
To improve undergraduate and postgraduate medical education, train teaching staff, develop the curricula in keeping with modern concepts, and initiate and promote research.

Burma 0080 Smallpox Eradication (including Vaccine Production) (Jan. 1967 - ) R  
To carry out the maintenance phase of the smallpox eradication programme and establish a surveillance system.

Burma 0083 Education in Dentistry  
(Jan. 1967; Nov. 1967 - 1972) UNDP/TA  
To strengthen dental education.

Burma 0200 Fellowships R: Typhoid vaccine production (two for one month).

Burma 0201 Fellowships UNDP/TA: Preventive and social medicine (twelve months), radiology (four months), rehabilitation of the handicapped (six months).

Ceylon 0055.2 Venereal Disease Control (Fluorescent Laboratory Techniques)  
To develop laboratory diagnostic facilities for the national venereal disease control programme.

Ceylon 0026.2 Leprosy Control (Oct. 1967 - 1972) R  
To assess the leprosy problem and plan the further development of the leprosy control programme.

Ceylon 0038 Strengthening of Health Services (Epidemiology)  
(June 1967 - Dec. 1968) R  
To train personnel in epidemiology. Under the first phase of this project (February 1956 - November 1964) assistance was provided in establishing an epidemiological unit in the Directorate of Health Services.

Ceylon 0045 Health Statistics  
To revise the system of records and reports in the health services and to train personnel in the design of documents, the processing of statistical data and other advanced techniques in medical and health statistics.

Ceylon 0047 Medical Education  
To strengthen teaching in certain subjects in the faculties of medicine of the University of Ceylon at Colombo and Peraliya.

Ceylon 0053 Nursing Advisory Services  
(Sept. 1967 - 1972) R  
To develop all aspects of basic and post-basic nursing education through the Nursing Unit in the Department of Health. Under the first phase of this project (July 1960 - October 1966) assistance was provided to the post-basic school for nurses in Colombo (nursing education and administration) and the Institute of Hygiene in Kalutara (public health nursing and midwifery training).

Ceylon 0056 Filariasis Control  
To study the problem of filariasis control and strengthen the control programme, introducing such new methods as may be indicated.

Ceylon 0058 Malaria Eradication Programme  
To eradicate malaria from the entire country and prevent the re-establishment of endemicty.

Ceylon 0068.2 Medical Rehabilitation (Poliomyelitis)  
To set up a workshop for orthopaedic appliances and to train staff. Assistance in the organization of a physical therapy service for poliomyelitis patients and the rehabilitation of paralytic cases was provided between April 1962 and December 1966.

Ceylon 0064 Community Water Supplies (Oct. 1963 - 1972) R  
To develop piped water supplies in major towns and other community areas. (See page 111.)

Ceylon 0066.3 Strengthening of Laboratory Services  
To study the epidemiology and control of diarrhoeal diseases and to organize bacteriological diagnostic facilities for enteric diseases in the principal hospitals and in the field; also to reorganize, co-ordinate and strengthen health laboratory services throughout the country.

Ceylon 0074 Institute of Hygiene, Kalutara  
(Feb. 1967 - Dec. 1968) UNDP/TA  
To develop the Institute as a centre for training and orientation of public health staff, and improve and integrate its services; to develop a provincial-type health laboratory at the Institute, and upgrade the district hospital laboratories in the area served by it. Between July and September 1964 WHO provided a consultant under this project to make a study of the Institute's programmes and services.

Ceylon 0075 Tuberculosis Control  
(Jan. 1966 - 1972) R UNICEF  
To organize a community-oriented tuberculosis control programme on a pilot basis in an area of the North-western Province; to continue the BCG vaccination programme and expand it to cover the whole country, and to secure the eventual integration of tuberculosis control measures into the work of the general health services.

Ceylon 0076 Hospital Planning and Administration  
(Dec. 1967) UNDP/TA  
A nine-and-a-half-month fellowship was awarded under this project, for which consultant services were provided from January to May 1966.

Ceylon 0077 Quality Control of Pharmaceutical Preparations  
To strengthen the quality control of pharmaceutical preparations.
Ceylon 0084 Maternal and Child Health

A consultant was provided for three months to assist with the establishment of a maternal and child health unit in the Directorate of Health Services and to help to strengthen and expand maternal and child health services, including family planning.

Ceylon 0086 Public Water Supply, Drainage and Sewerage for the South-west Coastal Area (Aug. 1967 - 1972) UNDP/SF

To carry out pre-investment studies for high priority water supply and sewerage schemes in the south-west coastal area.

Ceylon 0200 Fellowships R: Anaesthesiology (three months), auxiliary personnel training and utilization (eleven weeks), cardiac catheterization (two weeks), child dental health (one for nine months, one for nine and a half months), filariasis control (six weeks), hospital administration (three months), medical coding (six for three months), public health administration (two for twelve months), vaccine production (six months), virological diagnostic techniques (six months).

India 0053 Tuberculosis Chemotherapy Centre, Madras
(Dec. 1955 - 1972) UNDP/TA (British Medical Research Council) (Indian Council of Medical Research)

To undertake controlled trials to find simple, effective and inexpensive methods of tuberculosis control through domiciliary chemotherapy of ambulant patients, and to carry out related research.

India 0071.3 Mental Health (June 1968 - ) R

To review the progress made in the training of psychiatric nurses and in epidemiological research in psychiatry.

Assistance in upgrading mental health services and improving training in psychiatry in different states was provided under this project from March 1955 to June 1960 and from August to October 1964.

India 0081.1 Leprosy Control (National Programme)

To develop a programme of leprosy control.

India 0081.2 Leprosy Control, Srikakulam

To provide technical direction for a leprosy control project supported by the Danish " Save the Children " Organization, and to train leprosy auxiliary personnel.

India 0099 Nursing Education (Public Health Integration):
Assistant to States (Aug. 1968) UNDP/TA UNICEF

A twelve-month fellowship was awarded under this project, through which WHO assistance was provided to various states in India between September 1957 and December 1967.

India 0099.5 Nursing Education (Public Health Integration), Goa (Sept. 1963 - Dec. 1967) UNDP/TA UNICEF

The aim was to establish professional and auxiliary nursing education programmes in Goa in accordance with the pattern laid down by the Indian Nursing Council. WHO provided a nurse educator and supplies and equipment.

A school for nurse/midwives was opened in Margoa in 1965, and by 1968 it had thirty-two students, eight of whom were to complete in March 1969 the new integrated course established in accordance with Indian Nursing Council standards; plans were made for a similar school in Panaji. A central school for auxiliary nurse/midwives was set up and facilities were provided for clinical training at the Medical College Hospital; seventy auxiliaries had qualified by December 1967. Assistance was also given in teaching hospitals with short in-service courses to improve clinical skills and patient care among nurses and certain other categories of hospital personnel trained before Indian Nursing Council standards were introduced.

Results of examinations showed the standard of current nursing education to be good; patient care in the hospitals improved and some progress was made in developing a pattern of staffing for rural health services.

India 0101 National Trachoma Control Programme

To implement the national trachoma control programme.

India 0103 National Tuberculosis Programme
(Oct. 1956 - 1971) UNDP/TA UNICEF

To develop a national tuberculosis control programme by providing technical guidance, based on the results obtained in model rural and urban tuberculosis control programmes, epidemiological findings and operational research; to train sufficient public health workers of various categories for the tuberculosis control centres at district and state levels, and to develop adequate methods and procedures for assessment of the programme.

India 0108.4 Health Education, Gujarat
(Dec. 1965 - Aug. 1968) UNDP/TA

The aim was to set up a health education bureau in the Directorate of Health Services of the state on the lines laid down by the Central Health Education Bureau, to provide training in health education for health workers and teachers, and to plan for health education of the public. WHO provided a health educator, a twelve-month fellowship, and supplies and equipment.

Staff were recruited and trained for the state Health Education Bureau, and services were set up within the Bureau to supervise the work and training of health educators and to co-operate with other departments of the Directorate of Health Services on questions of maternal and child health, family planning and communicable disease control. A field study and demonstration unit was established, and studies of popular beliefs and practices were made as a basis for health education programmes. The Bureau's officer for student health education worked with staff of the Rural Family Planning Training Centre to plan the health education component in teacher training.

India 0108.6 Health Education (Sept. 1968 - 1972) UNDP/TA

To develop and strengthen health education bureaux in the state Directorates of Health Services and to establish a pattern for support of the state bureaux by the Central Health Education Bureau.

India 0110.2 Nursing Adviser to Madras (Sept. 1968) UNDP/TA

A twelve-month fellowship was awarded under this project for which staff, a fellowship and equipment were provided between October 1959 and July 1962.

India 0110.5 Nursing Adviser to Gujarat
(Sept. 1963 - Sept. 1968) UNDP/TA UNICEF

The aim was to organize and expand nursing education and nursing services in the state, and to co-ordinate supervisory
services so as to ensure uniformly high standards of nursing and midwifery. WHO provided a nursing adviser to the Directorate of Health Services for the duration of the project, and supplies and equipment.

The Nursing Unit in the Directorate was strengthened and a survey of nursing needs and resources was made. The number of nurse tutors was increased and candidates were selected for training as tutors, public health nurses and psychiatric nurses. Short courses were organized for nursing staff in paediatrics, operating theatre techniques and central supply department work, and a number of conferences and refresher courses were held. The new syllabuses issued by the Indian Nursing Council were introduced in training programmes.

With the expansion of existing hospitals and the establishment of new health centres, there was still a shortage of nursing staff, but progress was made with the training of nurse tutors and public health nurses to implement nursing education programmes, and the conditions of nursing personnel were improved.

India 0110.7 Nursing Adviser to Bihar
(Oct. 1966 - Dec. 1968) UNDP/TA

To organize and expand nursing education and nursing services in the state and to co-ordinate supervisory services so as to ensure uniformly high standards of nursing and midwifery in the health programme.

India 0111 Medical Education

To strengthen selected medical colleges.

India 0114 Paediatric and Obstetric Training and Services:
Assistance to States (Aug. 1958 - 1972) R UNICEF

To strengthen the paediatric and obstetric departments of selected medical colleges and non-teaching and district hospitals. (See page 109.)

India 0114.4 Paediatric and Obstetric Training and Services, Maharashtra

The aim was to expand and upgrade the teaching of paediatrics in the state's medical and nursing colleges. WHO provided a professor of paediatrics—who continued the assistance provided (under project India 135) between May 1959 and February 1962 in the former Bombay State, Maharashtra, and Goa—a paediatric nurse educator, and a six-month fellowship. Following the improvement in co-ordination of paediatric education and services between departments of paediatrics and of preventive and social medicine achieved between October 1963 and July 1965, the WHO paediatric nurse educator assisted with the development of a post-basic bachelor of sciences course at the College of Nursing in Bombay. It was expected that this course, in which emphasis was to be placed on maternal and child health, would replace the one-year course in paediatric nursing, and that the four-year basic Bachelor of Sciences course would be continued. The syllabus for the new course was approved by Bombay University, but a decision on its introduction and on the continuation of the basic course was still awaited when the project ended.

India 0114.6 Paediatric and Obstetric Training and Services, Punjab
(Nov. 1965 - 1970) R UNICEF

To conduct a post-basic course in maternal and child health nursing in the College of Nursing, Institute of Post-graduate Medical Education and Research, Chandigarh, and supplementary courses on paediatric nursing and care of the newborn; and to improve nursing services in paediatric and obstetric wards and out-patient clinics.

India 0121 Indian Council of Medical Research (Statistics)

To set up a statistical unit at the headquarters of the Indian Council of Medical Research and to organize and co-ordinate medical research.

India 0136.2 Post-basic Nursing Education, Gujarat

To expand post-basic nursing education and upgrade public health and institutional nursing services in the state.

The work done under this project up to December 1966 was described in the Annual Report for 1967.1

India 0136.3 Post-basic Nursing Education, Punjab
(March 1964 - 1973) R

To set up a post-basic school of nursing affiliated with a university.

India 0136.4 Post-basic Nursing Education, Mysore
(Aug. 1968) R

A twelve-month fellowship was awarded under this project, for which staff and fellowships were provided between February 1964 and December 1965.

India 0136.5 Post-basic Nursing Education, Madras
(June 1964 - 1973) R

To set up a post-basic nursing school affiliated with a university.

India 0153 Malaria Eradication Programme

To eradicate malaria from the whole country and prevent the re-establishment of endemicity.

India 0173 Production of Diphtheria/Pertussis/Tetanus Vaccine, Kasauli

To develop the production of immunizing agents against diphtheria, pertussis and tetanus.

India 0174 Production of Freeze-dried Smallpox Vaccine

To increase the production of freeze-dried smallpox vaccine.

India 0176 Central Public Health Engineering Research Institute, Nagpur
(Feb. 1961 - 1972) R UNDP/SF

To develop the Central Public Health Engineering Research Institute as a major research centre for environmental sanitation problems, co-ordinate research programmes and train research workers.

India 0178 Production of Polio Vaccine

To produce attenuated live poliomyelitis vaccine and establish facilities for independent testing.

India 0180  Health Education in Schools
(July 1964 - July 1967) R
The aim was to develop the health education content of basic
teacher-training courses, in order to extend training in health
education to teacher-training institutions throughout the country.
WHO provided a health educator and supplies and equipment.

Studies were carried out by the staff of the School Health
Education Division of the Central Health Education Bureau,
assisted by the WHO health educator, in four teacher-training
institutions and in primary schools in and near New Delhi where
teacher trainees practised; an assessment was made of the
current health education component of courses, and new syllabuses were developed and tested. Teacher trainees participated
in the practical studies and in the demonstration and testing
of new methods. Assistance was given in organizing a seminar
on school health services, workshops on development and imple-
mentation of school health education programmes, and a
conference for school administrators and supervisors. Guides
and instruction material produced as a result of the studies were
prepared for circulation by the Central Health Education Bureau
to be used in teacher-training courses in other institutions in
India. The work done in this project may thus have implications
for the improvement of health education in schools throughout
the country.

India 0182  Strengthening of Health Services (Epidemiology)
(March 1963 - 1972) UNDP/TA
To establish or improve health intelligence units in state health
directorates; to train staff in epidemiology, health statistics,
microbiology and communicable disease control; and to develop
the National Institute of Communicable Diseases, Delhi.

India 0183  Medical Education, Gujarat State
(Dec. 1962 - ) UNDP/TA
To develop medical education and medical research in Baroda
Medical College.

India 0185.2 and 3  Strengthening of Health Services, Punjab
and Haryana (Jan. 1967 - 1971) R UNICEF
To strengthen the national health services at state, district and
local levels, giving particular attention to the provision of training
programmes for health staff and the supervision of auxiliary
staff by professional staff, and to operational studies.

India 0187  Training of Radiographers (March 1967 - 1970) R
To train radiographers.

India 0188  Strengthening of Laboratory Services
(Feb. 1965 - 1970) R
To strengthen health laboratory services and improve the
training of laboratory technicians.

India 0192  Radiation Medicine Centre, Bombay
To strengthen the Radiation Medicine Centre, Bombay.

India 0199  School for Training of Technicians
(Dec. 1967 - 1972) UNDP/TA UNICEF
To train technicians for the installation, maintenance and
repair of X-ray apparatus and other electro-medical equipment.

1 This project was not shown as completed in the list in the
Annual Report for 1967 since it was then expected that further
assistance would be required in 1968.

India 0200  Fellowships R: Anatomy (three months), dentistry
(twelve months), epidemiology (nine months), epidemiology
and health statistics (three for twelve months), health statistics
(one for ten days, one for twelve months), social security (two
months).

India 0201  Fellowships UNDP/TA: Medical education (twelve
months), virological techniques (six months).

India 0208  Improvement of Dental Education
(July - Dec. 1966; Sept. 1967 - 1972) UNDP/TA
To improve and strengthen dental education and research
in a dental college.

India 0209  Community Water Supply
To study the feasibility and the financial and managerial
aspects of water supply and drainage schemes.

India 0210  Public Health Engineering Education
To train sanitary engineers and to develop advanced courses
in design for community water supply programmes.

India 0212  Nursing Administration (Jan. 1968 - 1972) R
To develop sound nursing administration in teaching hospitals
and promote in-service training and co-ordination of nursing
services.

India 0214  Virological Techniques (Sept. 1968 - 1969) R
To establish facilities for the diagnosis of virus diseases, for
the production of virus vaccines, including attenuated live
poliomyelitis vaccine, and for independent testing.

India 0218  National Institute of Health Administration and
Education, New Delhi
To teach hospital and health administration and to plan
comprehensive district health services.

India 0221  Seminars and Workshops on Medical Education
To assist with seminars in specialized fields organized by the
Indian Academy of Medical Sciences, in order to strengthen
medical teaching in the country.

India 0222  Drug Laboratory Techniques and Biological Stand-
To plan facilities for the quality control of drugs and to train
personnel.

India 0223  Study of Nursing Services
The aim was to acquaint senior nurses with the latest develop-
ments in the application of certain managerial techniques to
nursing administration; to prepare a guide for the study of
nursing activities in health services; and to carry out studies
of the work of auxiliary nurse/midwives in the states of Haryana,
Punjab and Gujarat. WHO provided two consultants, one for
four months (under project SEARO 0122), and one for
ten months, and thirteen temporary advisers who took part
in a conference held at the Regional Office. Between 1965 and 1967 part-time assistance was also given by the WHO nurse educator attached to the Punjab nursing education project India 0099.6. A seminar on nursing studies was held at the College of Nursing, New Delhi, in November 1964, to develop methods of study applicable to nursing in hospitals and out-patient departments and in the public health field, and to acquaint senior nursing personnel with the use of managerial techniques. A guide to the study of nursing activities in hospitals and out-patient departments, drafted after the seminar, was tested in three centres in Calcutta, Bombay and Chandigarh and discussed with local authorities before being prepared for publication. In 1967 a WHO consultant conducted a study of auxiliary nursing and midwifery services in health centres in the three states, and a two-day conference of senior medical and nursing personnel was held in November at the Regional Office to discuss the results of the study and their use in improving the training of auxiliary nurse/midwives and defining their functions.

The project has demonstrated the application and use of modern study techniques as a basis for decisions on the improvement of health services.

India 0225 Freeze-dried BCG Vaccine Production
(May - June 1968) UNDP/TA

WHO provided a consultant to help plan facilities for the production of thermostable BCG vaccine.

India 0232 Course in Hospital Physics (Oct. 1967 - 1972) R

To train hospital physicists.

India 0233 Smallpox Eradication (Oct. 1967 - ) R

To develop the smallpox eradication programme, including the maintenance phase, carry out periodic assessments, and produce freeze-dried smallpox vaccine to meet national needs.

India 0234 Medical Education (All-India Institute of Medical Sciences) (1968) UNDP/TA

Three twelve-month fellowships were awarded to staff of the All-India Institute of Medical Sciences.

India 0238 Cancer Control Pilot Project, Madras (July 1968 - 1972) R

To start a cancer control project and set up training centres.

India 0240 Calcutta Metropolitan Water and Sanitation Authority (Feb. 1968 - 1972) R UNDP/SF

To implement the master plan for water supply, sewerage and drainage, and to improve the management and operation of the water supply, sewerage and drainage systems. The first and second phases of the programme for improving the water supply and drainage of Greater Calcutta were assisted by WHO (under project India 0170) between 1959 and 1967.

India 0250 Integration of Maternal and Child Health Services into the General Health Services (Sept. 1967 - 1970) R

To integrate maternal and child health services, including family planning, into the general health services in selected states.

India 0257 Physical Therapy School, Baroda (May 1968 - 1971) R

To establish and strengthen a Physical Therapy School in Baroda.


To formulate measures to prevent pollution from industrial wastes, including appropriate legislation, and to study industrial engineering problems.

Indonesia 0001 Yaws Control (July - Oct. 1968) R UNICEF

A consultant helped to review the yaws control programme previously assisted by WHO.

Indonesia 0009 Leprosy Control (July - Sept. 1955; Sept. 1956 - Dec. 1968) R UNICEF

To develop, within the framework of the general health services, a leprosy control programme in all endemic areas of the country, and to train personnel.

Indonesia 0032 Malaria Eradication Programme (May 1955 - 1974) R

To eradicate malaria throughout the country by stages.


To expand paediatric and obstetric services and improve the teaching of medical and nurse students in child health in a number of medical schools.


To upgrade and expand training programmes for nurses and midwives.

Indonesia 0060 Laboratory Services (June 1967; June 1968 - 1972) R

To strengthen health laboratory services.

Indonesia 0061 Training in Sanitary Engineering (Feb. 1968 - 1972) R

To provide facilities for education, training and research in environmental sanitation, including research on the public health aspects of housing.

Indonesia 0062 Medical Education (May 1964 - 1971) R

To improve departments of various faculties of medicine.

Indonesia 0065 School of Physical Therapy, Solo (March - April 1968) R

A WHO consultant assisted the national staff of the School of Physical Therapy, Solo, in the examination of students and discussed future plans.

The work done under this project between March 1963 and April 1967 was described in the Annual Report for 1967.1

Indonesia 0069 School for the Training of Electro-medical Maintenance Technicians (March 1966 - 1971) R

To establish a school for training technicians in the maintenance and repair of X-ray and electro-medical equipment.

Indonesia 0074 Nursing Education and Services (June 1967; Aug. 1967 - 1972) R

To strengthen nursing administration at national and local levels and to develop nursing and midwifery services and education.

---

1 Off. Rec. Wld Hlth Org., 164, 123.
Indonesia 0078  Health Education  
(Aug. 1968 - 1972) UNDP/TA  
To strengthen the teaching of health education in the School of Public Health, build up the health education services and hold national workshops as a follow-up to the inter-country project SEARO 0130 (Development of health education).

Indonesia 0079  Dental Health  
(Jan. 1968 - 1972) UNDP/TA  
To strengthen the training of dental auxiliaries.

Indonesia 0081  Smallpox Eradication  
(Dec. 1967 -  ) R  
To develop a national smallpox eradication programme and train vaccinators and other health workers.

Indonesia 0200  Fellowships R: Plague control (one month), smallpox eradication (two weeks).

Indonesia 0201  Fellowships UNDP/TA: Epidemiology (nine months).

Maldive Islands 0005  Public Health Administration  
(Oct. 1959 - 1971) R  
To develop comprehensive basic health services and train personnel, including health auxiliaries; and to carry out anti-malaria activities in the island of Male. (See page 110.)

Maldive Islands 0200  Fellowships R: Malaria eradication (two for five weeks), nursing (twelve months).

Maldive Islands 0201  Fellowships UNDP/TA: Nursing (twelve months), undergraduate medical studies (twelve months).

Mongolia 0001  Strengthening of Health Services (Epidemiology)  
(July 1963 - 1972) R  
To carry out epidemiological surveys of the prevailing communicable diseases in order to plan practical control measures; to advise all branches of the medical and health services on the use of epidemiological methods, and to train personnel.

Mongolia 0002  Public Health Laboratory Services  
To develop the laboratory services and train personnel in the work of laboratory work.

Mongolia 0003  Tuberculosis Control  
To study the epidemiology of tuberculosis and plan a national tuberculosis control programme.

Mongolia 0004  Maternal and Child Health Services  
(June - Sept. 1965; Nov. 1966; July 1967 - 1972) UNDP/TA UNICEF  
To develop the maternal and child health services and establish referral facilities.

Mongolia 0005  Environmental Health (Community Water Supply)  
(June 1966 - 1972) UNDP/TA  
To develop water supplies and excreta disposal systems in provincial towns and rural areas.

Mongolia 0007  Health Statistics  
(Aug. 1968 - 1972) R  
To develop health statistical services and train personnel in health statistics procedures.

Mongolia 0008  Nursing Services and Education  
(Dec. 1966 - 1972) R  
To set up a basic school of nursing, strengthen existing training programmes for nursing personnel, and improve nursing services.

Mongolia 0011  Cancer  
(May 1968 - 1970) R  
To study the epidemiology of cancer, improve radiotherapy of the disease, and train personnel.

Mongolia 0012  Strengthening of Radiological Services  
Two consultants were provided for three months to install X-ray units in the Central Children's Hospital and First Maternity Home in Ulan Bator, and to train X-ray technicians.

Mongolia 0200  Fellowships R: Biological assay and production (three months), communicable diseases (twelve months), community water supply and sanitation (nine and a half months), dermatology (twelve months), gynaecology and obstetrics (three for six months, one for eight months, one for ten months), health education (four months), helminthology (two for six months), histology (eight months), morbid anatomy (six months), morbid anatomy and histology (eleven months), nephropathy of pregnancy (six months), occupational diseases (six months), oncological gynaecology (six months), paediatrics (two for six months), parasitology (two for six months), pathology (eight months), pharmacology (one for six months, one for eight months), physical therapy (eight months), physiology and medical genetics (ten months), public health administration (three for one month, one for two months, two for six months, one for nine months), stomatology (nine months), therapeutics (one for three months, one for six months), zoonoses (nine and a half months).

Mongolia 0201  Fellowships UNDP/TA: Anatomy (six months), experimental surgery (five and a half months), therapeutics (six months).

Nepal 0001  Malaria Eradication Programme  
(June 1954 - 1973) R MESA (AID)  
To eradicate malaria throughout the country by stages. (See page 109.)

Nepal 0002  Nursing Education and Services  
(Nov. 1954 - 1974) UNDP/TA  
To establish in the Directorate of Health Services a Division of Nursing to co-ordinate nursing activities in the country; to set up a basic nursing school to prepare qualified nurse/midwives for health services; to organize courses for auxiliary nurse/midwives; to upgrade nursing services in Bir Hospital; to improve the clinical practice facilities for student nurses, and to develop public health nursing services, especially those used for the practical training of nursing and auxiliary nursing students.

Nepal 0003  Strengthening of Health Services  
To develop effectively directed and supervised health services in which curative and preventive services are integrated at all levels and which are able to provide adequate technical guidance for field work and for the training of staff for the basic health services.
Nepal 0008 Maternal and Child Health Services  
To develop the maternal and child health services and establish referral facilities.

To implement the national smallpox eradication programme and develop the communicable-disease control unit in the Directorate of Health Services.

Nepal 0010 Health Laboratory Services  
(May 1967 - 1972) R UNICEF  
To develop health laboratory services in order to improve diagnostic services and provide support for an epidemiological unit.

Nepal 0014 Community Water Supply  
To plan and co-ordinate the development of community water supplies.

Nepal 0015 Medical Education (July 1968 - 1970) R  
To prepare for the establishment of a medical school.

Nepal 0016 Tuberculosis Control  
(March 1965 - 1972) R UNICEF  
To plan and implement a tuberculosis control programme, starting in the Kathmandu valley, as part of the basic health services, and to train health personnel for the purpose.

Nepal 0019 Health Education  
To plan health education in the basic health services and in specialized projects and to strengthen the health education services.

Nepal 0021 Public Health Administration  
(Sept. 1968 - ) R  
To strengthen the development of integrated health services and improve co-ordination.

Nepal 0200 Fellowships R: Public health nursing (ten months), training of health assistants (three months).

Thailand 0002.2 Strengthening of Health Services (Integration of Specialized Programmes)  
(Jan. 1964 - 1972) UNDP/TA UNICEF  
To integrate specialized programmes for the control of communicable diseases into the general health services and to develop the rural health services.

Thailand 0017.2 Mental Health Education and Services  
To strengthen the psychiatric nursing content of the basic nursing curriculum, organize a post-basic programme in psychiatric nursing, and improve the mental health services.

Thailand 0021 Nursing Advisory Services  
To co-ordinate nursing services and nursing education through the Division of Nursing in the Ministry of Public Health; to develop basic nursing education, and to establish a college of nursing that will provide a programme leading to a degree of bachelor of nursing.

To intensify the leprosy control programme and extend it to cover all endemic areas, and to train personnel.

Thailand 0037 Vital and Health Statistics (Nov. 1968 - ) R  
To develop the Health Statistics Section of the Division of Vital Statistics and train personnel in modern statistical techniques.  
WHO provided assistance with the development of health statistics and the improvement of reporting systems under this project between August 1957 and July 1959.

Thailand 0038.2 School of Public Health, Bangkok  
To plan and advise on the various courses of the School of Public Health.

Thailand 0042 Tuberculosis Control  
To develop a national tuberculosis control programme based on the experience gained in urban and rural pilot projects, and to train health personnel in tuberculosis control techniques.

Thailand 0043.2 Trachoma Control  
(Nov. 1967 - 1969) R UNICEF  
To evaluate the progress of the trachoma control programme, the first phase of which was carried out between July 1959 and June 1966 under project Thailand 0043, and to plan future development.

Thailand 0051 Hospital Administration (Oct. - Nov. 1968) R  
WHO provided a consultant for one month to help to organize and conduct a national seminar on hospital administration in Bangkok from 24 October to 6 November. WHO also paid the cost of attendance of the twenty-five participants—medical officers and nurses engaged in hospital administration—from various parts of the country.

Thailand 0057 School of Tropical Medicine  
To strengthen the post-graduate School of Tropical Medicine of the University of Medical Sciences, Bangkok.

Thailand 0059 Strengthening of Health Services (Epidemiology)  
To establish, in the Department of Health, an epidemiological unit for defining prevailing disease patterns and planning control measures.

Thailand 0062 Medical Education (1968) R  
A twelve-month fellowship was awarded under this project, for which staff and fellowships were provided between September 1960 and June 1964.
Thailand 0065  Malaria Eradication Programme  
(Jan 1962 - ) R (AID)  
To eradicate malaria from the entire country.

Thailand 0067  Radiation Protection Services  
To establish a Division of Radiation Health Protection in the Ministry of Public Health, develop radiation protection measures and organize a radiation protection course.

Thailand 0071  School for Radiological Technology, Bangkok  
(Jan. 1965 - 1971) UNDP/TA  
To train radiographers.

Thailand 0073  Physical Therapy Training  
(Dec. 1965 - Dec. 1968) UNDP/TA UNICEF  
To develop the training of physical therapists for the expansion of orthopaedic and rehabilitation services.

Thailand 0075  Strengthening of Laboratory Services  
(April 1968 - 1970) R  
To carry out a phased programme for strengthening and upgrading the venereal disease diagnostic laboratories so that they may function as public health laboratories.

Thailand 0081  Water Pollution  
To solve organizational and technical problems related to the prevention and control of water pollution.

Thailand 0082  Venerable Disease Control (Feb. 1967 - 1970) R  
To organize a programme for the control of venereal diseases.

Thailand 0083  Sewerage and Drainage Plans, Bangkok  
(Nov. 1968 - Feb. 1969) R  
Two WHO consultants were provided to study and review the master plan for sewerage, drainage and flood protection systems in Bangkok.

Thailand 0086  Dental Health  
To improve dental education of professional and auxiliary dental staff, and to strengthen dental services.

Thailand 0087  Administrative Aspects of Health Services  
(Sept. - Dec. 1968) R  
WHO provided a consultant to formulate and develop a programme for the reorganization of the internal administrative structure of the Ministry of Public Health, with emphasis on personnel and financial management, filing, record-keeping and archives, programme planning, supervision and evaluation.

Thailand 0089  Nursing Education and Services  
(Jan. 1968 - 1974) R  
To carry out studies in the Division of Nursing in the Ministry of Public Health in order to determine nursing needs and resources, and to strengthen nursing services and education; to develop university-level courses for nurses, and particularly the post-basic degree programme at the Department of Nursing, Chulalongkorn University; and to organize and conduct studies related to nursing services and education.

Thailand 0200  Fellowships R: Drug dependence and rehabilitation of drug addicts (nine days), health education (twelve months), maternal and child health (one for six days and one for five weeks), nutrition (two for two weeks), occupational health (ten days), preventive and social medicine (seven months and five days), tuberculosis (four for three months).

Thailand 0201  Fellowships UNDP/TA: Biological standardization and preparation of biological substances (two months), diphtheria/pertussis/tetanus vaccine production (twelve months), neurophysiology (twelve months), preventive and social medicine (nine and a half months), public health administration (twelve months).

To make an independent appraisal of the status of malaria eradication and of any special aspects of the eradication programme in countries of the Region.

SEARO 0030  Smallpox Eradication and Epidemiological Advisory Team (Oct. 1962 - 1974) UNDP/TA  
To assist the countries of the Region in the eradication of smallpox and in the development of epidemiological services.

SEARO 0038.2  Production of Freeze-dried Smallpox Vaccine (Nov. 1967 - 1970) R  
To assist countries of the Region with the production of freeze-dried smallpox vaccine.

To train personnel concerned with the operation of X-ray apparatus in improved measures for guarding against the harmful effects of ionizing radiation.

SEARO 0050  Reorganization of Rural Health Records and Reports (Jan. 1961 - Dec. 1968) R  
To organize a system of rural health service records and reports in selected rural health centres in Afghanistan, Burma, Ceylon, India, Indonesia, Nepal and Thailand; and to train personnel in the collection, processing and presentation of vital and health statistics at the rural health centre level.  
The work of this project will be continued under a hospital statistics and medical records project (SEARO 0161).

SEARO 0064  Development of Community Water Supply Programme (April 1965 - 1971) R  
To provide governments of the Region with consultant services for the development of their urban and rural community water supply projects.

SEARO 0072  Hospital Statistics (Jan. 1963 - Dec. 1968) UNDP/TA  
To assist the governments of Afghanistan, Ceylon, India, Indonesia, Nepal and Thailand to organize an efficient system for the maintenance and flow of records in selected hospitals; to collect, process and present hospital statistical data efficiently on a national scale, and to train medical records and hospital statistics personnel.  
The work of this project will be continued under a hospital statistics and medical records project (SEARO 0161).
SEARO 0094.2 External Cross-checking of Blood Films
(Sept. 1968 - 1971) R
To develop and strengthen facilities in the countries of the Region for independent cross-checking of blood films from malaria eradication programmes.
The work done under this project up to December 1966 was described in the Annual Report for 1967.1

To assist training in nutrition and to support the Nutrition Research Laboratories, Hyderabad, India, in carrying out their programme.

SEARO 0099.3 Epidemiology of Virus Diseases
To assist in the development of global epidemiological surveillance of haemorrhagic fever and in studies on methods of control at the national and international levels.

To strengthen the faculty of the Asian Institute for Economic Development and Planning, established with the help of the United Nations Development Programme (Special Fund component) and UNICEF, and to assist with the training in health aspects of planning and public health administration.

SEARO 0104 Hospital Administration (Aug. 1968 - 1970) R
To promote training in hospital administration through courses and workshops.

SEARO 0113 Regional Tuberculosis Training and Evaluation Team (Dec. 1967 - 1972) R
To provide training in tuberculosis control; to assist in operational research related to the assessment and evaluation of integrated tuberculosis control programmes in the Region, and in their integration into the general health services; and to give practical assistance to national tuberculosis programmes after the withdrawal of international personnel.

SEARO 0117 Diphtheria/Pertussis/Tetanus Vaccine Production (July 1968 - 1969) R
To assist in the production of triple vaccine.

SEARO 0125 Plague Epidemiology (May 1968 - ) R
To assist governments of the Region in assessing factors responsible for the persistence of plague and in studying any new potential plague foci; also to provide emergency assistance during outbreaks of the disease.

To assist governments in improving infectious-disease hospitals so that they provide adequate facilities for the diagnosis and treatment of infectious diseases, as well as training in that field.

SEARO 0130 Development of Health Education
(June 1967 - 1972) R
To provide workshops for national leaders in health administration and health education and to develop a methodology for planning health education as an integral part of health programmes; to suggest procedures for planning and implementing health education activities, and to evolve criteria for evaluating their effectiveness.

SEARO 0133 Strengthening of Medical Education
(April 1967 - Dec. 1968) R
To strengthen departments of medical colleges and introduce modern teaching methods.

SEARO 0139 Short Courses for Nursing Personnel
To assist programmes for training nurses in the organization, conduct and evaluation of short courses for nursing personnel and acquainting them with new concepts and skills; and to develop studies on nursing service and education.

SEARO 0146 Regional Cholera Control Team
(Sept. 1966 - 1972) R
To assist governments in epidemiological investigations and control of cholera outbreaks, and in short training and demonstration courses in cholera control.

SEARO 0154 Quality Control of Drugs
(Oct. 1968 - 1972) R
To assist countries of the Region in strengthening or establishing their own quality control services, and to organize seminars on the quality control of drugs.

SEARO 0162 Coronary Care Units (March - May 1968) R
WHO provided two consultants, each for one month, who visited some of the main hospitals in Burma, Ceylon, India, Indonesia and Thailand and advised on improvement of coronary care and training of key staff of coronary care units.

SEARO 0165 Conference on the Training and Utilization of Auxiliary Sanitation Personnel, New Delhi
(10 - 15 June 1968) R
The purpose of the conference, which was a follow-up of a conference on the same subject held in New Delhi in December 1960, was to review programmes and establish new criteria for the training and utilization of auxiliary sanitation personnel to suit the current needs of public health services in the countries of the Region. It was attended by twenty-four heads of public health institutions and health training centres (or their representatives) from Afghanistan, Ceylon, India, Indonesia, Nepal and Thailand.
WHO provided the cost of attendance of the participants; four staff members assisted with the conference.

SEARO 0166 Workshops on Cellular and Molecular Basis of the Immune Response (14 Oct. - 23 Nov. 1968) R
Two workshops were held at the All-India Institute of Medical Sciences, New Delhi—one from 14 October to 2 November on the molecular basis of the immune response, one from 4 to

23 November on the cellular basis of the immune response—with the purpose of training biochemists and immunologists in the basic techniques of modern molecular immunology and developing research in immunology in the Region, with particular emphasis on communicable diseases. There were thirty-eight participants from India and one each from Ceylon and Thailand.

WHO provided a consultant for one month, eight temporary advisers and the cost of attendance of the participants; and two staff members assisted with the workshops.

SEARO 0167 Course for Coding Instructors, New Delhi
(11 - 20 Nov. 1968) R

The purpose of the course was to provide guidance on the use of the Eighth Revision of the International Classification of Diseases, which became effective on 1 January 1968, and on coding of diagnoses and of causes of death. There were twenty-seven participants from Afghanistan, Burma, Ceylon, India, Indonesia, Mongolia, Nepal and Thailand, as well as four from the Eastern Mediterranean Region and three from the Western Pacific Region.

WHO provided two consultants and the cost of attendance of the participants, and WHO staff assisted with the course.

SEARO 0168 Training in Veterinary Public Health

To assist in setting up post-graduate training in veterinary public health.

SEARO 0174 Rehabilitation of Handicapped Children
(Oct. 1968 - ) R

To study rehabilitation facilities and improve services for handicapped children.

SEARO 0200 Fellowships R: Three for two weeks, to physicians from Afghanistan, Indonesia and Nepal, for participation in a seminar on hospital administration held in New Delhi; seven for two months to senior health administrators from Afghanistan, India, Indonesia, Nepal and Thailand (two) for participation in a national health planning study tour.
EUROPEAN REGION

Albania 0005 Cancer Control (1962 - ) UNDP/TA
To develop a specialized cancer control programme by building up a central institute with up-to-date equipment, and by training physicians, physicists and engineers for the medical and technical aspects of the programme.

Albania 0006 Vaccine Production (1966 - ) R
To develop adequate facilities for the production of the vaccines and sera necessary for preventing and controlling communicable diseases.

Albania 0007 Central Institute of Epidemiology, Microbiology and Immunology (1965 - ) UNDP/TA
To develop the Central Institute of Epidemiology, Microbiology and Immunology, which is to be established in Tirana to conduct work in microbiology, virology and parasitology, produce sera, vaccines and gamma-globulins and provide specialized training for various categories of personnel.

Albania 0008 Resuscitation Centre (1967 - ) UNDP/TA
To establish a centre to strengthen the organization of resuscitation and casualty services and to train the necessary staff.

Algeria 0001 Communicable Eye Disease Control (1956 - ) UNDP/TA UNICEF
To carry out a programme for the control of communicable eye diseases. The programme includes a self-treatment mass campaign and the organization of collective treatment in schools, the control of trachoma and related diseases in the family environment, health education, and the training of technical personnel.

Algeria 0010 National Water Authority (1963 - ) UNDP/TA Special Account for Community Water Supply
To set up a national water authority responsible for planning and implementing a water development investment programme.

Algeria 0014 Nursing Education (Oct. 1963 - ) UNDP/TA UNICEF
To organize and implement basic training programmes for the different categories of nursing and midwifery personnel and to establish a post-basic school to prepare nurses for administrative and teaching responsibilities.

Algeria 0016 Hospital Administration (4 - 23 Nov. 1968) R UNDP/TA
WHO provided a consultant, three temporary advisers (lecturers) and supplies and equipment for a three-week course held in November for approximately thirty senior hospital administrators.

Algeria 0022 Malaria Eradication Training Centre (1968 - ) MESA
To train professional and auxiliary staff for the Algerian malaria eradication programme, as well as for those of other North African countries.

Algeria 0023 Natural Resource Surveys, Agricultural Experimentation and Demonstration in the Hodna Region (Nov.- Dec. 1968) UNDP/SF (FAO)
WHO provided a consultant for four weeks to advise on the environmental health aspects—in particular those concerning community water supply—of this project, which is assisted by the Special Fund component of the United Nations Development Programme with FAO as the executing agency.

Algeria 0200 Fellowships R: Health education (fifteen months), nutrition (twelve months), public health (one for one month, one for five months, one for seven months), sanitary engineering (fourteen months).

Algeria 0501 Public Health Administration (1963 - ) R
To plan and organize public health services.

Algeria 0502 Environmental Health (1963 - ) R UNICEF
To develop and strengthen environmental health services and train sanitation personnel.

Algeria 0503 Environmental Sanitation (1963 - ) UNDP/TA
To train sanitation personnel and promote work in environmental sanitation.

Algeria 0504 Health Education (1964 - ) UNDP/TA UNICEF
To promote health education work; to train personnel of various categories in the subject; to develop methods and techniques of health education and to prepare material adjusted to the conditions in and needs of the country.

Algeria 0505 Nutrition Advisory Services (1963 - ) R UNICEF (FAO)
To conduct nutrition surveys, review programmes for the prevention of malnutrition, and train personnel. (See page 117.)

Algeria 0506 Epidemiology and Health Statistics (Jan. 1964 - ) UNDP/TA
To organize health statistical services and train national personnel in health statistics; to use the statistical data collected for determining priorities in public health planning.

Algeria 0507 Nursing Advisory Services (Oct. 1963 - ) UNDP/TA
To reorganize and improve nursing and midwifery services.
To carry out malaria case-finding and treatment and eradicate malaria progressively from the whole country. This follows the pre-eradication project which began in 1964.

Algeria 0509 Public Health Laboratories  
(Aug. 1968 - ) UNDP/TA

To organize laboratory services at various levels of the health administration and train laboratory staff.

Algeria 0510 Maternal and Child Health  
(Dec. 1963 - ) UNDP/TA UNICEF

To reorganize and extend maternal and child health work in health centres throughout the country, and to develop training facilities for maternal and child health workers and related personnel.

Austria 0200 Fellowships R: Biometrics and statistics (one month), drug control (one month), food control (three for two weeks, two for one month), nursing education (six and a half months), rehabilitation of cardiovascular disease patients (three weeks), salmonella bacteriology (two weeks), tuberculosis (one month), water chemistry (one month), water supply (three weeks).

Belgium 0200 Fellowships R: Anaesthesiology (four months), health education (ten months), hospital construction (three months), hospital organization (six weeks), internal medicine (four months), neurophysiology (six months), rheumatic diseases (four months).

Bulgaria 0012 Central Institute of Public Health, Sofia  
(1968 - ) UNDP/TA

To establish a central technical and scientific body grouping a number of formerly independent specialized institutions. The functions of the Institute will be to collect, process and evaluate information as a basis for planning the development of health services; and to train medical and paramedical personnel and carry out research as a faculty of the post-graduate medical school.

Bulgaria 0013 Medical Care Services  
(1968 - ) UNDP/TA

WHO awarded a two-month fellowship for studies in neurology to assist in the further development of clinical services.

Bulgaria 0014 Rehabilitation  
(1967) UNDP/TA

WHO provided a three-month fellowship for studies in neuro-paediatrics.

Bulgaria 0200 Fellowships R: Allergy (four and a half months), anatomy (three months), cardiovascular pathology (two months), haematology (three months), nursing (one month), pathophysiology (two months), radiology (three months), urology (three months).

Bulgaria 0201 Fellowships UNDP/TA: Sanitary engineering (eight and a half months).

Czechoslovakia 0009 Medical Training Institutes  
(1960 - ) R

To develop undergraduate and post-graduate programmes in medicine in national institutions.

Czechoslovakia 0200 Fellowships R: Air biochemistry (three weeks), air pollution (three months), anaesthesiology (three weeks), antibody chemistry (two months), biochemistry (two months), hospital organization (two months), nephrology (three months), nursing education (two months), occupational physiology (two months), paediatrics/genetics (two months), teratogenesis (two months), tuberculosis control (three weeks), water hygiene (two months).

Denmark 0200 Fellowships R: Health education (two months), nursing (twelve months), public health administration (two months), rehabilitation of handicapped children (six weeks), surgery (three months), tropical medicine and hygiene (three months).

Finland 0200 Fellowships R: Anaesthesiology (three weeks), cardiology (one month), home nursing services (two months), neurology (five weeks), nursing (two months), occupational therapy (two months), prevention of road accidents (one month), public health (one for five months, one for eight months), radiation protection (one month), rehabilitation of patients with rheumatic diseases (two months), social security in medical care (three months).

France 0200 Fellowships R: Adverse reactions to drugs (one for one week, one for two weeks), health planning (one month), health statistics (four weeks), neuroradiology (two months), paediatric radiology (six weeks), pathophysiology (four for three weeks), prosthetic appliances for children (ten days), rehabilitation of cerebro-motor invalids (two weeks), study on rehabilitation (four weeks), virology (one for one month, one for two months), water and air pollution (one month).

Germany 0200 Fellowships R: Burn treatment (two months), dental health (three months), head and neck surgery (two months), health education (three months), health statistics (ten weeks), rehabilitation of children (two months), smallpox (one month), smallpox vaccine (three months).

Greece 0017 Nursing Education and Administration  
(1956 - ) UNDP/TA

To train nurses abroad for teaching and administrative posts in a post-basic school of nursing which is to be established to prepare tutors and administrators for nursing education programmes and services.

Greece 0025 Development of Public Health Services and Training of Personnel  
(1958 - ) UNDP/TA UNICEF

To organize comprehensive and co-ordinated health services in a rural area where new methods of public health administration can be tested, practical training can be given to all categories of public health personnel, and demonstration and research can be carried out. Services for vital and health statistics, maternal and child health, dental health, medical care, mental health and environmental health are to be organized in the demonstration area.

Greece 0031 Occupational Health Services  
(1967) R

A six-month fellowship was awarded for studies in occupational health.

Greece 0034 Community Water Supply  
(1963 - 1967) Special Account for Community Water Supply

WHO provided a team of three consultants (two sanitary engineers and an economist) to advise on further planning of
community water supply programmes and on studies of specific problems that may be encountered in developing programmes initiated in previous years. The consultants also helped to prepare a request from the Government for assistance under the United Nations Development Programme (Special Fund component).

Greece 0035 Wastes Disposal (1967- ) UNDP/TA

To assess solid waste disposal problems in urban areas through a general review, followed by a specific study of one or two cities where the situation is more acute.

Greece 0036 Public Health Laboratory Services (1967 - ) UNDP/TA

To modernize and expand the central laboratory services and improve the regional and peripheral services in accordance with recommendations contained in the study made by a WHO consultant in 1965.

Greece 0200 Fellowships R: Cardiology (four months), chronic pulmonary diseases (three months), endocrinology (five months), hospital recovery room organization (two for three months), nursing education (ten weeks), public health administration (seven weeks), sewage treatment (three months), sewerage systems (three months).

Hungary 0007 Medical Training Institutes (1966 - ) R

To develop new medical teaching programmes in certain medical schools.

Hungary 0008 Training of Sanitary Engineers (1965 - ) UNDP/TA

To organize the training of sanitary engineers and to train sanitary engineers as teachers.

Hungary 0010 Nursing and Midwifery Education and Administration (1966 - ) UNDP/TA

To develop nursing and midwifery education programmes and establish a post-basic school to prepare nurses and midwives for administrative and teaching posts in schools of nursing, in hospitals and in public health nursing and midwifery services.

Hungary 0011 Air Pollution (1965; 1967 - 1968) UNDP/TA

WHO provided two three-month fellowships in 1965, two for two months in 1967 and two for two months in 1968, for the study of modern methods of air pollution control.

Hungary 0200 Fellowships R: Abdominal surgery (three months), cardiology (four months), cardiology/cybernetics (two months), diabetes (two months), family planning (one month), haematology (six weeks), human genetics (two months), immunology (three months), immunology/serology (one month), kidney transplantation (two months), paediatrics (three months), poison control (two months), rehabilitation of mental patients (two months), surgery of the heart (two months), vascular surgery (two months).

Iceland 0200 Fellowships R: Child psychiatry (twelve months), nursing administration (twelve and a half months).

Ireland 0200 Fellowships R: Child health (two for four weeks), endocrinology (one month), geriatrics (one month), haematology and gastroenterology (one month), hospital administration (one month), laboratory automation (one month), neurology (one month), obstetrics and social medicine (one month), paediatric anaesthesiology (one month), paediatrics (one month), psychiatric teaching (six weeks), psychiatry (one month), public health nursing (one month), radiology (one month), vascular surgery (one month).

Italy 0023 Nursing Education and Administration (1960 - ) R

To train nurses abroad for teaching and administrative posts in the post-basic school of nursing, which is to prepare nurse tutors and administrators for nursing education programmes and services.

Italy 0200 Fellowships R: Air pollution (one month), cardiovascular surgery (one month), child psychiatry (one month), food control (one month), food hygiene (one month), mother and child care—International Children's Centre course (two months), occupational health (one month), organization of first aid services (one month), physical therapy (one month), pneumonophthisiology (one month), public health administration (one for two weeks, two for one month), quarantine services for seamen and port workers (three weeks), sanitary engineering (two months), training of medical assistants (one month).

Luxembourg 0200 Fellowships R: Health education (eight months), motor-handicapped children (eight months).

Malta 0007 Mental Health Services (1965 - ) UNDP/TA

To modernize the psychiatric services, especially those for children.

Malta 0011 Dental Health (1967) R

A three-month fellowship was awarded for training in dental health.

Malta 0014 Wastes Disposal and Water Supply (1966 - ) UNDP/TA

To carry out engineering and feasibility studies and draw up a construction and investment programme for immediate and phased long-term plans for the improvement and development of waste disposal and water supply facilities; also to investigate the legal, managerial and financial aspects of the programme.

Malta 0200 Fellowships R: Dental health (twelve months), hospital administration and organization of medical care (five months), surgery (three months).

Morocco 0018 Mental Health Services (1968 - ) R

To develop mental health services, and train psychiatric nursing personnel.

Morocco 0023 Medical Education (1960 - ) R

To strengthen teaching and research in preventive and social medicine and in the basic medical sciences at the Faculty of Medicine, Rabat, and to train national staff.

Morocco 0030 Water Supply and Wastes Disposal (1962 - ) UNDP/SF Special Account for Community Water Supply

To study specific problems encountered in community water supply programmes already started and to plan further programmes.
Morocco 0032 Food Hygiene (1967) R UNDP/TA
WHO provided a consultant from 27 November to 22 December 1967 to assist in the prevention of microbiological contamination of processed foods and improve food hygiene practices.

Morocco 0037 Training of Sanitary Engineers (1968 - ) R
To train sanitary engineering teaching personnel and specialists at university level.

Morocco 0200 Fellowships R: Environmental sanitation (eighteen days), nursing education (two months), sanitary inspectors training (three weeks), schistosomiasis (two months), smallpox vaccine preparation (two weeks).

Morocco 0211 Epidemiology and Health Statistics (1961 - ) R
To develop the national vital and health statistical services, organize statistical courses and lectures for various groups of health personnel and students, and establish a national committee on vital and health statistics.

Morocco 0212 Training of Health Statistical Personnel (1964 - ) UNDP/TA
To improve the training of statistical staff, for which purpose a school for statistical personnel is being organized.

Morocco 0502 Nursing Education (1959 - 1967) R
The aim was to develop basic nursing education and establish a post-basic school of nursing as part of the École de Cadres, Rabat, which would train nurses for teaching and administrative posts in specialized fields, including midwifery. WHO provided a nursing adviser for the first two years of the project, and two more advisers—one on general nursing education, one on public health nursing education—between 1962 and 1967; and seven fellowships for a total of fifty-one months. A state nursing diploma was created in 1960, and a training programme for registered nurses was planned and started in that year. The programme was revised in 1963 with the assistance of the WHO nursing advisers. The École de Cadres, which admitted its first students in 1963, provides two courses for nurses, one in nursing education, and the other in administration of nursing services. By 1967 forty-eight nurses had graduated. Between 1963 and 1965, under a further programme for key personnel, twenty-four nurse educators, fourteen senior public health staff, eight assistantes sociales and two midwives were trained. Four of the senior trainees subsequently received WHO fellowships, two of them for studies at the International School of Advanced Nursing Education at Lyons, France.

Morocco 0503 Training of Health Auxiliaries (1959 - 1967) UNDP/TA
The aim of the project—which was formerly part of the project for the training of public health personnel (Morocco 9)—was to train auxiliary health personnel. WHO provided three nurse educators between 1960 and 1967. In 1960, an accelerated programme was started to prepare a single category of auxiliaries (adjoints de santé brevetés) distinct from the registered nurses and capable of service in a wide variety of fields ranging from malaria field work to hospital care. Between 1960 and 1965, when the fusion of schools and integration of courses for infirmiers brevetés and aides sanitaires were completed, over four thousand auxiliaries were trained. Training in rural health work formed an important part of courses, and the programme also included the preparation of auxiliaries for maternity and psychiatric care. Qualified nurses were trained as teachers, and the ratio of teachers to students rose from one to seventeen in 1962 to one to nine in 1967.

Morocco 0504 Nursing Services and Education (1967 - ) UNDP/TA
To develop nursing education and administration, public health nursing and hospital nursing services, at national and local levels. This project replaces the projects for nursing education (Morocco 0502) and training of health auxiliaries (Morocco 0503).

Morocco 0507 Environmental Sanitation (1958 - ) UNDP/TA
To develop a national programme of environmental sanitation by establishing for the purpose a sanitary engineering section in the Ministry of Public Health and training health personnel, including auxiliaries.

Morocco 0508 Public Health Laboratories (March 1966 - March 1968) UNDP/TA
WHO provided a laboratory technician between March 1966 and March 1968 to assist in training the laboratory technicians needed for the development of a public health laboratory system.

Morocco 0509 Communicable Eye Disease Control (1952 - ) UNDP/TA UNICEF
To develop a nation-wide programme for the control of trachoma and seasonal conjunctivitis, using fully the possibilities offered by the reorganized rural health services; and to carry out field surveys in areas of high endemicity and in schools, to serve as a basis for action in future years. (See page 118.)

Morocco 0510 Malaria Pre-eradication Programme (1962 - ) R MESA
To prepare for a malaria eradication programme by the organization of technical, administrative and operational services; and to train medical and paramedical personnel of public health services (especially rural health services) in malaria eradication concepts and techniques.

Netherlands 0015 Fellowships R: Environmental sanitation (three for one month), food control (two for one month, one for six weeks), water supply (two weeks).

Norway 0200 Fellowships R: Public health (one for three months, one for four and a half months, one for seven months, one for ten months).

Poland 0015 Medical Education (1958 - ) R
To provide assistance to certain medical schools, particularly in improving facilities for teaching the basic medical sciences.

Poland 0016 Tuberculosis Control (1960 - ) UNDP/TA UNICEF
To train staff in tuberculosis control; later, to set up a pilot area project for tuberculosis control; to study the epidemiological characteristics of tuberculosis in different population groups, and to assess the efficacy of various control measures in reducing the risk of infection, especially among children.
Poland 0026 Protection of River Waters against Pollution (1965 - ) UNDP/SF

To develop scientific and research work for the control of water pollution by domestic wastes, industrial effluents, saline waste waters and waste waters from thermal power stations in the Slasko Dabrowskie area.

Poland 0027 Mental Health (1967 - ) UNDP/TA

To provide training in child mental health and the rehabilitation of psychiatric patients in order to strengthen the mental health services.

Poland 0028 Poliomyelitis Emergency Relief (1968)

WHO supplied 100,000 doses of polio vaccine to help combat an outbreak of poliomyelitis.

Poland 0200 Fellowships R: Air pollution (two months), communicable disease control and epidemiology (two months), environmental health (four months), epidemiology (two months), hospital administration (two for one month), industrial hygiene (two for three months), medical care administration (one month), medical education (three weeks), nursing education (two for twelve months), occupational health (three for one month, one for two months), public health administration (five months), radiation protection (one month), statistics (six months), tuberculosis/nutrition (four weeks), vaccine preparation (one for six weeks, one for two months), water supplies and sewerage (two months), water supply (one month).

Romania 0005 Rehabilitation (1967 - ) UNDP/TA

To provide training in the organization of centres for the care and rehabilitation of patients suffering from diseases of the locomotor system resulting from rheumatic conditions.

Romania 0200 Fellowships R: Cancerology (two months), cardio-respiratory resuscitation of children (three months), cardiovascular functional exploration (two months), drug control (two months), endocrinology (three months), morbid anatomy (two months), orthodontics (two months), paediatrics (three months), radiation protection (two months), sterility in women (one for three months, one for six months), vascular surgery (three months).

Spain 0012 Brucellosis Control (1954 - ) UNDP/TA

To conduct epidemiological studies of brucellosis in animals and man and to produce live vaccine for an extensive vaccination campaign to immunize about one million animals in ten provinces.


WHO provided a consultant to assist in developing national health statistical services and in setting up a department of biostatistics in the National School of Public Health.


The aim was to develop a national programme for the rehabilitation of handicapped children, including the expansion, throughout the country, of rehabilitation services and the establishment of centres to train staff. WHO provided four consultants for a total of eighteen weeks (two in 1956, one in 1959 and one in 1964) to advise on the establishment of schools of physical therapy in Madrid, Barcelona and Valencia; and a physical therapist from October 1960 to December 1963 and an occupational therapist from April 1961 to December 1963 to assist in organizing courses. In addition, fifteen fellowships in physical and occupational therapy were awarded for periods between one month and one year.

Spain 0025 Epidemiological Studies of Virus Diseases of Public Health Importance (1964 - ) UNDP/TA

To resume the study of methods for the prevention and control of respiratory and enteric virus diseases that was started in 1959.

Spain 0030 Health Demonstration and Training Area (1965 - ) UNDP/TA

To set up, as part of the general plan for socio-economic development, a public health demonstration and training area with a complete network of co-ordinated rural health services. The area will be used for testing administrative and technical methods, for carrying out surveys, and, in collaboration with the National School of Public Health, for training various categories of health staff.

Spain 0031 Mental Health Services (1966 - ) UNDP/TA

To develop the mental health services, especially those for the rehabilitation of psychiatric patients.

Spain 0200 Fellowships R: Electromyography (two months), food control (three months), histopathology (two months), immunology (two for two months), medical education (two for four weeks), neurology/encephalography (two months), public health (eight months), rehabilitation (two months), rural health services (three for one month).

Sweden 0200 Fellowships R: Community health screening (one month), food hygiene (one month), food poisoning (one month), health education (two months), midwifery education (four months), nursing education (two months), occupational therapy (one month), orthodontic appliances (two months).

Switzerland 0018 Study of the Functions of Nursing Personnel (1965 - 1969) R

To determine the responsibilities and differentiate the functions of the various categories of nursing personnel required by the health services. The findings of this study will serve as a basis for planning the different types of training needed and the staffing of nursing services.

Switzerland 0200 Fellowships R: Drug dependence (two months), food microbiology (three weeks), gastroenterology (six weeks), medical education administration (twelve months), mental health nursing (three months), preventive and social medicine (three weeks), psychiatric nursing (three months), surgery (six months).

Turkey 0016 School of Public Health, Ankara (1960 - 1968) R

To develop the School of Public Health in Ankara.

Turkey 0023 Malaria Eradication Programme (1957 - ) R MESA UNICEF (World Food Programme)

To achieve malaria eradication throughout the country.
Turkey 0046  Master Plan for Water Supply and Sewerage for the Istanbul Region (1965 - ) UNDP/SF

To prepare a master plan, and feasibility and preliminary engineering and other organizational studies for the extension and improvement of the water and sewerage system of Greater Istanbul and the rapidly developing industrial areas in the vicinity.

Turkey 0051  Promotion of Training and Programmes in Sanitary Engineering (1968 - ) R

To train sanitary engineers and subprofessional personnel working in environmental sanitation, to further the participation of health authorities in environmental health schemes, and to promote specific environmental health programmes in various government agencies.

This project is an extension of the work which started in 1962 under the community water supply project Turkey 44.

Turkey 0200  Fellowships R: Health statistics (three weeks), medical education methods (ten months), public health (twelve months), sanitary engineering (twelve months), virology (two for three months).

Turkey 0501  Public Health Administration (1964 - 1967) UNDP/TA UNICEF

The aim was to strengthen maternal and child health services, integrate the activities of specialized services—particularly those for malaria eradication—into the public health services, and train public health personnel. WHO provided a public health administrator from February 1965 to October 1967 and a public health nurse/midwife from January 1965 to April 1966 and another from September 1966 to November 1967.

Work under the project was concentrated mostly in the eastern provinces of Turkey, where health services were being nationalized and maternal and child health or malaria eradication services were being integrated into the public health services. The WHO staff advised on this integration, and on the organization of services. An in-service training programme, which included training in public health for nurses and midwives, was carried out in the demonstration and training area set up in Etimesgut. In addition, courses on maternal and child health were given in connexion with a seminar held in Mus Province and at the Academy of Social Services in Ankara, and the courses at the Gevher Nesibe Institute, Ankara, for post-basic training of nurses, midwives and health assistants, which were started under the nursing education project Turkey 0029, were continued.

Turkey 0502  Health Statistical Services (1964 - Dec. 1968) R

The aim was to develop the national, regional and local health statistical services in co-ordination with the public health administration project Turkey 0501. WHO provided a statistician from February 1966 to December 1968, who continued the work of the statistician assigned to the project for the development of public health services and training of personnel (Turkey 40).

The WHO statisticians assisted with the organization of central, provincial and local services, and in the development of hospital statistics. Special attention was given to statistical work in Mus Province and in the demonstration and training area set up in Etimesgut in connexion with the plan for nationalization of health services. Statistical clerks were trained for central, provincial and local services.

Turkey 0503  Environmental Health Services (1964 - ) R

To develop the environmental sanitation services and train sanitation personnel.

Turkey 0504  Environmental Sanitation (1964 - ) UNDP/TA

To promote environmental sanitation work.

USSR 0200  Fellowships R: Antibiotics/biochemistry (four months), embryology (six months), laboratories (four months), medical literature (two for two months), mental health (two months), neurobiochemistry (one for nine weeks, one for nine and three-quarter months), ophthalmology (four months).

United Kingdom 0200  Fellowships R: Dental health (one month), epidemiology and medical electronics (six weeks), geriatrics (one month), hospital administration (one month), hospital administration and health statistics (one month), hospital planning and administration (one month), microbiology (two for one month), radiotherapy (one month), smallpox (one month), virology (one month).

Yugoslavia 0020  Public Health Administration (1956 - 1968) UNDP/TA

WHO provided sixty-two fellowships of varying duration for the study of public health administration, environmental sanitation, nursing, maternal and child health, occupational health and rehabilitation, nutrition, epidemiology and health statistics, dental health, communicable diseases, pneumology, and chronic diseases.

Yugoslavia 0037  Early Detection and Control of Cancer (1965 - 1967) UNDP/TA

WHO provided eight fellowships of from two to nine months to train health personnel for the chronic and degenerative disease centres of the different republics.

Yugoslavia 0038  Epidemiological Studies of Virus Diseases (1965 - ) UNDP/TA

To initiate serological surveys and isolate viruses from cases of active respiratory illness in children with a view to assessing the extent of the problem and evolving suitable control measures.

Yugoslavia 0045  Community Water Supply (1967 - ) Special Account for Community Water Supply

To carry out engineering and feasibility studies, master plans, construction and investment programmes for water supply and wastes disposal, and a programme for water pollution control for the Autonomous Province of Kosovo-Metohija.

Yugoslavia 0046  Physical Development Plan, South Adriatic Region (Aug. 1968) UNDP/SF (UN)

WHO provided a consultant for three weeks to advise on spa treatment and other health aspects of this project, which is assisted by the Special Fund component of the United Nations Development Programme with the United Nations as executing agency.

Yugoslavia 0164  Tuberculosis Control (1968 - ) UNDP/TA

To carry out studies on the epidemiology of tuberculosis in various republics in preparation for a national tuberculosis control programme.
Yugoslavia 0165 Trachoma Control and Prevention of Loss of Vision (1967 - ) UNDP/TA

To continue the trachoma control programme; and to organize pilot schemes for early case-finding and treatment of ophthalmic conditions in infants and pre-school children, mass case-finding of other potentially blinding eye conditions in adults and elderly people, and preventive measures and accident prevention programme as part of specialized health services.

Yugoslavia 0200 Fellowships R: Anatomy (three months), biochemistry (six months), cardiology (two months), clinical and experimental pharmacology (two months), medical education (two months), paediatric surgery (two months), pathophysiology (one month), rheumatology (two months), statistics (six months), toxicology and forensic medicine (three months).

Yugoslavia 0201 Fellowships UNDP/TA: Allergy (two months), cancer diagnosis (two months), cybernetics in medicine (five months), dental prosthetics (two for six months), endocrinology (twelve months), industrial health (two months), neurosurgery (four months), nursing (two for four months), occupational health (two months), public health administration (two for two months, one for four months, one for five months), rehabilitation following cerebral palsy(six months), traumatology (two months).

EURO 0135 Study on the Organizational Patterns of Occupational Health Services (1968 - ) R

To make a comparative study of organizational patterns of occupational health services in certain European countries, applying modern methods of analysing administrative organization. Particular attention will be paid to the impact of new industrial developments on the structure and functions of these services.

EURO 0183 Participation in Seminars and Conferences (1959 - ) R

To assist with seminars and conferences conducted by the United Nations, specialized agencies, medico-social organizations and agencies whose work is of special interest to the Regional Office.

EURO 0184 Trachoma Control (1958 - ) UNDP/TA

To provide specialized technical advice on the further development of communicable eye disease control projects in several countries of the Region, and to study the need for general sight-saving programmes in these and other countries.

EURO 0185 Follow-up of Inter-country Activities on a National Basis (1958 - ) R

To assist governments in developing national activities arising out of the inter-country programmes of the European Region.

EURO 0207 Undergraduate Medical Education (1961 - ) R

To stimulate improvements in undergraduate medical teaching and particularly the introduction of preventive and social medicine at various stages and in various sections of the curriculum.

EURO 0211 Exchange of Information on Placement, Supervision and Follow-up of WHO Fellows (Sept. 1968 - ) R

WHO is providing a consultant to supervise the placement of trainees from the African Region for studies in countries of the European Region.

EURO 0215 Health Statistical Studies (1962 - ) R

To support and conduct studies on various subjects, including the accuracy and comparability of statistics on causes of death, the epidemiology of home accidents, the use of continuous population samples in health surveys, and the use of social security records as sources of health statistical information.

EURO 0232 Malaria Eradication Evaluation and Epidemiological Assessment (1962 - ) R

A team to visit countries on request in order to assist in determining whether eradication of malaria has been achieved.

EURO 0275 Preparatory Arrangements for Conferences (1964 - ) R

To make preparations and preliminary arrangements for conferences, seminars, etc., to be held in the following year.


The purpose of the symposium was to analyse the methods used to estimate future requirements in health personnel in the light of studies made in certain European countries, taking into account different patterns of services and their implications for staff training.

WHO provided a consultant, seven temporary advisers, and the cost of attendance of fifteen participants from Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, France, Hungary, Italy, Netherlands, Poland, Sweden, Switzerland, Turkey, Union of Soviet Socialist Republics, United Kingdom and Yugoslavia.

EURO 0290 Conference on the Surveillance and Control of Rabies, Frankfurt-am-Main (4-8 June 1968) R

The purpose of the conference was to allow a rapid exchange of information with a view to increasing co-ordination of the control measures adopted to combat the increasing incidence of rabies reported in a number of European countries, particularly in wildlife. (See page 116.)

WHO provided eight temporary advisers and the cost of attendance of twenty-three participants from Algeria, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Greece, Hungary, Italy, Luxembourg, Morocco, Netherlands, Poland, Romania, Spain, Switzerland, Turkey, Union of Soviet Socialist Republics, and Yugoslavia.

EURO 0299.1 International Children's Centre Course on Social Paediatrics, Paris (22 April - 30 June 1968) R: Fellowships for five trainees from Algeria, Greece, Morocco, Turkey and Yugoslavia.

EURO 0299.2 International Children's Centre Course on Mother and Child Care, Paris (16 Sept.- 17 Nov. 1968) R: Fellowships for five trainees from Algeria, Italy, Morocco, Romania and Turkey.

EURO 0302 Post-graduate Medical Training (1965 - ) R

To stimulate improvements in post-graduate medical training and to assist national efforts in this field, mainly by the provision of consultants, lecturers, fellowships and supplies to post-graduate training institutes, schools of public health and schools of tropical medicine. It is also planned to support some inter-country activities concerned with post-graduate training.
The project is a continuation, in a modified form, of project EURO 110—European Schools and Training Centres in Public Health, which was completed in 1964.

EURO 0305 Consultant Services (1965 - ) R

To meet requests—sometimes of an urgent nature—from countries in the Region for advice on subjects for which no specialized health officer is available and for which it may be impracticable to obtain assistance from headquarters staff.

EURO 0319 Entomological Services to North African Countries (1965 - ) R

To provide entomological advice for the malaria projects in Algeria and Morocco and, if necessary, for those in Turkey and other countries.

EURO 0320 Participation in Seminars and Courses on Malaria in Other Regions (1968) R

As the malaria situation in the European Region no longer justifies the organization of inter-country seminars and courses, WHO provided the cost of attendance of national officials in seminars and courses organized in other regions.

EURO 0321 Study of the Effectiveness of Tuberculosis Control Programmes (1966 - ) R

To assist governments in assessing the effectiveness of their tuberculosis control programmes. This long-term regional study, which follows the Technical Meeting on Tuberculosis Control held in Copenhagen in 1966, should make it possible to improve the accuracy and comparability of tuberculosis morbidity data.

EURO 0323 Automation of Public Health Laboratory Services (1966 - 1968) R

Who provided two consultants for one month each to advise on automation of public health laboratories; they visited eight countries of the Region in December 1967 and March 1968.


To study possible methods of screening for potentially blinding eye conditions, and to obtain information as a basis for comparison of procedures and for discussion on the most suitable methods for European countries to adopt.

EURO 0331 National Courses in Health Education for Physicians (1968 - ) R

To assist countries in arranging national courses, similar to that held by the French Government with WHO support in 1965, for physicians particularly well placed for promoting health education.

EURO 0339 Seminar on Health Economics, Moscow (25 June - 5 July 1968) R

The purpose of the seminar was to enable central public health administrators to study the economic aspects of medical and health work. (See page 117.)

WHO provided one consultant, four temporary advisers and the cost of attendance of sixteen participants from Algeria, Austria, Belgium, Bulgaria, Czechoslovakia, Federal Republic of Germany, Finland, France, Hungary, Netherlands, Poland, Romania, Sweden, Union of Soviet Socialist Republics, United Kingdom and Yugoslavia.

EURO 0342 Study on Advanced Nursing Education (1968 - ) R

To make an evaluation study of schools of post-graduate nursing education, including the international schools of nursing.

EURO 0343 Conference on Undergraduate Dental Education, Copenhagen (11 - 15 Nov. 1968) R

The conference was called, in view of the growing dental health problems in the Region, to review undergraduate education in dentistry.

WHO provided a consultant, ten temporary advisers and the cost of attendance of twenty-five dental public health administrators, teachers and experts in dental and medical education methods from Algeria, Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, Turkey, Union of Soviet Socialist Republics, United Kingdom and Yugoslavia.

EURO 0345 Meetings on Prevention of Accidents (March - April 1968) R

European Liaison Meeting on the Prevention and Control of Road Accidents, Copenhagen (14-15 March 1968)

This meeting, which was a follow-up to the Symposium on Human Factors in Road Accidents held in Rome in 1967 (EURO 0147), brought together representatives of ILO, the Council of Europe, the Organization for Economic Co-operation and Development (OECD), the League of Red Cross Societies, the International Federation of Senior Police Officers and the World Touring and Automobile Organization for the purpose of reviewing their activities. They discussed the possibilities of future co-operation, the elimination of duplication in planning and programming, and specific technical and legal measures to be taken for road accident prevention.

Symposium on the Prevention of Accidents in the Home, Salzburg (22-26 April 1968)

The symposium reviewed epidemiological evidence of causal relationships with a view to determining ways of preventing home accidents and promoting interest in future studies.

WHO provided a consultant, six temporary advisers and the cost of attendance of eighteen participants from Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Sweden, United Kingdom and Yugoslavia.

EURO 0347 Courses on Air Pollution and Water Pollution, Paris (21-26 Oct. 1968) R

WHO provided six temporary advisers and the cost of attendance of eight fellows coming from Bulgaria, Greece, Italy, Luxembourg, Romania, Spain, Switzerland and Turkey.

EURO 0350 Epidemiological Studies (1966 - ) R

To study and report on specific aspects of mortality and morbidity of particular interest to the Region, starting with a study among cases of stomach cancer. If appropriate, the findings will be presented to the annual sessions of the Regional Committee for Europe. Also, to co-ordinate and assist limited inter-country studies on relevant epidemiological subjects.
EURO 0383 Study of the Treatment and Disposal of Radioactive Wastes (1967 - ) R (IAEA)

To study the public health aspects of the treatment and disposal of municipal wastes into which radioactive material is discharged. A representative of IAEA is participating in the study.

EURO 0386 Post-graduate Training in Maternal and Child Health (1968 - ) R

To provide fellowships for attendance at internationally assisted courses on the preventive and social aspects of maternal and child health, complementing those given under EURO 0299.

EURO 0391 Conference on the Planning of Mental Health Services, Madrid (1-5 April 1968) R

The conference considered the findings of studies on mental health services and statistics of mental illness, and the various recommendations of WHO expert committees and consultants concerning the standardized collection of mental health data. Discussion focused on the importance of flexible planning of mental health services to meet current and future needs.

WHO provided a consultant, seven temporary advisers, and the cost of attendance of thirty-seven participants from Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, Turkey, Union of Soviet Socialist Republics, United Kingdom and Yugoslavia.

EURO 0664 European Standards for Drinking-water (1968 - ) R

To make an expert critical appraisal of the situation arising out of the appearance of new pollutants in rivers and the development of new methods of sewage and water treatment. This work will be followed up by a review of the European Standards for Drinking-water.

EURO 0772 International School of Advanced Nursing Education (in French), Lyons (1962 - 1967) R

The school was set up in Lyons in 1965 in order to prepare nurses from European and other countries for leading positions in specialized branches of nursing and for nursing education and administration.

WHO provided a consultant for four months and nineteen temporary advisers (including thirteen lecturers) who helped to establish teaching and administrative services. Twelve fellowships for a total of 142 months were awarded to trainees from Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Greece, Hungary, Italy, Luxembourg, Malta, Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland, Turkey, Union of Soviet Socialist Republics, United Kingdom and Yugoslavia.

EURO 1793 Study of Cardiovascular Diseases (1960 - 1967) R

WHO organized ten meetings to promote comparative studies on the prevalence of ischaemic heart disease in European countries. A total of 110 participants came from Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Greece, Hungary, Ireland, Italy, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Sweden, Switzerland, Turkey, Union of Soviet Socialist Republics, United Kingdom, United States of America, and Yugoslavia. There were also twelve observers.

WHO provided two consultants, a total of thirty-five temporary advisers and the cost of attendance of participants. In addition, twenty-four fellowships for the study of cardiovascular diseases, for periods of from three weeks to thirteen months, were awarded to trainees from Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, France, Hungary, Italy, Netherlands, Poland, Romania and Sweden.

This project led to the establishment of the regional cardiovascular diseases programme (see projects EURO 5000 to EURO 5040 below).

EURO 1797 Course on Coronary Care (in Russian), Moscow (8 - 19 Oct. 1968) R

The purpose of the course was to train specialized staff in methods of treatment of acute myocardial infarction in coronary care units, and in the organization of such units. WHO provided twelve fellowships to trainees from Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Union of Soviet Socialist Republics and Yugoslavia.

EURO 2032 Conference on the Quality Control of Pharmaceutical Preparations, Helsinki (25 - 29 Nov. 1968) R

The purpose of the conference was to discuss, as a follow-up to the European Technical Meeting on Quality Control of Pharmaceutical Preparations held in Warsaw in 1961 (EURO 203), the organization and functioning of services for controlling drugs, particularly as regards manufacturing practices and the enforcement of regulations and their co-ordination at the international level.

There were thirty-four participants from Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Hungary, Ireland, Italy, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, Union of Soviet Socialist Republics, United Kingdom and Yugoslavia.

WHO provided a consultant, ten temporary advisers and the cost of attendance of three participants.
EURO 2133  Studies on Chronic Rheumatoid Arthritis  
(1966 - ) R  
Following the Technical Conference on the Public Health Aspects of Chronic Rheumatoid Arthritis and Related Diseases held in 1963, to give further support to and ensure the co-ordination of prevalence studies, using accepted methodology, and to enable suitable physicians to gain sufficient knowledge of epidemiology so that they can start studies in this field in their respective countries.

EURO 2161  Courses on Epidemiology and Vital and Health Statistics (in English), London  
Three courses—one on biometrics and epidemiology, one on medical statistics and epidemiology and one on vital and health statistics—were organized in collaboration with the London School of Hygiene and Tropical Medicine to give physicians and health statisticians training in the application of statistical methods to public health and to epidemiological and clinical studies.

WHO provided (i) for the course on biometrics and epidemiology (8 January - 26 April 1968)—a fellowship for a trainee from Czechoslovakia and (under other projects) fellowships for six trainees from Bulgaria, Czechoslovakia, Federal Republic of Germany, Greece and Poland; (ii) for the course on medical statistics and epidemiology (30 September 1968 - 28 March 1969)—fellowships for trainees from Czechoslovakia, Denmark, Greece, Hungary, Poland and Yugoslavia (under other projects); and (iii) for the course on vital and health statistics (30 September - 31 December 1968)—fellowships for three trainees from Czechoslovakia, Denmark and Sweden, as well as fellowships for two trainees from Greece and Japan (under other projects).

EURO 2162  Course on the Application of Statistical Methods to Problems of Health (in French), Brussels  
(5 Feb. - 31 May 1968) R  
The course was organized in collaboration with the Free University of Brussels to give physicians and health statisticians training in the application of statistical methods to public health and to epidemiological and clinical studies.

WHO provided a fellowship for a trainee from Czechoslovakia, and (under other projects) fellowships to trainees from the Federal Republic of Germany, France, Poland, Romania, Spain and Switzerland.

A course, in Russian, similar to that described above. WHO provided five lecturers, nine fellowships to trainees from Bulgaria, Poland, Romania and the Union of Soviet Socialist Republics, and one fellowship (under another project), to a trainee from Bulgaria.

EURO 2222  Training of Teachers in Cancer Cytology  
(1967 - 1968) R  
WHO provided nine four-month fellowships to specialists from Belgium, Spain, Turkey and Yugoslavia to enable them to acquire, in outstanding European laboratories, a high standard of knowledge of cancer cytology with a view to their teaching this specialty in their respective countries in order to relieve the shortage of staff trained in these techniques for the early diagnosis of some types of cancer.

EURO 2592  Course on the Medical and Social Aspects of the Care of the Elderly (in Russian), Kiev  
(22 May - 18 June 1968) R  
This course, which was a continuation of the courses in French, English and Russian started in 1964, provided medical personnel already concerned with the care of the aged advanced training in scientific aspects of gerontology and the medical, social and clinical problems of the care of the elderly, through lectures, discussions and visits.

WHO provided three lecturers and awarded eight fellowships to trainees from Bulgaria, Hungary, Poland, Union of Soviet Socialist Republics and Yugoslavia.

This seminar, which followed the Conference on the Application of Automatic Data Processing Systems in Health Administration held in Copenhagen in 1964 (EURO 0309) and the Symposium on the Use of Electronic Computers in Health Statistics and Medical Research held in Stockholm in 1966 (EURO 0341), was based on a study, in selected operational projects, of the applications of electronic computers for medical records systems and linkage, data processing in health centres, and call-up systems in connexion, for example, with vaccination programmes, blood transfusion services and cervical cytology screening.

WHO provided a consultant, twelve temporary advisers, and the cost of attendance of twenty-two senior public health administrators and teachers from Austria, Belgium, Bulgaria, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Hungary, Ireland, Italy, Netherlands, Norway, Romania, Spain, Sweden, Switzerland, Union of Soviet Socialist Republics, United Kingdom and Yugoslavia.

EURO 3262  Course on the Physical Therapy of Children (in Russian), Konstancin (Poland)  
(2-21 Sept. 1968) R (International Children's Centre)  
A course, similar to the course in French held in Nancy in 1966 (EURO 3261), to give specialized training in the rehabilitation of children to doctors with at least two years' experience in that field. Training in rehabilitation of victims of poliomyelitis, cerebro-motor impairment or orthopaedic conditions was given on the basis of the experience gained in the Konstancin Rehabilitation Centre.

WHO provided three lecturers, and fellowships for fifteen trainees from Bulgaria, Hungary, Romania, Union of Soviet Socialist Republics, and Yugoslavia.

EURO 3361  Training of Sanitary Engineers (in Russian)  
(1966 - ) R  
To assist the annual post-graduate course in sanitary engineering in Poland.

EURO 3362  Training of Sanitary Engineers (in French)  
(1967 - ) R  
To assist in the development of an academic course for sanitary engineers and provide training for teaching staff.

EURO 5000  Evaluation of the Progress of the Regional Cardiovascular Diseases Programme (1968 - ) R  
To evaluate, by means of consultant services and ad hoc meetings, the progress of work on cardiovascular diseases and to suggest changes in the programme in the light of new advances in the field of cardiology.
EURO 5010 Establishment of Ischaemic Heart Disease Registers (1968 - ) R
To prepare a registration system suitable for the notification and surveillance of ischaemic heart disease in the population of a selected area (or possibly in a group of workers) with a view to obtaining accurate and comparable data on a number of aspects of the disease. When methods have been worked out, model registers, which can serve also for training purposes, will be set up in certain areas.

EURO 5011 Comparative Studies on the Prevalence and Incidence of Ischaemic Heart Disease and Hypertension (1968 - ) R
To follow up previous prevalence surveys, stimulate activities and achieve a better knowledge of the etiology and prevention of ischaemic heart disease.

EURO 5012 Study on Medical Certification of Causes of Death (1968 - ) R International Agency for Research on Cancer
To study the evidence on which the diagnosis of the cause of death is based, and the way in which it is interpreted in different European countries. Special emphasis will be placed on the diagnosis of ischaemic heart disease, but attention will also be paid to cancer of the gastro-intestinal tract. This project is a follow-up to the study of the accuracy and comparability of statistics on causes of death made as part of the health statistical studies project EURO 0215 started in 1962.

EURO 5013 Training in Epidemiological Methods in Cardiovascular Diseases (1968 - ) R
To provide facilities for training doctors in epidemiological methods applicable to cardiovascular diseases in view of the shortage, in some countries of the Region, of medical personnel trained in this field.

EURO 5020 Study on the Evaluation of Coronary Care (1968 - ) R
To assess the value and cost to the community of coronary care services by estimating the frequency of cardiac emergencies requiring such services in defined areas, assessing the cost and staffing needs, and evaluating reports on the reduction of mortality.

EURO 5021 Training in Coronary Care (1968 - ) R
To provide for the individual training of doctors and para-medical personnel in intensive coronary care and its organization in selected units; and for the participation of lecturers in national courses on coronary care.

EURO 5030 Study of the Effects of Rehabilitation in Patients with Cardiovascular Diseases (1968 - ) R
To carry out controlled co-ordinated studies of the effects of rehabilitation in cardiovascular disease patients, beginning with convalescence from acute disease (or with the patient's first consultation) and covering possible influence of rehabilitation on prevention of later incapacity and factors causing relapse or affecting length of life.

EURO 5031 Development of Training Centres for the Rehabilitation of Patients with Cardiovascular Diseases (1968 - ) R
To organize courses in a few research centres to enable doctors, nurses and technical staff to study the problems connected with the rehabilitation of cardiovascular disease patients.

EURO 5032 Training in the Rehabilitation of Patients with Cardiovascular Diseases (1968 - ) R
To provide for training in the rehabilitation of patients with cardiovascular diseases.

EURO 5040 Evaluation of Health Education in Cardiovascular Diseases (1968 - ) R
To assess the impact of advice and recommendations by physicians, scientific bodies and governmental agencies aimed at preventing various cardiovascular diseases.
EASTERN MEDITERRANEAN REGION

Cyprus 0011 Rural Health Services (Feb. - March 1968) R
WHO provided a consultant who made a review of the rural health services and submitted recommendations for their development.

Cyprus 0020 Hospital Planning and Administration (Jan. 1968) R
WHO provided a consultant to advise on the expansion of hospital facilities in Nicosia.

Cyprus 0023 Pharmaceutical Quality Control (1967 -1970) R
To establish a laboratory for the quality control of pharmaceutical preparations, chemicals and specialties and for identification of dependence-producing drugs, and to train staff in modern analytical techniques.

Cyprus 0200 Fellowships R: Clinical instructors' course (six months), geriatric nursing (six months), health visiting (ten months), laboratory techniques (two for eleven months), maxillofacial surgery (three months), mental ward administration (two for three months), neurosurgery anaesthesia (two for three months), neurosurgery nursing (twelve months), neurosurgery theatre work (six months), occupational therapy (two for twelve months), ophthalmic nursing (twelve months), orthoptics (twelve months), parenteral solution preparation (six months), physical therapy (six months), psychological medicine (six months), undergraduate medical studies (seven for twelve months), X-ray engineering (eight months).

Cyprus 0201 Fellowships UNDP/TA: Undergraduate medical studies (four for twelve months).

Ethiopia 0003 Advisory Services in Vital and Health Statistics (Sept. 1952 -1970) UNDP/TA
To strengthen the health statistical unit in the Ministry of Public Health, improve the collection, compilation and publication of vital and health statistical data and train statistical personnel of various categories at central and provincial levels.

Ethiopia 0006 Tuberculosis Control (March 1959 -1972) UNDP/TA UNICEF
To test effective and practical methods of tuberculosis control in the Addis Ababa and Asmara centres and in the mobile units operating in a pilot area, with a view to extending them to the whole country. (See page 123.)

To train health personnel to staff the expanding health services, particularly in rural areas.

Ethiopia 0017 Medical Education (Dec. 1964 -1970) R
To develop the medical faculty at the Haile Selassie I University in Addis Ababa.

Ethiopia 0024 Advisory Services in Epidemiology (Oct. 1966 -1970) UNDP/TA
To plan, develop and operate epidemiological services at all levels of the health services.

To provide technical supervision and guidance to the health personnel working in rural health centres, develop the provincial health services, and set up a department of health services in the Ministry of Public Health.

Ethiopia 0032 Community Water Supply (Nov. 1967 -1970) UNDP/TA
To investigate, design and supervise the construction of community water supplies in the small towns of Ethiopia, starting in Tigre Province.

Ethiopia 0036 Environmental Health Services (March 1967 -1972) R
To plan and administer a national environmental health programme.

Ethiopia 0037 Health Planning (Feb. 1968 - 1970) UNDP/TA
To plan national health services and co-ordinate health programmes as a part of the national five-year development plan.

Ethiopia 0039 Malaria Eradication Training Centre (March 1959 - ) R MESA
To train technical staff for the malaria eradication programme.

Ethiopia 0040 Malaria Eradication Programme (1967 - ) R MESA (AID)
To eradicate malaria from the whole country by stages. The eradication programme follows the pre-eradication programme carried out with WHO assistance from 1962 to 1966.

To achieve smallpox eradication and establish active surveillance and maintenance systems.

Ethiopia 0200 Fellowships R: Bacteriology (twelve months), biochemistry (twelve months), communicable diseases (nine months), general medicine and paediatrics (twelve months), laboratory techniques (twelve months), otorhinolaryngology (twelve months), pharmaceutical analysis (twelve months), preventive medicine and public health (twelve months), undergraduate medical studies (three for twelve months), undergraduate nursing studies (three for twelve months).

French Territory of the Afars and the Issas 0001 Tuberculosis Control (Oct. 1968 -1969) UNDP/TA
To develop a comprehensive tuberculosis programme integrated in the general health services and to train personnel.
Iran 0001  Malaria Eradication Programme  
(1957 -1970) R MESA UNICEF  
To eradicate malaria progressively throughout the country by residual spraying and other measures.

Iran 0007  Nutrition Institute  
To carry out field surveys in order to ascertain the nature and incidence of the main nutritional diseases and deficiencies, especially in mothers and children living in rural and over-populated areas; to improve nutrition in various population groups by planning and implementing measures that include the assessment of the nutritional value of indigenous foodstuffs, the promotion of food production and distribution, the training in nutrition of medical, nursing and other professional staff, and the carrying out of nutrition education in hospitals, general health centres and maternal and child health centres.

Iran 0029  Cancer Control (Sept. 1967 - 1970) R  
To develop the programme of the Research Department of the Teheran Cancer Institute.

Iran 0038  Schistosomiasis Control  
The aim was to carry out field studies on the epidemiology of schistosomiasis and on its prevention, to train staff, and to plan a control programme integrated as far as possible into the programme for economic development. WHO provided two epidemiologists (one for two years and one for ten months), a malacologist for more than four years, six short-term consultants, three twelve-month fellowships, and supplies and equipment.

Following a preliminary survey by two WHO consultants in 1958, operations began in 1959 in the Khuzistan area, where an irrigation project is being implemented. In 1959 an epidemiological survey was made to determine the distribution of the disease. A programme of malacological studies carried out between 1960 and 1966 included such aspects as snail distribution and transmission studies. In addition, experimental chemical control of snails, which included fourteen field trials of molluscicides, was carried out, and the effects of various control methods were assessed. In this project the WHO advisers worked in close co-operation with the staff of the Institute of Parasitology, Tropical Medicine and Hygiene, Teheran.

During the pre-control investigation and pilot control operations, a methodology was developed which could be successfully applied to prevent the spread of and control schistosomiasis in Khuzistan. The project has accomplished a noticeable reduction in the total infected cases from between 25,000 and 30,000 in 1955 to less than 8000 at present.

Iran 0043  Post-graduate Education in Public Health  
(Oct. 1964 -1972) R  
To develop post-graduate training in public health and allied fields at the School of Public Health, University of Teheran.

Iran 0047  Rehabilitation and Training in Physical Therapy  
(April 1968) R  
WHO provided a consultant who advised on the implementation and evaluation of the medical rehabilitation programmes of the Ministry of Health.

Assistance was previously provided under this project between January 1965 and March 1967.  

1 See Off. Rec. Wild Hlth Org., 164, 139.

Iran 0049  High Institute of Nursing, Teheran  
(June 1967 -1972) UNDP/TA  
To develop basic nursing education at university level.

Iran 0052  Post-basic Nursing Education (Nov. 1963 - 1970) R  
To strengthen nursing services through post-basic nursing education to prepare teachers, supervisors and administrators for leading posts in nursing.

Iran 0053  Laboratory for Pharmaceutical Quality Control  
(Aug. 1966 -1971) UNDP/TA  
To organize, direct and operate a laboratory for the quality control of pharmaceutical preparations, chemicals, drugs and specialties, either locally manufactured or imported, and to review recent legislation governing the trade.

Iran 0059  Medical Faculty, Isfahan (March 1966 - 1970) R  
To improve the teaching of undergraduate medical students and to develop the training and research activities of the Isfahan Medical Faculty, particularly in the basic medical sciences.

Iran 0065  Teaching of Sanitary Engineering, Pahlavi University, Shiraz (Oct. 1968 -1970) R  
To provide instruction in sanitary engineering to students of civil engineering at the Pahlavi University, Shiraz.

Iran 0067  Rehabilitation of Drug Addicts  
(Jan. - Dec. 1967) UNDP/TA  
The aims were to organize and develop a comprehensive treatment and rehabilitation service for drug-dependent persons, to train professional personnel in their rehabilitation, and to organize a system of data collection and recording on which to base the continuous evaluation of the results of treatment and rehabilitation.

The project started in September 1965 with assistance from the United Nations Bureau of Technical Assistance, which provided a rehabilitation specialist. In accordance with a recommendation of the United Nations Commission on Narcotic Drugs, responsibility for the specialist was transferred to WHO at the beginning of 1967.

The rehabilitation specialist assisted the Iranian Narcotics Control Administration in the further development of rehabilitation services for drug-dependent persons. The focal point of this activity was the previously established 150-bed special hospital for drug-dependent persons, which provided narcotic withdrawal for about 2500 persons per year. The social work staff of the hospital, which was increased from two to five, was helped to improve the social services provided to the patients and their families, including assistance with problems associated with motivation to remain abstinent, and in job-finding. Owing to limitations in staff, an after-care programme was not possible, though some start in this direction was made late in 1967. Nursing and social welfare students, and members of the Health Corps and Education Corps serving in the villages, received special training in the dangers of drug dependence and in the operation of the treatment and rehabilitation programme. Doctors practising in the provinces were given short periods of training at the hospital.

Since only a small proportion of the drug-dependent persons in the country were being served, at the request of the Government recommendations were put forward for substantial extension of the treatment and rehabilitation programme to additional areas and the inclusion of intensive after-care services.
At the end of 1967, the direction of the project was taken over by the rehabilitation specialist's counterpart, on his return from study abroad on a WHO fellowship.

**Iran 0068 Faculty of Dentistry, Teheran University**  
(Feb. 1968) R

Who provided a consultant for one week who discussed the dental education programme with the Deans of the three Iranian dental schools (Teheran, Meshed and Shemiran) and made recommendations for the development of the School of Dental Hygienists of the University of Teheran.

**Iran 0070 Pre-investment Study on Sewerage and Sewage Disposal, Teheran**  
(Sept. - Oct. 1968) R

Consultant services were provided to assist in revising the original request of the Government to the United Nations Development Programme (Special Fund component), so as to take account of storm drainage and industrial wastes.

**Iran 0076 Radiation Protection**  
(Nov. - Dec. 1968) R

Who provided a consultant who assisted in drafting legislation on radiation protection and in formulating detailed technical and administrative instructions regarding the setting-up of a radiation protection authority.

**Iran 0200 Fellowships: Blood transfusion (two for twelve months), communicable diseases (nine months), food hygiene -laboratory techniques (twelve months), health visiting (ten months), hospital administration (four months), leprosy control (one for three and a half months, one for six months), maternal and child health (twelve months), maternal and child health, including family planning (two for three months), medical records (nine months), medical-surgical nursing (twelve months), nursing (four for twelve months), organization and methods of job classification of medical personnel (two months), paediatric education (twelve months), public health (twelve months), rehabilitation of drug addicts (two for two weeks), sanitary engineering (twelve months), schistosomiasis (three and a half months).

**Iraq 0011 Malaria Eradication Programme**  
(1957 - ) R MESA UNICEF

To eradicate malaria from the whole country, as an extension of the malaria control programme with which WHO has assisted since 1952.

**Iraq 0015 Schistosomiasis Control**  
(July - Sept. 1968) R

Who provided a consultant to follow up the progress of the project since completion of WHO assistance in 1966. He made a general evaluation, with special reference to the molluscidiciding methods in use, and submitted recommendations with regard to administration, epidemiology and malacology, and treatment.

**Iraq 0033 College of Medicine, Baghdad**  
(1958 - 1969) R

To develop the Department of Social and Preventive Medicine of the College of Medicine, Baghdad, with a view to expanding teaching and research in the subject.

**Iraq 0035 Training of Health Personnel**  
(Jan. 1960 - 1969) UNDP/TA

To train sanitarians for the health services.

**Iraq 0037 College of Nursing, Baghdad**  
(March 1962 - 1973) R

To prepare nurses for leading posts in nursing services administration and in nursing education.

**Iraq 0042 Advisory Services in Epidemiology**  
(Jan. 1964 - Dec. 1968) UNDP/TA

To plan, develop and operate epidemiological services at all levels of the health services.

**Iraq 0043 Cancer Control (1968 - 1970) R**

To develop a cancer control programme in the country and, as a first step, to establish a new cancer institute in Baghdad.

**Iraq 0046 Water Supplies**  
(Nov. 1968 - ) R

To improve waterworks operation and maintenance and develop a programme of community water supplies.

This project was previously assisted by WHO between 1963 and 1965.

**Iraq 0049 Rural Health Advisory Services**  
(Feb. 1964 - 1970) UNDP/TA UNICEF

To plan and develop rural health services and use them for field training of professional and auxiliary health personnel.

**Iraq 0054 Community Water Supply**  
(May 1968 - 1972) UNDP/TA

To design community water supplies, particularly for towns and villages in the valley of the Euphrates; to construct piped water supplies in the rural areas, and to train staff in their operation.

**Iraq 0062 Sewerage Planning and Management**  
(Oct. - Dec. 1968) R

A consultant was provided to advise the Government on the operation of waste water disposal plants and on the setting-up of a sewerage organization.

**Iraq 0200 Fellowships: Antisera and antivenin production (one month), applied parasitology and entomology (nine months), bacteriology (twelve months), blood banks (one for six weeks, one for twelve months), child health (twelve months), clinical pathology (two for twelve months), communicable diseases (nine months), diphtheria/pertussis/tetanus vaccine production (six months), enteric bacteriology (six months), enterovirus isolation (six months), hospital administration (two weeks), laboratory animal care (two months), medical librarianship (one for two weeks, one for one month), mental health and psychiatry (two weeks), nursing (two for twelve months), nutrition (two weeks), pathology (three and a half months), public health (one for three months, four for twelve months), sanitary engineering (twelve months), smallpox vaccine production (three months), tropical public health (twelve months), virus disease diagnosis (six months), virus diseases—serological tests (twelve months).

**Israel 0007 Nursing Education**  
(Feb. 1965 - 1970) R

To study and evaluate nursing needs and resources in order to plan nursing education programmes.

**Israel 0025 Medical Education**  
(1964 - 1970) R

To develop teaching and research at the Hadassah Medical School and related institutions.
Israel 0026 Hospital Planning and Administration (Jan. - April 1968) UNDP/TA
A WHO consultant advised on laundry services in hospitals and on the problems connected with detergents, fabrics and equipment. He also visited some commercial plants which carry out hospital laundry work on a contract basis.

WHO provided a consultant for one month in 1965 and again in 1968 to help assess the importance of air pollutants in certain areas, plan a programme of investigation and research and train staff. In 1968 the consultant assisted in a study of the effect of a new thermal power station on the atmosphere in the Tel-Aviv area, made recommendations on regulations to control air pollution caused by motor transport and on the control of air pollution from a cement factory, and advised on the siting of an oil tank near Eilat and on air pollution problems at the Mediterranean end of the pipe-line. Some supplies and equipment were also provided.

Israel 0041 Industrial Water Use and Conservation (Oct. 1966 - 1968) UNDP/TA
WHO provided a consultant from October to December 1966 and again in January and February 1968 to advise on the disposal of liquid industrial wastes so as to prevent pollution of natural waters and on the conservation of water used in industry. In addition, a three-month fellowship in waste disposal was awarded.

To plan and organize a national survey on refuse disposal.

Israel 0200 Fellowships R: Anaesthesiology (two months), bacteriological techniques (five months), geriatrics (nine months), hospital design (two months), neurological and developmental status of the newborn (three and a half months), Salmonella and Escherichia phage-typing (ten weeks), standardization of antibiotics and vitamins (two months), undergraduate veterinary medical studies (twelve months), venereal diseases and treponematoses (four months).

Jordan 0002 Nursing Education, Amman (March 1965 - 1972) UNDP/TA
To strengthen nursing education through the expansion and extension of the programme of the College of Nursing, Amman.

Jordan 0006 Malaria Eradication Programme (June 1958 - 1969) R UNDP/TA (AID)
To eradicate malaria from the whole country and prevent its re-establishment.

To establish hospital dietary services in urban and rural hospitals and conduct training programmes for the hospital dietitians; to formulate suitable diets based on local foods and food habits, and co-ordinate the work of the governmental and non-governmental organizations concerned with institutional and hospital feeding in Jordan.

Jordan 0023 Vaccine Production (Nov. 1959 - 1970) R UNICEF
To develop the production of diphtheria and tetanus vaccines, and to train technical personnel.

Jordan 0028 Rehabilitation Services (May 1967 - 1970) R
To develop the rehabilitation centre and to plan and develop training programmes for physical therapists.

Jordan 0030 Virology Laboratory (1968 - 1970) R
To develop a virology diagnostic section in the central public health laboratory, Amman.

To advise the Municipality of Amman on the operation and maintenance of the water and sewage works. Assistance with water supply and sewage disposal was previously provided (under project Jordan 0027) between 1962 and 1964 and again between 1965 and 1967.

Jordan 0036 Cancer Control (1968 - 1969) R
To set up a new cytopathology unit at the laboratories of the Cancer Control Division, Ministry of Health.

Jordan 0040 Radiotherapy, Radiology Department, Amman (1968 - 1970) UNDP/TA
To reorganize the radiotherapy unit of the Radiology Department in Amman.

Jordan 0200 Fellowships R: Bone surgery (three months), communicable diseases (six weeks), forensic medicine and toxicology (twelve months), mental nursing (three months), microbiology (twelve months), neurology (twelve months), paediatric nursing administration and education (twelve months), paediatrics (two for twelve months), pertussis vaccine production (six months), pharmaceutical and medical equipment departments—observation visits (three months), pharmaceuticals (twelve months), premature infant care (three months), prosthethics (two for sixteen months, one for eighteen months), public health (nine months), tropical medicine (twelve months), undergraduate nursing studies (two for twelve months), X-ray techniques (two for two months).

Kuwait 0011 Air Pollution Survey (June - July 1968) Funds-in-trust
A WHO consultant advised the Government on the setting-up of an air pollution unit and on the staff and apparatus required. Particular attention was paid to organizing the unit to enable it to carry out surveys of pollutants such as pol lens and dust, as well as sulfur dioxide. Some specialized equipment was also provided.
Previous assistance in air pollution studies was provided (under this project) in 1965.

To investigate the possibilities of establishing a medical school in Kuwait.

Kuwait 0200 Fellowships R: Allergy (twelve months), food analysis (twelve months), haematology (two for twelve months), lung function tests (six months), medical laboratory technology (twelve months), nursing services administration (twelve months).

Kuwait 0204 Fellowships Funds-in-trust: Haematology (twelve months).
To organize in Halba a model district unit of rural health services, to be used as a demonstration and training centre for health personnel of other rural health units. This is a follow-up of a project that was carried out in Saida in 1957 and 1958, and in north Lebanon from 1960 to 1962.

To provide for the further development of nursing education and services.

To develop an occupational health programme.

To develop physical therapy services at the rehabilitation centre at Ouzai, Beirut.

To develop pharmaceutical services and to organize a pharmacy department in the Ministry of Public Health. Project Lebanon 0036 (Management of Pharmacy and Medical Stores) has been combined with this project.

To improve the radiotherapy department of the cancer institute and provide radiation protection services for patients and persons occupationally exposed to ionizing radiation.

Fellowships R: Exfoliative cytology (twelve months), health education (twelve months), hospital administration (twelve months), international health relations (two weeks), ophthalmology (two for twelve months), sanitary engineering (twelve months).

To develop a nursing education programme adapted to local needs and resources in order to provide professional nurses and assistants for the country's expanding health services.

To train some selected groups of health auxiliaries and paramedical personnel for hospitals and health centres, particularly in rural areas.

To strengthen nursing services in Libya through the establishment in Benghazi of a nursing school which will prepare nurses to meet the needs of the country.

To eradicate malaria from the whole country. This follows the pre-eradication survey carried out (under the same project number) from June 1958 to September 1959.

To train auxiliary maternal and child health personnel to staff maternal and child health and basic health centres in rural areas.

To establish, in the Ministry of Health, a nutrition unit that will evaluate nutrition conditions in the country and prepare a nutrition programme; to set up a nutrition laboratory, and to train medical, health and nursing personnel in nutrition.

To improve and expand maternal and child health services as an integral part of the general health services; to give health education to mothers and children; to increase the efficiency of all maternal and child health workers; and to strengthen and co-ordinate the organization, administration and operation of all services related to the care of mothers and children.

To set up a tuberculosis centre in Benghazi to train staff and demonstrate tuberculosis control techniques and to serve as the centre of operations for a pilot area project; to plan a national control programme on the basis of the results of the pilot area project.

To plan and develop schistosomiasis control measures and train personnel.

To assess the health problems in the country and establish priorities for dealing with them; to appraise the efficiency of the health services in meeting the health needs of the population and to draw up guidelines for their future development; to determine the facilities needed in the health services for planning and evaluation and for co-ordination with the overall planning for the economic and social development of the country; and to prepare plans for national health programmes.

To advise the Ministry of Housing on the environmental health aspects of metropolitan and town planning and housing.
Libya 0029 Consultative Group on Medical Education
(Feb.-March 1968) Funds-in-trust
Three consultants were provided to assist in investigating the possibility of establishing a medical school in Libya. Further assistance is planned for 1970.

Libya 0030 Environmental Health Services
(Feb. 1968 - beyond 1970) Funds-in-trust
To develop a national environmental health programme and environmental health services, including water and sewage laboratories in the Ministry of Health and in the three provinces.

Libya 0200 Fellowships R: Administration of medical institutions (two months), bacteriology (twelve months), hospital administration (six months), laboratory techniques (two for twelve months), maternal and child health and nutrition (nine months), midwifery (twelve months), nursing (twelve months), nursing education (twelve months), paediatrics (two for twelve months), pharmaceutical stores (four weeks), physical therapy (twelve months), statistics (twelve months), surgical nursing (four for twelve months), undergraduate medical studies (one for nine months, ten for twelve months), X-ray techniques (twelve months).

Libya 0204 Fellowships Funds-in-trust: Undergraduate medical studies (twelve months).

Pakistan 0011 Institute of Hygiene and Preventive Medicine, Lahore (1967 - 1970) R UNDP/TA
To reorganize the teaching programme and administration of the Institute of Hygiene and Preventive Medicine and establish a department of health education.

Pakistan 0033 Epidemiological Services, East Pakistan (Oct. 1961 - 1971) UNDP/TA
To develop epidemiological and bacteriological departments in the Public Health Institute, Dacca, East Pakistan.

To reorganize the post-graduate sanitary engineering course at the University of Engineering and Technology, Lahore.

Pakistan 0036 Malaria Eradication Programme (1961 - 1975) R MESA (AID)
To eradicate malaria from the whole country, by stages. The eradication programme follows a pre-eradication survey carried out with assistance from WHO in 1959 and 1960.

Pakistan 0037 Medical Education, East Pakistan (1967 - 1970) R
To develop a department of social and preventive medicine at the Dacca Medical College, East Pakistan, for teaching, research and demonstration purposes.

Pakistan 0038 Nutrition Institute, Islamabad (1967 - 1970) R
To reorganize the Nutrition Institute and review the nutrition programme.

Pakistan 0039 Leprosy Control (Nov. 1961 - 1970) R
To control leprosy, which is endemic in both East and West Pakistan.

Pakistan 0041 Smallpox Eradication (1967 - 1970) R
To carry out a smallpox eradication programme and develop an effective surveillance system in East and West Pakistan; also to develop the production of freeze-dried smallpox vaccine at the Institute of Public Health, Dacca.

Pakistan 0048 National Health Laboratories, Islamabad (Nov. 1964 - 1972) R
To establish national health laboratories in Islamabad, with a view to centralizing laboratory research for both West and East Pakistan.

Pakistan 0049 Malaria Eradication Training Centres (Nov. 1960 - 1970) R MESA
To train in malaria eradication techniques technical staff of all levels for the national malaria eradication service.

Pakistan 0050 Tuberculosis Control (Jan. 1953 - beyond 1970) UNDP/TA UNICEF
To implement and develop a national tuberculosis programme fully integrated into the basic health services and covering the whole country.

Pakistan 0054 Community Water Supply and Rural Sanitation, West Pakistan (Nov. 1964 - 1970) R UNICEF
To develop the organization and management of community water supply programmes and study their technical, legal and financial aspects; and to improve rural sanitation.

Pakistan 0055 Environmental Health Services (March 1967 - 1968) R UNICEF
The aim was to establish, in the Ministry of Health, a department of environmental health for planning and administering a programme in this field. WHO provided a sanitary engineer and supplies and equipment.

Together with a consultant from headquarters, the sanitary engineer helped with an evaluation of UNICEF-assisted rural water supply schemes in West Pakistan. He also assisted in making a preliminary survey of the problems caused by bad drainage in the Karachi area and in setting up an experimental oxidation pond in Islamabad.

Pakistan 0057 Hospital and Health Centre Statistics (Jan. 1967 - 1970) UNDP/TA
To develop model procedures for providing information on the curative and preventive work of hospitals and health centres; to carry out special studies on the registration of vital events and on staffing problems; to set up a training centre for medical records officers; and ultimately to establish a system of national hospital and health centre statistics.

Pakistan 0061 School of Tropical Medicine and Hygiene, Dacca (Dec. 1966 - 1970) R
To develop post-graduate training and research at the School of Tropical Medicine and Hygiene in Dacca.

Pakistan 0070 Freeze-dried BCG Vaccine Production Laboratory (1967 - 1970) R
To start the production of freeze-dried BCG vaccine for the tuberculosis control programme.
Pakistan 0071  Pharmaceutical Quality Control  
(1967 - 1972) R
To develop services for the quality control of pharmaceutical preparations, both locally manufactured and imported, through the establishment of a central laboratory and the training of staff in modern techniques of drug testing and analysis.

Pakistan 0072  Post-graduate Dental Education  
(Jan.- Feb. 1968) R
WHO provided a consultant for two weeks. He studied the extent and character of the dental services in Pakistan and advised on the establishment of a course in dental public health.

Pakistan 0200  Fellowships R:  
- Anaesthesiology (six months), blood transfusion (twelve months), bone and soft tissue tumours (two weeks), cardiology (three weeks), clinical cytopathology (twelve months), electrotherapy (six months), health institutions—observation visits (one week), human genetics (one month), hydrotherapy (six months), laboratories—observation visits (two weeks), neurosurgery (twelve months), ophthalmology (twelve months), pharmaceutical quality control (six weeks), public health (twelve months), public health administration (one week), waterworks management (six months), X-ray techniques (two months).

Qatar 0001  Environmental Health  
To study environmental health problems and to plan and carry out measures for their solution.

Qatar 0200  Fellowships R:  
- Food control and inspection (six months), health statistics (twelve months), laboratory techniques (twelve months), undergraduate nursing studies (twelve months), X-ray techniques (three for twelve months).

Saudi Arabia 0004  Malaria Pre-eradication Programme  
(1962 - ) R MESA
To build up the technical, administrative and operational facilities for a full-scale malaria eradication programme, and at the same time to develop the rural health services, so that they may provide efficient collaboration in the eradication programme. The programme follows the pre-eradication survey carried out with the assistance of WHO from July 1959 to March 1962.

Saudi Arabia 0007  Public Health Laboratory Services  
To develop the national public health laboratory in Riyadh.

Saudi Arabia 0013  Tuberculosis Control  
To test, through the tuberculosis centre in Riyadh and the mobile units, practical and effective methods of case-finding, and of treatment and follow up of tuberculosis patients, to be extended later to the whole country; to develop the immunization programme; and to train personnel.

Saudi Arabia 0023  Public Health Advisory Services  
(July 1967 - July 1968) UNDP/TA
The aim was to improve the administration of the public health services and the planning, co-ordination, evaluation and follow-up of health programmes. WHO provided a public health and planning adviser and some medical literature.

The health services at central and provincial levels were further developed and strengthened and their co-ordination was im-proved. Special attention was given to the organization, within the health services, of statistical services, starting with the establishment of proper procedures for the reporting of diseases. The duties of medical officers working in health centres and villages, and those of provincial health officers, were formulated and incorporated in a special booklet which sets forth the duties of medical and nursing staff and which in addition serves as a guide for the collection of health statistics.

Saudi Arabia 0029  Basic Public Health and Medical Care Services  
To improve provincial and community health services in the Eastern Province; and to develop the 250-bed base hospital in Dammam so that it can provide specialized clinical services for the area and serve as a staff training centre.

Saudi Arabia 0030  Smallpox Eradication  
(1968 - beyond 1970) R
To carry out a smallpox eradication campaign covering the whole population and develop a surveillance and maintenance system.

Saudi Arabia 0035  Training of Medical and Health Personnel  
(Feb. 1964 - Feb. 1968) Funds-in-trust
The aim was to set standards for the education and training of health personnel and define the technical responsibility of each category; to carry out manpower surveys of health personnel and determine short-term and long-term needs; and to develop education facilities for professional health personnel, particularly with a view to the establishment of the country's first medical school. WHO provided a medical officer for the duration of the project.

The medical officer assisted in making a survey of priority needs for health personnel and of resources locally available for meeting them. He also helped to plan the fellowships programme, to review the curricula for training medical and health personnel and the standards for admission to training, to establish institutes for the training of health auxiliaries in the Eastern Province, and to explore the possibilities of coordinating the work of the project with that carried out under the basic health services project Saudi Arabia 0029. The counterpart to the WHO medical officer was awarded a fellowship for public health studies in 1968.

The project has had an influence on the recent establishment, in the Ministry of Public Health, of a Directorate-General for Education and Training. Further assessment will be needed to determine the contribution it has made to the country's health manpower resources.

Saudi Arabia 0038  Sanitary Engineering and Municipal Programming  
To develop the municipal environmental health programmes, especially as regards water supplies, disposal of sewage and other wastes, housing and town planning; and to organize, in the Ministry of Interior, an environmental health service to undertake the programme.

Saudi Arabia 0200  Fellowships R:  
- Administration of red crescent centres (three months), bacteriology (twelve months), cholera laboratory work (two for two months), gynecology and obstetrics (eighteen months), laboratory techniques (five for six months), public health (one for two months, one for twelve months), statistics (eleven months), toxicology (twelve months), tropical medicine and hygiene (six months), tuberculosis laboratory techniques (six months), undergraduate dentistry studies (twelve months), undergraduate medical studies (two
for twelve months), undergraduate nursing studies (one for six months, one for twelve months), undergraduate pharmacy studies (twelve months), X-ray techniques (twelve months).

Somalia 0002 Malaria Pre-eradication Programme
(May 1962 - 1970) R MESA UNDP/TA

To build up the technical, administrative and operational facilities for a full-scale malaria eradication programme and at the same time to develop the rural health services, so that they may provide efficient collaboration in the eradication programme. This programme follows the pilot project and pre-eradication survey carried out with the assistance of WHO from 1955 to 1962.

Somalia 0008 Health Training Institute, Mogadishu
(Jan. 1959 -1972) R UNICEF

To train various categories of health auxiliary personnel, including medical assistants, assistant sanitarins and assistant public health nurse/midwives; and to provide in-service training and refresher courses.

Somalia 0011 Tuberculosis Control
(March 1960 - 1972) R UNDP/TA UNICEF

To test, in certain areas, simple, practical and effective methods of tuberculosis treatment and prevention, including BCG vaccination and sputum examination; and to study the possibility of extending these methods to the whole country and integrating them into the work of basic health centres. The project is operated from the tuberculosis centre at Mogadishu, which is also used for training.

Somalia 0013 Basic Health Services
(March 1962 - 1970) R UNICEF

To set up a rural demonstration and training area which will provide practical training for the students of the WHO-assisted project Somalia 0008 (Health Training Institute, Mogadishu) and experience in the development of an integrated public health service in a rural area.

Somalia 0015 Nursing Education, Hargeisa (Sept. 1961 - 1972) R

To strengthen the nursing services by improving the nursing education programme.


To plan and implement a smallpox eradication programme and establish a surveillance system.

Somalia 0020 Organization of Medical Care
(May 1962 - 1969) R

To improve the medical care services, particularly as regards surgery and anaesthesiology; and to provide clinical training facilities for health personnel, especially student nurses.

Somalia 0025 Public Health Laboratory Services
(1966 - 1971) R

To develop sound technical methods for laboratory investigation and to provide training facilities, including in-service training for all grades of technical staff.

Somalia 0033 Water Control and Management, Shebelli River
(July - Sept. 1968) UNDP/SF (FAO)

Two WHO consultants (an epidemiologist and a sanitary) were provided to help in assessing the health risks associated with a project, assisted by the Special Fund component of the United Nations Development Programme with FAO as executing agency, for large-scale irrigation in the Shebelli River valley, where malaria, schistosomiasis, ancylostomiasis and ascariasis are known to be present. The consultants also advised on the provision of community water supplies for the area.

Somalia 0034 Yellow Fever Serological Survey
(June - July 1968) R

A WHO consultant was provided for three weeks to undertake an epidemiological/serological survey of yellow fever in the Juba area, into which there are extensive movements of population from southern Ethiopia.

Somalia 0200 Fellowships R: Clinical cardiology (twelve months), hospital administration (six months), laboratory techniques (twelve months), nursing (three for twelve months), public health administration (eleven months), sanitation (twelve months), tuberculosis nursing and health education (one for nine months, one for twelve months), undergraduate medical studies (twenty-one for twelve months), undergraduate pharmacy studies (one for ten months, five for twelve months), X-ray techniques (twelve months).

Somalia 0201 Fellowships UNDP/TA: Undergraduate medical studies (one for ten months, three for twelve months).

Southern Yemen 0007 Public Health Advisory Services

To strengthen the administration of the health services and develop health programmes.

Southern Yemen 0008 Malaria Pre-eradication Programme
(1968 - ) R MESA

To co-ordinate the development of the malaria service and the rural health services, so as to prepare the country for undertaking a nation-wide malaria eradication programme in due course.

Southern Yemen 0200 Fellowships R: Hospital administration (two for twelve months), laboratory techniques (twelve months), undergraduate medical studies (one for ten months, ten for twelve months), undergraduate nursing studies (five for twelve months), X-ray techniques (two for twelve months).

Sudan 0006 Malaria Pre-eradication Programme
(June 1963 - ) R MESA

To build up the technical, administrative and operational facilities for a full-scale malaria eradication programme and at the same time to stimulate the development of the rural health services, so that they may provide efficient collaboration in the eradication programme. The programme follows the pre-eradication survey carried out with the assistance of WHO from January 1961 to December 1962.

Sudan 0007 Nursing Education, Khartoum (July - Sept. 1968) R

A nursing consultant was provided to take part in a review of the progress of this project, which was assisted by WHO between October 1955 and June 1966, and to advise on future developments.

Sudan 0015 Communicable Eye Disease Control

To test the effectiveness of the control methods used in a pilot treatment programme for communicable eye diseases in urban and rural communities.
To establish a nutrition division in the Ministry of Health, carry out nutrition surveys throughout the country and train personnel.

Sudan 0026 Onchocerciasis Control (March 1963 - 1970) R
To carry out a survey of onchocerciasis infection in the main section of the Nile north of Khartoum and in Bahr-el-Ghazal and Equatoria Provinces, so as to determine the reasons for the prevalence of the infection, in particular the relationship between the disease in man and the breeding places of the insect vector; to develop a programme for the control and prevention of onchocerciasis and train personnel.

To improve the curricula for sanitary engineering subjects for students of civil engineering at the University of Khartoum.

Sudan 0028 Smallpox Eradication (1967 - beyond 1970) R
To carry out a smallpox eradication programme and organize and intensify the surveillance system. The eradication programme follows smallpox control work assisted by WHO, under the same project number, since 1962.

To develop, in Khartoum Hospital, radiation and isotopes services for the treatment of cancer patients. (See page 124.)

Sudan 0032 Malaria Eradication Training Centre (May 1963 - ) R MESA
To train staff for the malaria eradication service.

Sudan 0034 Pharmaceutical Quality Control (1968) R
Supplies and equipment were provided for the laboratory for the quality control of pharmaceutical preparations.

Sudan 0036 Environmental Health (Jan. 1965 - beyond 1970) R
To plan and administer a national environmental health programme.

Sudan 0038 Vital and Health Statistics Advisory Services (Jan. 1965 - Dec. 1968) R
To strengthen vital and health statistics at the Ministry of Health, develop a vital and health statistical system in the country and train personnel of various levels.

Sudan 0039 Teaching of Paediatrics (Jan. 1966 - beyond 1970) R UNICEF
To establish a department of paediatrics in the Faculty of Medicine, Khartoum University, to carry out teaching and research.

Sudan 0045 Community Water Supply in Rural Areas (Oct. 1968 - 1970) R
To develop the national community water supply programme.

Sudan 0046 Training of Waterworks Personnel (May 1966 - March 1968) R UNDP/TA
WHO provided three consultants—a chemical engineer, a water engineer and a mechanical engineer—each for six months, from October 1966, December 1966 and October 1967 to assist in training waterworks personnel, particularly those in the subprofessional grades. Advice was given on the types of courses required, their organization and the subjects to be covered. During the period of WHO assistance a full series of courses was held which provided training to graduates of the Khartoum Training Institute who were to become instructors, to health inspectors, and to foremen and operators in various districts. The consultant provided in 1967 helped to evaluate the courses and submitted suggestions for their improvement; he also advised on problems encountered in the operation of waterworks schemes in urban and rural areas. In December 1967 a national seminar was held on various aspects of water supplies and of the training of waterworks personnel.

Sudan 0050 Mycetoma Survey (Nov. 1968 - 1970) R
To define the extent of the mycosis problem, teach diagnostic techniques and stimulate the interest of medical and health officers in case-finding, diagnosis, treatment and control.

Sudan 0200 Fellowships R: BCG vaccination (two for two months), child health (six months), haematology (twelve months), laboratory techniques (eleven months), medical mycology (two for three months), nutrition (twelve months), psychiatry (three for twelve months), public health (four for twelve months), relapsing fever (two months), vital and health statistics (two for six months), water, sewage and effluents examination (six months), X-ray techniques (two months).

Sudan 0201 Fellowships UNDP/TA: Public health (two for twelve months).

Syria 0002 Malaria Eradication Programme (March 1956 -1972) R MESA UNDP/TA
To eradicate malaria from the whole country and prevent its re-establishment.

Syria 0004 Schistosomiasis Control (Sept. 1964 - 1970) R
To assess the situation as regards the prevalence and control of schistosomiasis, especially in the Kamichlie area; to devise new methods for controlling the intermediate hosts; to improve health education, environmental sanitation and the treatment of schistosomiasis; and to draw up a programme for training professional and auxiliary personnel.

Syria 0020 Communicable Eye Disease Control (1966 - 1970) R
To carry out a study of the epidemiology of trachoma and related eye infections and develop effective technical and administrative methods for their control; to train personnel, and to set up adequate services within the existing pattern of public health services for maintaining the control programme on a permanent basis and extending it.

To develop the services of the public health and endemic diseases laboratory, and particularly the food microbiology section.

Syria 0037 Nursing Education, Damascus (Nov. 1960 - 1970) R
To set up a national school of nursing that will provide the country with better-qualified nurses and thus contribute to raising the standard of nursing education and nursing services.

Syria 0039 Training of Sanitarians (July 1962 - 1969) UNDP/TA
To train sanitarians for service in the Ministry of Health and Public Assistance.
Syria 0047 Medical School, Aleppo
(July 1966 - 1972) UNDP/TA
To establish a medical school in Aleppo and raise the standard of medical education and research in the country.

Syria 0057 Parasitic Diseases Survey
(May - June 1968) UNDP/SF
A WHO consultant was provided to help in investigating the health hazards associated with malaria and other parasitic diseases in the Ghab area, where the United Nations Development Programme (Special Fund component) is assisting an integrated agricultural development programme for which FAO is executing agency. The consultant also advised on public health and environmental sanitation aspects of the project, including the improvement of drinking-water quality.

Syria 0200 Fellowships R: Anaesthesiology (twelve months), anatomy (twelve months), bacteriology (twelve months), biochemistry (twelve months), cardiology (twelve months), endemic diseases (twelve months), infectious diseases (nine months), internal medicine (twelve months), maternal and child health (one month), medical librarianship (seven months), nursing education—observation visits (three weeks), pathology (twelve months), public health laboratory services (twelve months), skin diseases (twelve months), tropical diseases (seven months), vector control (six months).

Tunisia 0017 Malaria Eradication Programme
(1966 - 1972) R MESA UNDP/TA
To eradicate malaria from the country and prevent its re-establishment.

Tunisia 0018 Environmental Health Services
(May 1962 - 1970) UNDP/TA UNICEF
To develop a national programme of environmental health and train personnel for the purpose.

Tunisia 0027 Medical Education (Jan. 1961 - 1972) R
To develop the medical school (the first in the country) that has been established in Tunis with WHO assistance.

Tunisia 0029 Medical Rehabilitation
(Feb. 1961 - ) UNDP/TA.
To set up a medical rehabilitation programme for the physically handicapped and train medical and paramedical personnel.

Tunisia 0033 Training Centre for the Repair and Maintenance of Medical Equipment (Jan. 1963 - 1970) R
To train personnel in the repair and maintenance of medical apparatus. (See page 124.)

Tunisia 0034 Nursing Education
(Nov. 1965 - 1972) R UNDP/TA
To organize courses to prepare qualified nurses for administrative posts in nursing services. This project has been amalgamated with project Tunisia 0031 for the training of nursing personnel.

Tunisia 0037 Vital and Health Statistics
(Sept. 1968 - 1970) UNDP/TA
To develop a system of vital and health statistics through the establishment of a permanent statistical service in the Ministry of Public Health and the training of national staff in health statistics techniques.

Tunisia 0200 Fellowships R: Anaesthesiology (twelve months), arbovirus isolation techniques (five months), biochemistry (two months), electronic engineering (twelve months), immunology (twelve months), medical biology (twelve months), nursing (three for twelve months), nursing education (one week), ophthalmology (ten and a half months), pharmacological techniques (twelve and a half months), pneumo-phthisiology (two for twelve months), smallpox vaccine production (three months).

Tunisia 0201 Fellowships UNDP/TA: Bacterio-immunology (ten months), gynaecology (twelve months), stomatology and oncology (twelve months).

United Arab Republic 0023 Malaria Eradication Programme
(Oct. 1965 - ) R MESA
To eradicate malaria from the country and prevent its re-establishment.

United Arab Republic 0038 Sanitary Engineering Research
(Oct. 1958 - 1968) UNDP/TA
WHO provided a consultant for approximately seven months in 1958 and 1959 and another for two months in 1962 and six weeks in 1964 to assist in organizing a sanitary engineering research centre in the University of Alexandria, to advise on a research programme and to assist in strengthening teaching in the subject. In addition, special research equipment and medical literature were provided and three fellowships awarded.

United Arab Republic 0049 Schistosomiasis Control Pilot Project and Training Centre
To test measures for controlling schistosomiasis, so as to find those cheapest and most effective under conditions in the United Arab Republic. The project serves as a field demonstration and training centre for the Region.

United Arab Republic 0050 Nursing Education, Cairo
(Aug. 1961 - 1972) UNDP/TA
To strengthen nursing services through basic and post-basic nursing education; and to develop a model educational plan for nursing personnel and model nursing services in hospitals and health centres.

United Arab Republic 0058 Physical Therapy Department, Poliomyelitis Institute, Cairo
(Feb. 1968 - beyond 1970) R
To set up a physical therapy department in the Poliomyelitis Institute, Cairo.

United Arab Republic 0060 Higher Institute of Nursing, Cairo University
(Sept. 1965 - 1972) R
To develop a four-year degree programme in basic nursing, so as to prepare nurses for leading posts in nursing education, administration and services.

United Arab Republic 0063 Virus Vaccine Production Centre
(1966 - beyond 1970) R
To set up a vaccine production centre for poliomyelitis, measles and other virus vaccines.

United Arab Republic 0065 Cancer Institute, Cairo
(May 1967 - 1970) R
To improve the Cancer Institute, Cairo University, and develop cancer diagnosis, treatment, control and research activities throughout the country.
Yemen 0003 Public Health Administration  

To develop the public health and medical care services.

Yemen 0008 Health Centre and Training School, Sana'a  
(July 1956 - 1972) UNDP/TA UNICEF  

To establish a health centre and training school in Sana'a in order to provide training for auxiliary health personnel (including assistant sanitarians, assistant nurses and laboratory assistants); to demonstrate modern practice in the prevention and cure of some diseases and the control of communicable diseases, assist the promotion of health, and facilitate the organization of public health services.

Yemen 0015 Local Health Services, Hodeida and Taiz  
(Nov. 1963 - beyond 1970) R UNICEF  

To organize two health centres—one in Hodeida and one in Taiz—to provide integrated health services to the community, and to train various categories of auxiliary health personnel.

Yemen 0200 Fellowships R: Communicable diseases (six months), hospital administration (six for seven months, three for twelve months), laboratory techniques (three for twelve months), medical assistants' course (twelve months), midwifery (six for twelve months), sanitation (eight for six months), schistosomiasis (two for six months), tropical medicine (twelve months), undergraduate dentistry studies (twelve months), undergraduate medical studies (two for seven months, one for nine months, eight for twelve months, two for thirteen months), undergraduate pharmacy studies (two for twelve months), X-ray techniques (five for twelve months).

Yemen 0201 Fellowships UNDP/TA: Undergraduate medical studies (four for seven months, six for twelve months), undergraduate nursing studies (two for twelve months).

EMRO 0007 Arab States Training Centre for Education in Community Development, Sirs-el-Layyan  

The aim was to integrate training in the health education and public health aspects of community development into the programme of the Centre, which trains community development workers from Arab States. Emphasis was given to the preparation of physicians, nurses, sanitarians, teachers and agricultural and social workers. This was primarily a UNESCO-assisted project, in which WHO collaborated and provided training in health subjects.

The Centre is to be converted into a functional literacy centre, and discussions are therefore being held with the authorities of the Centre and of UNESCO on the extent and scope of further WHO assistance.

EMRO 0043 Advisory Services (1958 - ) R  

To provide countries of the Region with consultant services on subjects for which there is no regional adviser, in cases where it is impracticable to obtain assistance from headquarters staff.

EMRO 0045 Participation in Educational Meetings  
(April 1959 - beyond 1970) R  

To enable countries of the Region to participate in seminars, conferences and training courses organized in other regions and by other agencies.

EMRO 0057 Malaria Co-ordination Meetings (1968 - 1970) R  

To facilitate participation in inter-country malaria co-ordination meetings for discussion and exchange of information between national authorities responsible for malaria eradication programmes.

EMRO 0058 Malaria Eradication Evaluation Team  
(April 1961 - ) R  

To assist in special epidemiological studies of malaria eradication programmes, particularly in problem areas.

EMRO 0061 Training of Laboratory Technicians  
(May 1962 - 1970) R  

To provide advanced training for laboratory technician tutors who will occupy teaching and supervisory posts in their countries of origin. (See page 123.)

EMRO 0062 Training of Medical Radiology Technicians  
(Sept. 1965 - Oct. 1968) UNDP/TA  

The aim was to train instructors in X-ray techniques at courses held at the Radium Institute, Baghdad. WHO provided a radiologist and a technical officer, and twelve fellowships to enable students from countries other than Iraq to attend the courses.

During the period of WHO assistance two two-year courses for training medical radiology technicians were held, each course consisting of one year of lectures and demonstrations at the Institute, followed by a year’s practical training in a hospital. The first course was attended by twenty-five students (nineteen from Iraq, and two each from Jordan, Pakistan and Sudan), who graduated in September 1967. The second course had twenty-six students (twenty from Iraq, one each from Libya and Southern Yemen, and two each from Ethiopia and Syria), who graduated in October 1968. Two students were given special training in radiotherapeutic techniques and four received advanced training in specialized radiodiagnostic techniques at the Teheran Cancer Institute. A short course on radiation protection was given for all graduates of the two-year courses, and for qualified radiation workers in Baghdad.

EMRO 0079 Advanced Training for Sanitarians  
(1966 - 1970) UNDP/TA  

To provide advanced training in sanitation and supervision of sanitation services, and training for experienced national sanitarians from selected countries.
EMRO 0084 Medical Education (Jan. 1965 - 1972) R

To assist countries in the Region in developing undergraduate and post-graduate medical education, and in establishing new medical facilities.

EMRO 0088 Smallpox Eradication (1966 - beyond 1970) R

To assist countries of the Region in the planning, implementation and assessment of their smallpox eradication programmes, and to assist national laboratories in developing diagnostic methodology and in improving the production of freeze-dried smallpox vaccine.

EMRO 0090 Course on Cancer Control (Cytopathology) (April 1964 - 1969) R

To organize at the Cancer Institute, Teheran, regional courses in cytopathology for the early detection of cancer.

EMRO 0109 Evaluation of Training of Auxiliaries (Sept.- Dec. 1968) R

A WHO consultant was provided to assist with the evaluation of projects Ethiopia 0009 (Public Health College and Training Centre, Gondar), Libya 0007 (Health Training Institute, Benghazi), Saudi Arabia 0035 (Training of medical and health personnel) and Somalia 0008 (Health Training Institute, Mogadishu).

EMRO 0113 Seminar on the Health Needs of the Pre-school Child, Karachi (26 Feb.- 2 March 1968) R

The seminar was attended by twenty-five public health administrators and paediatricians from Ethiopia, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Pakistan, Somalia, Sudan, Syria, Thailand, United Arab Republic and Yemen, by representatives from FAO, UNICEF and UNRWA, and by observers from several countries and organizations. The health problems and needs of children of pre-school age, including their nutritional and mental health aspects, were discussed and a number of recommendations were made.

WHO provided a consultant, four temporary advisers, the cost of attendance of the participants, and supplies.

EMRO 0115 Course on Measurement and Evaluation Techniques in Health Education, Teheran (4-30 Nov. 1968) UNDP/TA

The course, which was held at the School of Public Health, Teheran, was attended by twenty-three senior health educators from Ethiopia, India, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Nepal, Pakistan, Sudan, Syria, Thailand, United Arab Republic and Yemen. They were given training in measurement and evaluation techniques in health education, particularly health education undertaken as part of basic health services. In addition to the course, two seminars were conducted on educational and social studies, at which were reviewed the latest developments in social and educational research that are relevant to health education work.

WHO provided the cost of attendance of the participants and books for the course.

EMRO 0119 Water Pollution Control (Jan. 1968 - 1970) R

To study the increasing pollution of natural waters resulting from the discharge into them of water-borne sewage and industrial effluents.

EMRO 0134 Short Course on the Collection and Disposal of Solid Wastes, Damascus (20-30 May 1968) R

The aim was to provide for municipal engineers directly responsible for the planning, operation and management of solid wastes disposal services in large cities of the region, an opportunity to discuss the problems related to the methods of collection and disposal of solid wastes of domestic, commercial and industrial origin. Twenty-eight lectures were delivered, covering the most important aspects of the collection and disposal of solid wastes, including sanitary landfill and composting, and the participants had the opportunity to view the collection methods and disposal procedures used in Damascus.

WHO provided two consultants, the cost of attendance of nineteen participants from Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Pakistan, Saudi Arabia, Somalia, Sudan, Syria and the United Arab Republic, and some supplies and equipment.

EMRO 0145 Seminar on Health Services in Rural Areas, Tunis (7-16 Oct. 1968) R

The purposes of the seminar were to consider problems of rural health services and to draw up guidelines for their development. A general review of health services in rural areas of countries of the Region and adjacent participating countries was followed by discussion on programme content of health services in rural areas; the training of staff and their use for health services in rural areas; the organization, administration and financing of health services; and guidelines for national policies in the development of health services in rural areas.

There were twenty-six participants from Afghanistan, Algeria, Cyprus, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Pakistan, Somalia, Southern Yemen, Sudan, Syria, Tunisia, Turkey, United Arab Republic and Yemen.

WHO provided a consultant for five weeks, two temporary advisers, each for twelve days, and the cost of attendance of the participants.


To assist in the training of personnel in virological techniques, with special emphasis on diagnosis.


To investigate problems of rodent infestation, to propose control measures and to train municipal, port and quarantine officers responsible for rodent control in the principles and practice of rodent control operations.

EMRO 0168 Meeting of the Interim Organizing Committee on the Establishment of an Association of Medical Schools in the Middle East, Alexandria (24 - 26 June 1968) R

WHO provided the cost of participation of the four members of the Committee, whose establishment arose out of the Special Group Meeting on Medical Education (EMRO 0131) held in Baghdad in November 1967. The report of the meeting was discussed and reviewed during the Special Group Meeting on Medical Education (EMRO 0132) held in Khartoum in December 1968.

EMRO 0200 Fellowships R: Cyprus—public health and epidemiology (twelve months), Ethiopia—health planning (ten weeks), Iran—public health and epidemiology (twelve months), Iraq—public health and epidemiology (twelve months), Israel—health planning (two months), Pakistan—public health and epidemiology (twelve months), Sudan—health planning (ten weeks), public health and epidemiology (twelve months), Syria—public health and epidemiology (twelve months), United Arab Republic—health planning (ten weeks).
American Samoa 0200  Fellowships R: Public health dentistry (twelve months).

Australia 0200  Fellowships R: Clinical pathology (one for five weeks, one for twelve months), radiation health physics (eight months), radioisotopes in endocrine assays (three months).

British Solomon Islands Protectorate 0002  Malaria Pre-eradication Programme (Jan. 1965 - ) R UNDP/TA (South Pacific Commission)
To develop the operational, technical and administrative facilities of the malaria and public health services, so that a country-wide malaria eradication programme can be implemented later.
This programme supersedes a malaria eradication pilot project carried out from 1961 to 1964.

British Solomon Islands Protectorate 0003  Nursing Education (Nov. 1959 - Aug. 1968) R UNICEF (South Pacific Commission)
The aim was to develop training programmes to prepare nursing personnel for hospital and health services in the Protectorate. WHO provided a nurse educator and three fellowships.
The project was implemented in two phases. During the first phase, from 1959 to 1966, a basic programme of general nursing for nurses and medical assistants at protectorate registration level was established and developed; it included clinical and public health experience adapted to the conditions in the islands. Beginning in 1959, post-basic, supplementary and refresher courses were held for nursing and midwifery personnel and medical assistants; in 1965 responsibility for such courses was transferred to the rural health services project British Solomon Islands Protectorate 0007. A Nursing and Midwives Board was established, with responsibility for setting standards for nurse training, approving curricula for nursing and midwifery education, setting qualifying examinations and registering qualified personnel. Nursing services in hospitals were improved. During the second phase, 1967-1968, emphasis was placed on the integration of public health into the basic curriculum and the development of field demonstration and practice areas for students.
Forty-three nurses and fifty medical assistants completed the basic nursing course during the period of the project, and seventy-six students were in training when it ended in 1968. A larger enrolment is required to meet future needs for nursing personnel. The development of the training programme has been retarded by financial difficulties and by several other factors, but the recent expansion of hospital and health service facilities should improve the situation as regards practical training.

To expand and strengthen the network of local health services and train auxiliary health personnel.

To eradicate malaria from the country. This follows the malaria pre-eradication programme started in 1962.

Cambodia 0013  Nursing Education and Administration (Nov. 1963 - 1970) R
To survey and evaluate training resources, and prepare short-term and long-term plans for meeting the nursing needs of the health services; to organize and improve nursing services and education programmes throughout the country; and to review nursing legislation, personnel policies, and terms of service.

Cambodia 0019  Environmental Sanitation Training (April 1965 - Feb. 1968) UNDP/TA (Asia Foundation)
To train a cadre of sanitarians for environmental sanitation work in the villages and towns. (See page 129.)

Cambodia 0027  Smallpox Vaccination (Jan. 1968) R
WHO provided freeze-dried vaccine for the country's smallpox vaccination campaign.

Cambodia 0028  Municipal Sanitation (Nov.- Dec. 1967) R
WHO provided a consultant who made a study of sanitation problems in Phnom-Penh and Sihanoukville and submitted recommendations on measures to improve the situation.

Cambodia 0200  Fellowships R: Public health administration (twelve months).

Cambodia 0501  Malaria Pre-eradication Programme and Development of Rural Health Services (July 1962 - ) R UNDP/TA
To build up administrative and operational facilities to the level required for the implementation of a full malaria eradication programme; to complete an epidemiological survey of malaria; and to train national technical staff for the eradication programme.
The pre-eradication programme continues the antimalarial operations with which WHO has been assisting (under project number Cambodia 0001) since October 1950.

Cambodia 0503  Tuberculosis Control (May 1965 - 1970) R UNICEF
To set up the nucleus of a national tuberculosis control service with emphasis on preventive and public health work; and to carry out an effective control programme, so as to reduce, and finally to eliminate, tuberculosis as a major public health problem.

Cambodia 0505  Epidemiology and Health Statistics (March 1966 - 1970) R
To establish in the Ministry of Public Health an epidemiological and health statistical service which will be responsible
for planning and guiding national disease control programmes; to study local epidemiological patterns of prevailing causes of morbidity and mortality as a basis for the formulation of such programmes; to reorganize the health statistics systems in hospitals, health centres, dispensaries and other institutions providing health care; and to train personnel of the health services in epidemiology and health statistics.

Cambodia 0506 Environmental Health Advisory Services
To establish a public health engineering unit in the Ministry of Public Health and co-ordinate its work with the work of other units of the Ministry; and to draw up and implement country-wide environmental health programmes.

Cambodia 0507 Health Laboratory Services Development
(Sept. 1966 - 1970) UNDP/TA
To improve the organization and technical services of the provincial laboratories and to train staff.

Cambodia 0508 Public Health Nursing Advisory Services
(Jan. 1967 - Dec. 1968) UNDP/TA
To organize a system of public health nursing and midwifery administration and services to meet the changing health needs and resources of the country.

Cambodia 0509 Maternal and Child Health Advisory Services
(Oct.- Nov. 1968) R UNICEF
WHO provided a consultant for three weeks to help to evaluate the project, which was assisted by WHO between 1952 and 1960 and again between 1962 and 1966 (under the number Cambodia 0004), and to advise on its future development.

Cambodia 0511 Applied Nutrition
(June 1967 - 1972) R UNICEF (FAO)
To improve nutritional levels in the community; to study the etiology and epidemiology of nutritional diseases and deficiencies affecting the population; to establish patterns for practical nutrition programmes that can be adapted for any part of the country; and to train national staff for their implementation and evaluation.

Cambodia 0512 Smallpox Eradication
(Jan. 1968 - ) Special Account for Smallpox Eradication
To intensify smallpox vaccination and surveillance activities in order to prevent the introduction of the disease from endemic areas.

China 0001 Venereal Disease Control, Taiwan
(Jan.- March 1968) R
WHO provided a consultant to assess the extent of the venereal disease problem, assist in evaluating the venereal disease control programme which started in 1953, and advise on related activities.

China 0020 Mental Health Programme, Taiwan
To establish, as part of the mental health programme, a post-basic training programme for psychiatric social workers, and to review the psychiatric nursing services and the psychiatric nursing content of the nursing education programme.

Assistance with the first phase of this project was provided between October 1955 and December 1964.

China 0027 Institute of Public Health, Taiwan
(Aug. 1958 - 1974) R (China Medical Board)
To strengthen the training at the Institute of Public Health, particularly in epidemiology and public health practice.

China 0034 Trachoma Control, Taiwan
To carry out an island-wide study of the prevalence, distribution and relative gravity of trachoma, and of environmental and other factors influencing the transmission of the disease; to develop a comprehensive control programme based on existing health services with the objective of reducing trachoma to a level at which it will no longer be a major public health problem, and of preventing disabling complications and sequelae.

China 0036 Community Water Supply and Sewerage, Taiwan
To follow up the recommendations made in 1961 by a WHO team of water supply consultants in connexion with the improvement of community water supply and sewerage; to review and amend as necessary national and provincial legislation pertaining to community water supplies; to develop techniques for financing and administering water supply and sewerage programmes, so as to make the programmes self-supporting; to stimulate regional planning of water supply schemes; to initiate training programmes; and to co-ordinate activities relating to community water supply with other sectors of the nation’s economy (industry, agriculture, etc.) which are directly concerned with the use and allocation of water resources.

China 0045 Prevention and Correction of Disabilities of Leprosy Patients, Taiwan
(Nov. 1965 - 1969) R
To establish a training and demonstration pilot project for rehabilitation of leprosy patients, and to prepare a plan for a national leprosy control programme.

China 0046 Communicable Disease Control Centre, Taiwan
(July 1965 - 1971) R
To set up in the Provincial Department of Health an epidemiological service that will include laboratory facilities; to study local epidemiological patterns of prevailing causes of morbidity and mortality, in order to establish a basis for planning specific disease control programmes; and to develop procedures, suited to local conditions, for the investigation, diagnosis, control and prevention of the most prevalent communicable diseases.

China 0049 Physical and Occupational Therapy, Taiwan
(Dec. 1966 - 1972) R
To organize at the National Taiwan University collegiate courses for training physical therapists and occupational therapists to improve professional standards.

China 0052 Virus Laboratory Services, Taiwan
(Sept. 1967 - Dec. 1968) R
To develop the diagnostic services in the virus laboratory of the Communicable Disease Control Centre and to strengthen the services in the local laboratories; to carry out surveys and studies for assessing the prevalence and nature of virus infections, especially among children, in order to provide a basis for the formulation of specific disease control programmes; and to train local personnel in techniques for immunological diagnosis of virus diseases.
China 0055 Nursing Administration, Taiwan

To strengthen the Nursing Division of the Provincial Department of Health and increase its participation in the development of health programmes; to improve nursing organization, administration and supervision; to carry out studies in nursing practice; and, in collaboration with the education authorities, to improve the programmes and the practical training facilities for student nurses.

China 0056 Organization of Medical Care, Taiwan

WHO provided two consultants (in hospital administration and medical care), each for three months, to study the hospital administration system and related needs and to assist in preparing plans for further development.

China 0057 Cheng Hsin Rehabilitation Centre, Taiwan
(Nov. 1968 - 1969) R

To plan rehabilitation services to serve present and future needs; to follow up physical rehabilitation with vocational training, and facilitate the reintegration of the rehabilitated into the community; to promote the co-operation of medical and paramedical personnel in rehabilitation activities; and to train rehabilitation staff in cooperation with the School of Rehabilitation of the National Taiwan University.

China 0058 Industrial Health, Taiwan (June - Dec. 1968) R

WHO provided a consultant to assist in determining the nature and extent of occupational health and industrial hygiene problems and the factors responsible for them, assessing the facilities and resources for their control, reviewing the relevant legislation and regulations, strengthening the occupational health and safety services, and examining problems of air and water pollution caused by industry.

Consultant services were previously provided under this project in 1965-66 and 1967, and further assistance is planned.

China 0059 Course in Sanitary Engineering, Taiwan
(March - May 1968) UNDP/TA

WHO provided a consultant for two months to review the programme of the post-graduate course in sanitary engineering of the School of Engineering of the National Taiwan University, and to assist in strengthening and upgrading the course with respect to curriculum of studies, standards of admission, degree requirements, teaching staff, legal status and facilities for theoretical and laboratory work.

China 0200 Fellowships R: Dental health (two for five months), maternal and child health (six months), nursing (twelve months), occupational health (twelve months).

China 0201 Fellowships UNDP/TA: Industrial waste disposal (twelve months), river water pollution (six months).

Cook Islands 0200 Fellowships R: Assistant medical officers' course (two for twelve months), nursing (two for twelve months).


To improve health education work in the health services and teaching institutions and to develop the health education aspects of training programmes in the school of medicine, the schools of nursing and other institutions.

Fiji 0200 Fellowships R: Medical library administration (twelve months), public health administration (nine months).

French Polynesia 0001 Filariasis Control
(Nov. 1967 - Feb. 1968) R

WHO provided a consultant for three months to assess the long-term results of control of filariasis by chemotherapy and its effect on reducing the infection rate.

French Polynesia 0004 Nutrition and Dental Education
(March - Nov. 1968) R UNICEF

A consultant was provided for eight months to assist in strengthening the nutrition work of the health services, especially the maternal and child health and dental health services. He made studies of food patterns and of socio-cultural and other factors affecting the nutritional state of the population, as well as of nutritional factors affecting dental health, and submitted recommendations on nutrition measures that would help to preserve dental health. He also assisted in nutrition education and training work and in promoting co-ordination among various governmental and non-governmental agencies concerned with nutrition.

Gilbert and Ellice Islands 0004 Nursing Education
(Feb. 1964 - 1971) UNDP/TA UNICEF

To develop training programmes for preparing nursing and midwifery personnel for the hospital and health services.

Gilbert and Ellice Islands 0008 Diarrhoeal Diseases Control
(Nov. 1968 - ) R

To establish a programme for the control of diarrhoeal diseases.

Gilbert and Ellice Islands 0200 Fellowships R: General medicine (eight months).

Hong Kong 0200 Fellowships R: Dental nursing (twelve months), operating theatre nursing techniques in open-heart surgery (one for six months, one for twelve months).

Japan 0023 Medical Rehabilitation

To raise the standard of teaching at the physical and occupational therapy school set up in 1963; to give in-service training to physical and occupational therapy personnel; to train a nucleus of senior physical and occupational therapists, in conformity with internationally accepted standards, for teaching posts in other similar schools to be established in the future; to modify procedures for the admission and classification of patients at rehabilitation centres to enable rehabilitation measures to be undertaken more quickly.

Japan 0025 Mental Health Advisory Services
(Nov. 1967 - Feb. 1968) R

WHO provided a consultant for three months to advise on the strengthening of the community mental health services and on their integration into the general health services, to assist in planning preventive and treatment facilities, particularly for patients who are not in institutions, and to make a general assessment of problems and initiate surveys where required.
Japan 0200 Fellowships R: Cancer prevention (three months), care of the deaf and mute (three months), dependence-producing drug control (three months), food additives control (three months), hospital administration (three months), hospital statistics methodology (four months), medical insurance systems (three months), mental health (three months), noise control (three months), nursing (three months), prosthetic appliances (three months), public health organization (five weeks), smallpox diagnosis, treatment and prevention (three months), virus disease control (six weeks).

Korea 0003 Maternal and Child Health Advisory Services (Feb. 1968 - 1973) R
To develop a national programme to strengthen maternal and child health services throughout the country as part of the general health services and to integrate family planning into the programme; also to train health personnel in maternal and child health.

Korea 0004 Leprosy Control (Nov. 1961 - 1970) UNDP/TA UNICEF
To expand the leprosy control programme.

Korea 0013 Malaria Pre-eradication Programme (Jan. 1962 - ) R
To survey the malaria situation, organize a national malaria service and train staff, so as to enable an eradication programme to be planned and implemented.
This programme follows the pre-eradication survey that began in June 1959.

To strengthen the Department of Training and Surveys of the National Institute of Health (formerly the National Institute for Public Health Training) which trains staff for the local health services.

To develop an effective and comprehensive national tuberculosis control programme, so as to reduce, and finally to eliminate, the disease as a public health problem.

Korea 0021 Nursing Education (Aug. 1968 - ) R
To develop a nursing section in the Ministry of Education; and to formulate and implement short-term and long-term plans for strengthening and developing nursing education.

Korea 0025 Local Health Services, Chungchong Namdo (March 1963 - 1973) R UNICEF
To develop the public health services in the demonstration province (Chungchong Namdo) and the local health services in other provinces; and to train local health personnel at the Division of Training of the National Institute of Health.

Korea 0027 School of Public Health, Seoul National University (Nov. 1967 - Dec. 1968) R
To develop and strengthen the teaching faculty of the School of Public Health, Seoul National University.

Korea 0029 Environmental Health Advisory Services (Aug. 1966 - Jan. 1968) R UNICEF
WHO provided a sanitary engineer to assist in strengthening the sanitation section of the Public Health Bureau and fellowships for training sanitation personnel.

Korea 0033 Epidemiology and Statistics Advisory Services (July 1968 - 1976) R
To organize and develop a central epidemiological service and a disease intelligence network in the Ministry of Health and Social Affairs; to improve the collection, recording and utilization of health statistics; and to co-ordinate health laboratory services with the epidemiological services.

Korea 0034 National Health Planning (Sept.- Dec. 1968) R
WHO provided a consultant to assist the Ministry of Health and Social Affairs in making a general appraisal of the total health manpower resources available, including their deployment and utilization, and the adequacy and needs of all institutions and facilities available for the education and training of health personnel. This follows the visit of a consultant in 1966 and 1967 to help in formulating a national health plan.

Korea 0200 Fellowships R: Drug control programmes (twelve months), health planning (one for two months, one for six months), industrial and occupational health (two months), quarantine services (two for two months), sanitary engineering (twelve months).

Laos 0012 Nursing Education (March 1962 - 1972) UNDP/TA UNICEF (AID (Asia Foundation) (Colombo Plan)
To set up a school of nursing and midwifery for training personnel for the country's hospital and health services, which are to be extended and improved.

Laos 0015 Royal School of Medicine (Nov. 1967 - 1973) R
To strengthen the faculty of the Royal School of Medicine.

To assess the extent of the problem of the physically handicapped; plan and operate rehabilitation facilities and train staff for them, and review legislation dealing with the physically handicapped.

Laos 0021 Health Laboratory Advisory Services (Dec. 1967 - Jan. 1968) R
WHO provided a consultant for one month to assess the organization and work of the medical laboratories and to advise on the steps to be taken to organize a nation-wide programme and to expand the work of the laboratories at central and provincial levels.

To assess health manpower needs and resources for training health personnel, and establish an institute of public health.

To plan and develop the general health services at provincial and district levels, with particular attention to the Province of...
Vientiane which will serve as a pilot area; and to assess the health manpower requirements for the pilot area and plan measures for meeting them.

Laos 0509 Central Public Health Laboratory, Vientiane
To establish a public health laboratory service and train laboratory personnel.

Laos 0512 Vital and Health Statistics Advisory Services
(March 1968 - 1980) R
To establish a vital and health statistics service in the Ministry of Public Health and to train staff.

Laos 0513 Maternal and Child Health Services
To ascertain the principal maternal and child health needs in Laos and set up training programmes; to expand and improve maternal and child health services as an integral part of the general health programme.

Malaysia 0020 Malaria Eradication Programme, West Malaysia
(July 1967 - 1979) R
To eradicate malaria from the country. This follows the malaria pre-eradication programme started in July 1964.

Malaysia 0030 Health Education Advisory Services, West Malaysia
To survey the health education work at national and state levels, in order to evaluate the effectiveness of present methods of health education and recommend improvements.

Malaysia 0032 Nursing Education, West Malaysia
(Aug. 1962 - April 1968) UNDP/TA
The aim was to assess the education programmes for nurses and nursing needs and resources; to develop the programmes and the associated clinical practice fields so as to meet the country's requirements in nursing personnel; and to improve the quality of nursing education by in-service training and refresher and special courses. WHO provided two nurse educators and awarded six fellowships to senior nursing officers and nurse tutors.

A study was made of the nursing and midwifery services in hospitals and an estimate of nursing staff requirements for hospitals and health services for the period 1968-1980 was prepared as part of the overall estimates of Ministry of Health needs for the same period. A revised curriculum for the three schools of nursing, including new courses in obstetrics, psychiatric nursing and public health nursing, was introduced in 1965 and a new programme for the training of assistant nurses was approved in 1967. In 1966 a Midwives Act, calling for the registration of all practising midwives, was drawn up. A one-year post-basic programme for preparing nurse tutors has been organized and a number of in-service training programmes have been arranged, including a two-week course in nursing administration for all hospital matrons and courses in ward administration and new nursing techniques for sisters and staff nurses. Since 1965 annual seminars in nursing education, replacing the former conferences for nurse tutors, have been held.

The nursing care provided to patients has improved both in quality and quantity during the course of the project, and efforts to effect still further improvements are continuing, in particular by the further development of nursing education at all levels and the provision of equipment.

Malaysia 0034 Environmental Health Advisory Services
(Nov. 1965 - April 1968) UNDP/TA
To establish sanitary engineering services in the Ministry of Health, and advisory and supervisory services in the medical and health offices of the states of Malaysia; to carry out environmental health programmes in urban and rural areas; and to train personnel. (See page 128.)

To strengthen and expand the rural health services in East and West Malaysia and to train personnel according to a consolidated plan, which includes phasing of expansion and development of uniform standards throughout the country.

Malaysia 0040 University of Malaya (Sept. 1965 - 1973) R
To strengthen the teaching staff of the Faculty of Medicine of the University of Malaya, particularly in the fields of preventive medicine, public health, nursing and medical recording.

Malaysia 0041 Environmental Health Advisory Services, East Malaysia (Jan. 1966 - 1971) R UNICEF
To improve the general level of community sanitation and personal hygiene in the rural areas of East Malaysia; to develop sanitary facilities suitable for villages and small rural communities, including sanitary latrines and water supply systems; and to train village workers in sanitation techniques, with emphasis on rural water supplies, excreta disposal, vector control and food sanitation.

Malaysia 0042 Malaria Eradication Programme, East Malaysia (Sabah) (July 1961 - 1974) R UNDP/TA UNICEF
To eradicate malaria from Sabah. The eradication programme follows antimalaria operations for which WHO has provided assistance since July 1955.

Malaysia 0043 Malaria Eradication Programme, East Malaysia (Sarawak) (Oct. 1961 - 1974) R UNDP/TA UNICEF
To eradicate malaria from Sarawak. This follows the malaria pilot project started in 1952.

Malaysia 0055 Applied Nutrition
To plan and carry out nutritional surveys in a pilot area where an applied nutrition programme is being launched, develop nutrition education and supplementary feeding programmes, and train the personnel needed for implementing and evaluating the health aspects of the programme.

Malaysia 0065 Mental Health Advisory Services
(April - June 1968) R
WHO provided a consultant for three months to advise on the organization and further development of mental health services and on the training of medical, nursing and other staff for mental health work.
Malaysia 0070 Tuberculosis Control
(Feb. 1968 - 1971) R UNICEF
To develop a practical, comprehensive and integrated tuberculosis control service within the general public health services in all states; to train various categories of personnel for the service; to study the epidemiological patterns of tuberculosis in the country; and to continue field trials in order to find more effective methods, applicable to local conditions, for the public health control of the disease.

Malaysia 0079 Sanitary Sewerage for Greater Kuala Lumpur,
Two consultants, in sanitary engineering and in administration and finance, were provided to review and assess sewerage schemes for Greater Kuala Lumpur and Ipoh.

Malaysia 0200 Fellowships R: West Malaysia—Filaria research and control (three months), leprosy control (two for ten weeks), maternal and child health (twelve months), nursing administration (twelve months), water treatment and related works (six months), X-ray technology (eleven months).

New Hebrides 0004 Tuberculosis Control
(June 1964 - Dec. 1968) UNDP / TA UNICEF
To expand and improve the tuberculosis control service; to carry out a systematic tuberculosis testing and BCG vaccination campaign throughout the Condominium; to treat all cases, mainly at home under supervision; to take measures to protect the healthy; and to co-ordinate the BCG vaccination campaign with other programmes, such as those of vaccination against diphtheria, pertussis and tetanus.

New Zealand 0200 Fellowships R: Air pollution (four months), mental health (five weeks).

Papua and New Guinea 0008 Health Education Advisory Services (May - June 1968) R
WHO provided a consultant for one month to assist the Government to review and to advise on developments in health education training and services and school health education. This follows assistance, provided in 1966, in organizing a health education course.

Papua and New Guinea 0200 Fellowships R: Dental health (four months), environmental sanitation (three months), leprosy control (four months), malaria eradication (four for three weeks, one for one month, one for three months), maternal and child health (three months), medical auxiliary training (six months), mental health (four months), nursing (twelve months), rural health services administration (two for three months).

Philippines 0004 Mental Health Advisory Services
To develop a mental health programme for the whole country.

Philippines 0040 General Health Services
WHO provided a consultant to review the organization, administration and programme of the provincial, municipal and rural health services, including their relationship to specialized health services, and to help with an assessment of the general health services at the provincial and local levels so as to provide information for a project for their development.

Philippines 0049 Leprosy Control
(Feb.- April 1968) R UNICEF
WHO provided a consultant for two months to follow up the visit of a consultant in 1963 and help to make an assessment of the leprosy control programme, particularly as regards its integration into the general health services.

Philippines 0053 Malaria Eradication Programme
(Aug. 1956 - ) R (AID)
To eradicate malaria from the country and prevent its re-establishment.

Philippines 0069 Tuberculosis Control
To examine whether existing plans to control tuberculosis, based on available data, are practical and efficient under local conditions; to examine the practicability, acceptability and economic implications of standardized tuberculosis control methods comprising preventive, diagnostic and curative components; to provide facilities for training of various categories of health personnel and to obtain data on which sound planning of the integration of tuberculosis control activities into general health services could be based.

Philippines 0073 School Health Education
(Oct. 1963 - July 1968) UNDP / TA UNICEF
To carry out a co-ordinated school health education programme, train staff for the programme and promote closer co-operation among the various official and voluntary agencies concerned. (See page 130.)

Philippines 0076 Laboratory Management and Administration
(Nov. 1968 - Feb. 1969) UNDP / TA UNICEF
WHO provided a consultant to review the progress made in the organization and administration of the Bureau of Research and Laboratories, and to submit recommendations on the technical and administrative requirements of the central and regional health laboratories, and on a system for providing consultative and reference services to the laboratories of the local health and medical services.
Consultant services and fellowships were provided under this project between 1962 and 1967.

Philippines 0083 Nursing Education (Jan.- March 1968) R
WHO provided a consultant to assist in the organization and conduct of a national seminar on the evaluation and accreditation of nursing education programmes in the Philippines.

Philippines 0087 Food Sanitation (March 1967 - 1970) R
To improve food sanitation, including food processing, preparation, handling and dispensing.

Philippines 0088 Demonstration and Training Centre
(Dec. 1968) R
WHO provided a consultant for two months to review the local health services in collaboration with the Department of Health, and to prepare a feasibility study for the development of the public health demonstration and training centre project.
Philippines 0093 Cancer Control

WHO provided two consultants who advised the Department of Health on the development of a co-ordinated cancer control programme for the country and on the setting up of a cancer control programme in the eight health regions, beginning with a pilot demonstration project in a province near Manila. They also made recommendations on the staff and resources needed and on training requirements, on the operation of a national tumour registry, and on the use of cytological cancer detection techniques, with particular attention to the detection of cancer of the female genital tract.

Philippines 0095 National Seminar on Urban Health Administration (7-15 Nov. 1968) R

WHO provided consultants in public health administration, occupational health and environmental health for a national seminar which made a review of modern concepts and practices in urban health administration, particularly as regards programme planning, and management and methods employed in public health practice, discussed the problems encountered in administering health services in urban centres, and considered how improvements could be effected.

Philippines 0098 Seminar on Research and Evaluation in Health Education (Feb. - March 1968) R

WHO provided a consultant for one month to assist the Department of Health in organizing a seminar for health personnel who would undertake action-research programmes, including the evaluation of health education activities and efforts. The seminar followed up a seminar on the administration and supervision of health education services (Philippines 0085) organized in 1966.

Philippines 0105 Solid Waste Management for Manila Metropolitan Area (Nov. 1968 - Feb. 1969) R

WHO provided a consultant for three months to advise the Government, in consultation and co-operation with national administrative and technical committees on refuse collection and disposal, on the establishment of a metropolitan district for the management of solid wastes in the Greater Manila area.

Philippines 0111 Master Plan for a Sewerage System for the Manila Metropolitan Area (Dec. 1966 - 1970) UNDP/SF

To prepare a master plan for a sewerage system for the Manila metropolitan area and a phased sewerage-development programme to meet the present and future requirements of the metropolitan population. The work includes the preparation of detailed financial and engineering studies for the first phase of development, which involves the construction of the most urgently needed works.

Philippines 0200 Fellowships R: Hospital administration (twelve months), paediatric nursing (fifteen months), photo-coagulation and cryosurgery in ophthalmic surgery (four months), plaque—laboratory diagnostic techniques (three for two months).

Singapore 0003 Nursing Education (June 1952 - Dec. 1968) UNDP/TA

To improve the standards of nursing education and nursing service.

Singapore 0004 Nursing Administration and Practice (Jan. 1956 - 1969) R UNICEF

To develop programmes to prepare nursing personnel for administrative posts in hospital and public health services and to improve the quality of nursing practice, patient care and clinical teaching.


To evaluate the health education services, and to plan and carry out an expanded programme, particularly in schools, maternal and child health centres, teacher-training centres and institutions, and centres for the training of health and medical workers.

Singapore 0013 Radiation Health Advisory Services (June - Sept. 1968) R

WHO provided a consultant to advise the Radiotherapy Department of the General Hospital on the physical facilities of the radiotherapy service, the training of physicists and technicians engaged in the service, the calibration and maintenance of equipment and the organization of an isotope service.

Singapore 0015 Tuberculosis Control (May 1968 - 1972) R

To conduct field trials on problems involved in case-finding, treatment and prevention of tuberculosis; to study the epidemiological pattern of tuberculosis in the country; to introduce a comprehensive tuberculosis control programme integrated into the general public health programme; and to provide facilities for training various categories of public health workers in tuberculosis control work.


WHO provided a consultant to review the health statistical services and hospital records services and assist in reorganizing them and in training the necessary staff, and to advise the Ministry of Health on various aspects of statistics.


WHO provided a consultant to carry out studies on the etiology and epidemiology of nutritional disorders and their effects on health, recommend measures for implementation through health or other channels, and assist in improving the general food and nutritional situation in the community.

Singapore 0018 Environmental Health Advisory Services (July - Oct. 1968) R

WHO provided a consultant to review the environmental sanitation work and programmes of the Ministry of Health, and to recommend short-term and long-term programmes for the Public Health Engineering Unit, with emphasis on co-ordination between the Ministry of Health and the ministries and agencies having jurisdiction over internationally assisted municipal projects.

Singapore 0200 Fellowships R: Maternal and child health services (six months), public cleansing (twelve months), sewerage systems operation and management (six months).
THE WORK OF WHO, 1968

Tonga 0009 Hospital Administration (Feb. 1968 - 1972) R

To establish a medical records department, with a statistical unit, at the new general hospital in Nuku’alofa and a medical records system that can be extended to all the hospitals in the country; to train medical records personnel; and to improve hospital administration, particularly of the general hospital.

Tonga 0200 Fellowships R: Assistant health inspectors’ course (twelve months), assistant medical officers’ course (two for twelve months), clinical bacteriology and pathology (twelve months), public health administration (twelve months), public health dentistry (six months), public health nursing (two for four months).

Trust Territory of the Pacific Islands 0200 Fellowships R: Public health administration (fifteen months), public health dentistry (two for six months).

Viet-Nam 0007 Tuberculosis Control (Jan. 1958 - 1975) UNDP/TA UNICEF

To set up the nucleus of a national tuberculosis control service, with emphasis on measures to be integrated into general public health services; to complete a national tuberculosis centre in Saigon and to integrate it in the existing facilities; to continue the UNICEF/WHO-assisted BCG vaccination project and integrate it in the national tuberculosis control service.

Viet-Nam 0016 Malaria Pre-eradication Programme (March 1959 - ) R (AID)

To train national staff and make preparations for the implementation of a malaria eradication programme.

Viet-Nam 0018 Health Laboratory Services (Feb. - June 1962; Nov. 1964 - 1973) R

To establish a central health laboratory service and to train health laboratory workers; later, to organize regional and peripheral health laboratory services.

Viet-Nam 0026 Venereal Disease Control (June 1966 - 1972) R

To reduce the incidence of the venereal diseases, demonstrate modern methods of venereal disease control, and strengthen and improve the syphilis serological work carried out in the laboratories.

Viet-Nam 0033 Environmental Health Advisory Services (April 1966 - 1974) R

To strengthen the environmental sanitation service in the Ministry of Health and introduce improvements in public water supply, human excreta disposal, refuse disposal, food hygiene and vector control in urban and rural areas.


To develop and strengthen the service responsible for the quarantinable diseases and train national staff.

Viet-Nam 0041 Food and Drug Control (Dec 1967 - 1970) UNDP/TA

To develop and maintain the work of the national food and drug control laboratories.

Viet-Nam 0042 Orthopaedics and Rehabilitation (Jan. 1968) R

WHO provided a consultant for two weeks to study the problems of rehabilitation of the handicapped and recommend measures to improve the situation.

Western Samoa 0003 Tuberculosis Control (Jan. - April 1968) R UNICEF

A consultant was provided to evaluate the progress of the tuberculosis control programme which was assisted by WHO between 1960 and 1967.

Western Samoa 0007 Filariasis Control (July 1965 - 1970) R UNICEF

To determine, by a pilot project, the best way of controlling filariasis, mainly by drug treatment, in Western Samoa; to prepare a filariasis control programme for the whole country, based on the results of the pilot project; and to train staff in filariasis survey and control techniques.

Western Samoa 0012 Strengthening of Rural Health Services and Training of Health Personnel (Oct. 1967 - 1972) R

To develop and strengthen the organization and operation of the general health services, particularly at district and local levels; to improve the operation of the rural health programme; to organize in-service training for medical and paramedical personnel; to conduct epidemiological studies on the most important causes of morbidity and mortality in the country; and to plan disease control programmes as part of the general health services.


To develop and strengthen the laboratory services.

Western Samoa 0200 Fellowships R: Assistant medical officers’ course (seven for twelve months), nursing (five for twelve months), public health administration (two for six months, one for twelve months).


To provide training in the theory and techniques of malaria eradication for various categories of personnel needed by countries of the Western Pacific Region and other regions.

WPRO 0075 Regional Tuberculosis Advisory Team (July 1961 - 1975) R UNICEF

To assist countries of the Region in assessing their tuberculosis programmes.

WPRO 0079 Advisory Services (1961 - ) R

To meet requests from countries of the Region for advisory services in connexion with the planning of long-term projects or with specific problems. The following assistance was provided to West Malaysia during the period under review:

Filariasis Control. A consultant for three months from May to August 1968 to assist in compiling and analysing data on filariasis, particularly as regards the progress of survey and control work, and in assessing the filariasis control programme;
and to advise on the further development of the programme, including its research aspects.

**Environmental and Chemical Control.** A consultant from August to September 1968 to investigate the problems of fly infestation in the Cameron Highlands and to recommend a control programme incorporating chemical and environmental control measures, with concurrent field evaluation.

**Radiation Protection Legislation.** A consultant for three months from October to December 1968 to assess the extent to which radioactive substances and radiation equipment are used in West Malaysia, the jurisdiction of different agencies in this field, and the availability of specialized personnel, laboratories and monitoring services, and to assist the government in reviewing legislation for radiation protection.

**WPRO 0080 Mekong River Schistosomiasis Survey (Nov. 1968 - July 1969) UNDP/ECAFE Mekong Committee**

Who provided a parasitologist and a malacologist to make a survey in the Prek Thnot area of Laos in order to ascertain whether there are endemic foci of schistosomiasis and whether a snail host exists.

Assistance with surveys in Cambodia and a previous survey in Laos was provided under this project in 1960, 1961 and 1966-1967.


A maternal and child health team, based in Fiji, to conduct in-service and refresher courses for maternal and child health staff, as required, in territories of the South Pacific area. (See page 129.)

**WPRO 0102 Nursing Advisory Services (Dec. 1967 - June 1968) R**

Who provided two nurse consultants who visited certain countries in the Region to advise governments on the implementation and follow-up of field studies of staffing patterns for nursing services.

**WPRO 0125 Tuberculosis Course, Tokyo (6 May - 6 Sept. 1968) R**

The course, which was the third course on tuberculosis held in the Region, was sponsored by the Government of Japan and WHO. Its purpose was to provide assistance in training national workers in the application of modern methods of tuberculosis control. It was also designed to stimulate the provision of practical training and demonstration in national institutions. There were ten participants from China (Taiwan), India, Indonesia, Laos, Malaysia, Philippines, Republic of Korea, and Thailand.

Who provided six lecturers, the cost of attendance of four participants, and reference material.

**WPRO 0135 Environmental Health Advisory Services, South Pacific Area (Oct. 1965 - 1972) UNDP/TA**

To assist countries and territories in the South Pacific area to improve community water supplies and environmental sanitation in general.

**WPRO 0137 Communicable Diseases Advisory Team (Aug. 1967 - 1973) R**

To assist the governments of countries and territories in the Region in assessing the general situation regarding the communicable diseases, in planning epidemiological and laboratory surveys of the most important of them, in planning and organizing control and preventive measures, and in strengthening epidemiological and laboratory services.


To assist countries and territories in the South Pacific area to develop public health nursing services as a part of the general health services.

**WPRO 0141 Seminar on the Prevention and Control of Cardiovascular Diseases due to Infections (particularly Rheumatic Heart Disease), Manila (5-12 Nov. 1968) R**

The purposes of the seminar were to assess the problem of preventable heart diseases in the Region, with particular emphasis on rheumatic heart disease; to review the regional situation with regard to some non-infectious diseases of the heart; to review resources in the Region for the prevention of the above conditions; and to suggest preventive measures appropriate to conditions in the Region. There were sixteen participants from Australia, Brunei, China (Taiwan), Fiji, French Polynesia, Gilbert and Ellice Islands, Japan, Malaysia, Nauru, New Caledonia, New Zealand, Philippines, Republic of Korea, Republic of Viet-Nam, Tonga, and Western Samoa, and observers from the Philippine College of Physicians and the Department of Health.

Who provided four consultants, the cost of attendance of fifteen participants, and the services of two staff members. The participant from Nauru was sponsored by the South Pacific Commission.

**WPRO 0143 Malaria Eradication Independent Assessment Team (Feb. 1967 - ) R**

To make independent appraisals of the status of malaria eradication and of any special aspects of the malaria programmes in the Region.

**WPRO 0145 WHO/South Pacific Commission Joint Seminar on Filariasis, Apia (6-12 Aug. 1968) R**

The purpose of the seminar was to assess the situation as regards filariasis and its control in the South Pacific, with special reference to the pilot project in Western Samoa (see Western Samoa 0007 above).

There were twelve participants from American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Gilbert and Ellice Islands, Nauru, New Hebrides, Tonga and Western Samoa, and observers from American Samoa and the United States Peace Corps. They made recommendations on studies of the bionomics of the vector, on control measures, and on drug treatment.

Who provided a temporary adviser, the cost of attendance of ten participants, and the services of four staff members. The South Pacific Commission provided a consultant, the cost of attendance of two participants, the services of a staff member, and interpretation services.


To assist in improving the level of nutrition in the South Pacific area; to conduct nutrition surveys, and to train personnel at both medium and higher levels.
Environmental Health Advisory Services
(Sept. - Dec. 1968) R

Fiji. A consultant was provided in November and December 1968 to advise on the feasibility of setting up a water and sewerage authority covering either the Suva area or the whole country; on the legal, administrative and financial arrangements to ensure the effectiveness of any such authority and to facilitate the provision of sanitary sewerage for the Suva area, and on the measures to be taken to ensure sound administration of urban water supply and sewerage throughout the country.

Papua and New Guinea. A consultant was provided for six weeks in September and October 1968 to review the training programme for health inspectors and to take part in a conference on their utilization and training.

Lower Mekong Basin Health Survey
(Nov. 1966 - ) UNDP/ECAFE Mekong Committee

To carry out a health survey in the development area of the lower Mekong Basin in co-operation with the Mekong Committee of the Economic Commission for Asia and the Far East. The countries covered by the survey are Cambodia, Laos, Republic of Viet-Nam and Thailand.

Course on National Health Planning, Manila
(2 Sept. - 31 Oct. 1968) R

The course was the first of a planned annual series designed to acquaint national health administrators from countries of the Region with the general principles of national planning for socio-economic development and to familiarize them with the principles and methods of national health planning within the framework of such development planning and as an integral part of health administration. It is intended that these courses, which will be arranged by WHO until 1970, should be taken over as from 1971 by the Institute of Hygiene, University of the Philippines, with assistance from the Organization.

The 1968 course was attended only by WHO representatives and regional office staff. It consisted of lectures and discussions on basic disciplines (economics, demography and statistics, sociology, operational research), general planning (physical, social, economic development) and health planning (historical review, health manpower, national health planning methodology). The subjects were introduced by staff members from the University of the Philippines, one from the Asian Institute for Economic Development and Planning, Bangkok, the Chief of the Training Division, Pan American Programme for Health Planning, Santiago, Chile, and a WHO consultant. An evaluation made by the participants at the end of the course resulted in recommendations that will be taken into account in future courses.

Training of Anaesthetists
(Feb. 1968 - 1970) R

To assist in providing qualified anaesthetists for the health services of developing countries.

Advisory Services on National Health Planning

To advise on the planning and co-ordination of national health programmes as part of development plans.

Advisory Services on Water and Sewerage Programmes
(Jan. 1968 - 1972) R

To assist governments in carrying out studies on water supply and sewerage programmes and on other environmental health activities, and in developing the programmes.

Public Health Advisory Services : Mekong Committee
(Sept. 1968 - Sept. 1969) R

To assist in implementing the general recommendations in the summary report on the health survey in the Lower Mekong Basin adopted by the Committee for the Co-ordination of Investigations of the Lower Mekong Basin; to advise on the health protection of the labour forces engaged in the Committee's projects; to assess the health implications of such projects and make recommendations on measures for disease prevention and on the organization of basic health services in new development areas; to assist the Mekong Committee secretariat in making estimates of the cost of such services for inclusion in the overall cost estimates of construction projects; to study the pattern of environmental factors in relation to health; to make recommendations on measures to prevent the spread of water-borne diseases in the development areas; and to advise the WHO staff who are assisting the governments in the four riparian countries to plan and develop general health services in areas covered by Mekong Committee projects.
INTER-REGIONAL

Inter-regional 0051 Treponematoses Epidemiological Team
(1959 - ) R

To study the nature, extent and significance of treponemal infections by epidemiological serological random surveys in order to provide data for estimating the emphasis needed in continued surveillance activities after mass treponematoses programmes; to study and evaluate the application of diagnostic techniques in treponematoses to populations under risk, in order to obtain information for the selection of practical and specific tests, which in turn can lead to new knowledge on the nature and extent of infection; to undertake epidemiological research for the improvement of methodology and operation systems in multipurpose immunological surveys (e.g., combined with malaria, virus diseases, immunohaematology, etc.), in co-operation with national laboratories and WHO reference centres.

Inter-regional 0052 Schistosomiasis Research Team
(Jan. 1967 - ) R

To carry out investigations on the epidemiology of schistosomiasis, including the clinical aspects, in representative communities. Activities under the project include the training of research workers, the evaluation of assessment methods and techniques and the checking of research information.

Inter-regional 0070 Malaria Eradication: Pool of Advisers
(1961 - ) R MESA

To make provision for malariologists and entomologists who can be assigned at short notice to assist governments in planning and implementing eradication programmes, to advise on particular problems or to replace WHO advisers who are away or on leave.

Inter-regional 0078 Malaria Eradication: Technical Consultants
(1959 - ) R

To provide expert advice on the preparation of malaria eradication programmes, help governments to assess such programmes and advise on special technical problems.

Inter-regional 0079 Malaria Eradication: Training Programmes
(1958 - ) R

To prepare international and national staff of professional and subprofessional categories for advisory, executive, and teaching responsibilities in malaria eradication projects by providing teaching aids, courses of instruction, facilities for field training, and group visits to malaria eradication programmes in operation.

Inter-regional 0081 Study Tours of Malaria Eradication Projects for Advisers (1960 - ) R

To enable malaria advisers to undertake visits to malaria eradication programmes in operation in order to study their organization and functioning; and to assist in training team leaders and advisers in eradication.

Inter-regional 0110 Training Programme for French-speaking Nurses (1964 - ) R

To prepare French-speaking nurses and midwives for administrative and teaching posts in basic and post-basic schools of nursing and midwifery and in nursing services in various countries where the French language is used.

Inter-regional 0112 Malaria Eradication: Team for Field Research on Special Epidemiological Problems (1961 - ) R

To undertake studies on the factors causing persistent transmission of malaria, and carry out field research for the development and demonstration of new techniques to interrupt such transmission.

Inter-regional 0113.1 International Course on the Epidemiology and Control of Tuberculosis, Prague
(17 April - 17 July 1968) R UNDP/TA

One of a series of courses organized in cooperation with the Post-graduate Medical School in Prague to acquaint tuberculosis workers in key positions with modern concepts of controlling the disease within the framework of the general health services and to familiarize them with up-to-date epidemiological methods. There were fifteen trainees—medical officers from Burma, Ceylon, Hungary, Japan, Mexico, Mongolia, Pakistan, Philippines, Singapore, Sudan, Thailand, Turkey, Uganda, United Republic of Zambia, and Zambia. The course, which was given in English, included lectures and practical work in Prague, and training in medical registration and tuberculosis epidemiology at the Danish Tuberculosis Index, Copenhagen. The course was followed by a period of field training— at the WHO-assisted national tuberculosis control programme in Kenya (Kenya 0004) for the trainees from Pakistan, Sudan, Uganda, the United Republic of Zambia, and Zambia, and in India for the others.

WHO provided fellowships for the trainees, lecturers (including WHO staff members) and supplies and equipment.

Inter-regional 0113.2 International Course on the Epidemiology and Control of Tuberculosis, Rome
(15 Feb. - 31 May 1968) R UNDP/TA

One of a series of courses, organized in cooperation with the Carlo Forlanini Institute, Rome, similar to that described under project Inter-regional 0113.1 above, but given in French. There were ten trainees from Argentina, Bulgaria, Democratic Republic of the Congo, Guatemala, Laos, Madagascar, Mali, Republic of Viet-Nam, Rwanda and Senegal. The course consisted of lectures, followed by field training and demonstrations at a pilot centre in the Province of Latina.

WHO provided fellowships for the trainees, lecturers (including WHO staff members) and supplies and equipment.

Inter-regional 0117 Course on Medical Rehabilitation, Copenhagen
(4 Sept. 1967 - 31 May 1968) UNDP/TA

A description of this course was given in the Annual Report for 1967 1.

Inter-regional 0120.1 Anaesthesiology Course, Copenhagen  
(Jan. - Dec. 1968) UNDP/TA

A course, similar to those that have been held yearly since 1956 at the Anaesthesiology Training Centre, Copenhagen, for training medical personnel.

WHO provided fellowships for twenty-three trainees from Bulgaria, China (Taiwan), Hong Kong, Indonesia, Iran, Iraq, Japan, Lebanon, Pakistan, Poland, Republic of Korea, Romania, Ryukyu Islands, Spain, Syria, Thailand, Turkey, United Arab Republic, United Republic of Tanzania, and Yugoslavia. Fellowships for trainees from Iceland and Iraq were provided under other projects.

In addition, extensions of their fellowships, ranging from nine weeks to eleven months, were awarded under this project to trainees from Bulgaria, Iraq, Sudan, Syria and Thailand who had attended the 1967 course at the Centre.

Inter-regional 0137 Course on Human Genetics for Teachers in Medical Schools, Copenhagen  
(3 Sept. - 31 Dec. 1968) UNDP/TA

The aim of the course, which was the fourth in a series, was to stimulate the planning and integration of teaching in human genetics into the medical curriculum. It was given at the Institute of Human Genetics, Copenhagen, in English.

WHO provided fellowships for thirteen trainees from Ceylon, Greece, Hong Kong, Indonesia, Iran, Pakistan, Romania, Singapore, Spain, Uganda and United Arab Republic.

Inter-regional 0140 FAO/WHO Training Centre on Abattoir Management and Operation, Roskilde, Denmark: Fourth Course  
(5 Aug. - 14 Sept. 1968) UNDP/TA (FAO)

The purpose of the course was to enable abattoir managers, veterinary food hygienists, sanitary engineers and sanitarians to study the planning, construction, equipping, management and operation of slaughterhouses, particularly those to serve small communities, and to observe modern techniques of hygienic handling and packing of meat. There were seventeen participants from Afghanistan, Ceylon, China (Taiwan), Ethiopia, Ghana, India, Iran, Iraq, Nepal, Pakistan, Philippines, Republic of Korea, Sudan, Thailand, United Republic of Tanzania, Venezuela and Yugoslavia.

WHO provided the cost of attendance of eight participants and a staff member presented lectures.

Inter-regional 0156 Integrated Public Health  
(March 1962 - ) UNDP/TA

A service of experts to help governments in strengthening and integrating their health services, covering a wide variety of public health activities, including public health administration, maternal and child health, nutrition, epidemiology, statistics, health laboratory services, etc. The experts are available, individually or as a team, for any requesting country, and also provide a complementary service for field projects.

Inter-regional 0172 Field Trials of New Insecticides and Antimalarial Drugs (First Team)  
(1962 - ) R MESA

To carry out field trials of new insecticides and drugs that are of potential value in malaria eradication.

Inter-regional 0190 Leprosy/BCG Trial Team, Burma  
(April 1964 - 1971) R

To carry out a trial to assess the value of BCG vaccination in the prevention of leprosy and obtain information on epidemiology, immunology, bacteriology, therapy and clinical aspects of leprosy.

Inter-regional 0212 Field Trials of New Insecticides and Antimalarial Drugs (Second Team)  
(1962 - ) MESA

To carry out field trials of new insecticides and drugs that are of potential value in malaria eradication.

Inter-regional 0234 Economic Commission for Africa  
(1964 - ) R

WHO is providing a sanitary engineer to assist the Economic Commission for Africa on the environmental health aspects of its economic and social development programmes.

Inter-regional 0239 Advanced Course in Clinical Chemistry, Copenhagen  
(3 April - 19 June 1968) UNDP/TA

The course provided advanced training in chromatography and electrophoresis and the use of these techniques in the different branches of clinical medicine, as well as in quality control in hospital laboratories and the organization of such laboratories. It was held at the Bispebjerg Hospital, Copenhagen and was directed by the head of the Department of Clinical Chemistry of the Hospital. There were sixteen participants (clinical biochemists, clinical chemists and clinical pathologists) from Bulgaria, Ethiopia, Hong Kong, Hungary, Indonesia, Iran, Japan, Kenya, Philippines, Poland, Sudan, Turkey, Uganda, United Arab Republic and Yugoslavia.

WHO provided fellowships for the participants.

Inter-regional 0270 Anopheles Control Research Unit, No. 1, Kaduna, Nigeria  
(1960 - ) R

To carry out hut trials and village-scale field trials of new insecticides of potential value in malaria eradication and perform research on the ecology, biology and control of anopheline mosquitoes.

Inter-regional 0271 Research Unit for the Control of Mosquito Vectors of Filariasis, Rangoon  
(1962 - 1969) R

To carry out research and field trials on the control of mosquitoes, particularly the vectors of filariasis, using organophosphorus and other new insecticides and biological control procedures, and to examine new techniques which are only at an experimental stage.

Inter-regional 0273 Seminar on Psychiatric Diagnosis, Classification and Statistics, Moscow  
(30 Sept. - 7 Oct. 1968) R

The seminar was the fourth of a series of ten annual meetings, the purpose of which is to secure wider international agreement among psychiatrists on psychiatric diagnosis, classification and statistics. The main task of the seminar was to clarify problems related to mental disorders in the aged. Diagnostic exercises were carried out with pre-circulated case histories and recorded interviews of patients by psychiatrists.

The seminar was attended by a permanent group of twelve experts from different countries, together with twelve participants from the Union of Soviet Socialist Republics and other European countries.
Inter-regional 0276 Cholera Control Team
(1964 - ) UNDP/TA

A team, consisting of an epidemiologist, a microbiologist, a clinician, a sanitary engineer and consultants in various specialities, to assist countries in developing and improving their programmes for the control of cholera; to assist, when required, in dealing with cholera epidemics, and advise on epidemiological, laboratory and clinical aspects of control and treatment.

Inter-regional 0285 Course for Clinical Instructors in Physical Therapy, Copenhagen (2 Sept. - 29 Nov. 1968) UNDP/TA

The purpose of the course was to train qualified physical therapists as clinical instructors. It consisted of theoretical instruction in anatomy, physiology, and medical and surgical conditions requiring medical rehabilitation, and of practical work under the supervision of teachers from various departments of physical medicine in Danish hospitals. It was the second course of its kind, the first having been held in 1966.

WHO provided a lecturer and fellowships for nineteen trainees from Bulgaria, Chile, India, Indonesia, Iran, Israel, Japan, Pakistan, Philippines, Poland, Romania, Spain, Turkey, Uganda, United Arab Republic and Yugoslavia.

Inter-regional 0287 Advanced Course in Diagnosis, Treatment and Prevention of Major Cardiovascular Diseases, Copenhagen (1 Nov. 1968 - 15 June 1969) UNDP/TA

The purpose of the course is to train physicians from developing countries in clinical cardiology, including modern diagnostic techniques, and give them basic training in respiratory pathophysiology, epidemiology and the prevention of cardiovascular diseases. The programme includes visits to out-patient clinics, departments of medicine and paediatrics, and cardiopulmonary laboratories.

WHO has provided temporary advisers who will lecture during the course, and fellowships for the nine participants from Argentina, Ethiopia, Greece, India, Iran, Iraq, Italy, Lebanon, Mongolia, Morocco, Pakistan, Spain, Syria, Turkey and United Arab Republic, documentation and conference services, and two temporary advisers and a staff member acted as discussion leaders.

Inter-regional 0289 Course on Child Dental Health, Copenhagen (4 March - 31 May 1968) UNDP/TA

The purpose of the course was to improve the teaching and practice of dentistry for children in developing countries. It was given at the Royal Dental School in Copenhagen and was attended by twelve trainees from Ceylon, China (Taiwan), Colombia, Fiji, Greece, Guatemala, Hungary, Indonesia, Iran, Iraq, Nigeria and United Arab Republic.

WHO provided fellowships for the trainees.

Inter-regional 0306 Aedes Research Unit, Bangkok (1966 - ) Special Account for Medical Research

To carry out research on the ecology and population dynamics of the Aedes vectors of haemorrhagic fever and dengue, particularly A. aegypti and A. albopictus, with the objective of developing effective methods of interrupting transmission of these diseases; also to carry out field trials on the control of A. aegypti, using organophosphorus, carbamate and other insecticides and biological control procedures; and to examine new techniques which are now only at an experimental stage.

Inter-regional 0308 Advisory Team on the Epidemiology of Mental Disorders (1968 - 1970) R

To assist research programmes on epidemiology of mental disorders and on social psychiatry. The main functions of the team are to co-ordinate activities of the field research centres of the international pilot study of schizophrenia and to help to train locally recruited research personnel in the standard application of the research procedure.

Inter-regional 0374 Community Water Supply: Consultant Services (Sept. 1965 - ) UNDP/TA

To advise governments on priority problems in community water supply and sewerage, on project development and financing, and on the establishment of national, regional or local authorities for community water supply; and to assist governments, as required, in the preparation of requests to the United Nations Development Programme (Special Fund component), the World Bank, or other agencies, in connexion with the planning and financing of community water supplies.

Inter-regional 0390 FAO/WHO Seminar on Brucellosis, Pendik, Istanbul (16-27 April 1968) R (FAO)

The purpose of the seminar was to permit consideration of recent advances in the bacteriology, epidemiology, field control and therapy of brucellosis in man and animals.

WHO provided the cost of attendance of twenty participants from Argentina, Ethiopia, Greece, India, Iran, Iraq, Italy, Lebanon, Mongolia, Morocco, Pakistan, Spain, Syria, Turkey and United Arab Republic, documentation and conference services, and two temporary advisers and a staff member acted as discussion leaders.

Inter-regional 0392 Seminar on the Training and Utilization of Dental Personnel in Developing Countries, New Delhi (5-11 Dec. 1967) R

The purpose of the seminar was to review the progress made in implementing the recommendations of various WHO expert committees on the education and training of members of dental health teams and their utilization in developing countries. It was attended by twenty-seven teachers of dentistry and dental public health administrators from four WHO regions.

WHO provided two consultants, the cost of attendance of the participants, and the services of staff members.

Inter-regional 0398 Course on Biological Standardization, Zagreb (30 Sept. - 26 Oct. 1968) R

The course, which was held at the Institute of Immunology in Zagreb, Yugoslavia, provided practical training in techniques of biological assay and other test procedures to be employed for the control of biological products (vaccines and sera) used in medicine. There were seven participants from Hungary, Indonesia, Pakistan, Peru, Union of Soviet Socialist Republics, United Arab Republic and United Republic of Tanzania.

WHO provided the cost of their attendance and four temporary advisers who, together with a staff member, assisted with the teaching.

Inter-regional 0403 Anopheles Control Research Unit No. 2, Kisumu, Kenya (1967 - ) MESA

To carry out extended field evaluation of insecticides for use in malaria eradication programmes.
The purpose of the seminar, which was conducted in French, was to enable epidemiologists and public health administrators engaged in communicable disease control in areas where cerebrospinal meningitis occurs in epidemic proportions to exchange views on recent achievements in epidemiological studies and modern techniques for diagnosis, prevention and control. There were eleven participants from Algeria, Cameroon, Chad, Dahomey, Iran, Mali, Morocco, Niger and Upper Volta. WHO provided the cost of attendance of the participants, four temporary advisers, and the services of a WHO staff member.


The main purpose of the conference, which was attended by users of the resources of the environment and those concerned with their preservation, was to show how the modern scientific approach can help in defining rational methods of using the environment, while at the same time achieving the aim of conservation. The conference was chiefly concerned with the terrestrial part of the biosphere, including inland waters, estuaries and littoral areas, since oceanic resources had been given attention at other international meetings. Certain aspects of agriculture, forestry, fisheries, and urban and industrial development were taken into account, particularly those relating to the quality of the total environment and interactions among its elements.

The conference was attended by the Director-General of WHO, who delivered an address at the opening session, and by four staff members and a consultant who prepared a paper on problems of deterioration of the environment.

Inter-regional 0439 Course on National Health Planning. Dakar, Santiago (Chile), Rio de Janeiro, Port-of-Spain, Washington D.C. and Brazzaville (1 July - 18 Aug. 1968) R (UN Institute for Economic Development and Planning)

The course was attended by eleven senior health personnel in charge of planning from Dahomey, Democratic Republic of the Congo, Ghana, Iran, Ivory Coast, Lesotho, Madagascar, Swaziland, Togo and Uganda, and by the WHO medical officer attached to the United Nations Institute for Economic Development and Planning, Dakar, who acted as group leader. The first part of the course consisted of two weeks' theoretical training in health planning and certain aspects of related subjects (economics, sociology, demography, etc.) at the United Nations Institute for Economic Development and Planning, Dakar. This was followed by study visits to Santiago (Chile), Rio de Janeiro, Port-of-Spain (Trinidad and Tobago) and Washington, D.C., where the participants had the opportunity of observing practical work, of discussing problems with officials concerned with health planning and with the implementation of programmes, and of seeing programmes in execution. These visits also enabled them to view the planning and implementation of health programmes in the context of the overall development of the country concerned. In the Regional Office for the Americas in Washington the participants were given a statement on PAHO/WHO policies on health planning and activities being promoted by the Organization were described to them. They also had discussions with PAHO/WHO staff on the health planning process in Latin America and on observations made during their visits to Latin American countries. The course ended at the Regional Office for Africa in Brazzaville, where a final review and evaluation of the course were made.

WHO provided fellowships for the participants.

Inter-regional 0441 Course on the Organization and Operation of Blood Transfusion Services, Budapest (8 Nov. 1967 - 8 May 1968) UNDP/TA

A description of this course was given in the Annual Report for 1967.  

Inter-regional 0458 Cancer Control Advisory Team (1968 - ) R

To assist in the development of pilot projects in cancer control, including the setting-up of cancer registries, and the organization of mass-screening campaigns for the early detection of cancer. The team will be divided into three units, each consisting of a medical officer and a statistician, who will work in countries of Africa, Asia and Latin America.

Inter-regional 0463 Seminar on Vector Genetics, Notre Dame, Ind., USA (17 June - 26 July 1968) Special Account for Medical Research

The purpose of the seminar was to help meet the shortage of trained research workers in vector genetics. The first four weeks took place at the University of Notre Dame, and the last two were devoted to visits to laboratories where applied research is in progress. There were twenty-six participants from Argentina, Ghana, India, Iran, Malaysia, Pakistan, Singapore, Thailand, Uganda, United Republic of Tanzania, United States of America, Upper Volta and Venezuela.

WHO provided the services of a staff member and four temporary advisers, the cost of attendance of eight participants, and part payment of seminar costs.

Inter-regional 0467 Team for Special Studies in Virology, Africa (1968 - ) R

To establish limited facilities for the diagnosis of virus diseases, institute research on virus problems, collect and disseminate information, train local personnel, and provide facilities for visiting scientists.

Inter-regional 0468 Course on Methods of Epidemiological Surveillance, Karlovy Vary (Czechoslovakia) and Geneva (12 - 30 Aug. 1968) R

The purpose of the course was to enable senior epidemiologists to discuss basic concepts and methodology of the surveillance of communicable diseases. It was held in Karlovy Vary from 12 to 22 August and in Geneva from 26 to 30 August 1968. There were thirteen participants from Ceylon, Chile, Ghana, Hungary, India, Iran, Japan, Mexico, Netherlands, Pakistan, United Arab Republic and Venezuela. Thirty-six lecturers from the Institute of Epidemiology and Microbiology, Prague, and from other institutes in Prague and elsewhere in Czechoslovakia assisted with the course, together with two lecturers from the Netherlands and the United States of America and eleven WHO staff members from headquarters and four WHO regions.

WHO provided fellowships for the participants and the cost of working papers for the course.

Inter-regional 0471 Course on Occupational Health in Agriculture, Dundee, Scotland (1 Oct. - 8 Nov. 1968) R

The purpose of the course was to stimulate interest in the many aspects of occupational health in agriculture, and thereby to facilitate the promotion, by the participants, of national or local programmes, and to help to increase the number of personnel (of which there is a shortage) entrusted with the health, safety and welfare of agricultural workers. There were fourteen

---

participants from Argentina, Ceylon, Indonesia, Kenya, Nigeria, Pakistan, Philippines, Republic of Korea, Sudan, Thailand, Turkey, United Arab Republic, and Yugoslavia, and a temporary adviser from France.

WHO provided the fellowships for the participants, the director of the course, lecturers and supplies.

Inter-regional 0473 Advanced Course in Paediatrics, Warsaw

The purpose of the course, which was organized by the National Institute of Mother and Child, Warsaw, in collaboration with WHO, and held at the Institute, was to assist developing countries in improving their maternal and child health services by providing advanced training to doctors in responsible positions in those services. The subjects covered included the planning and organization of maternal and child health services and training in developing countries, socio-medical problems connected with childhood disease, child nutrition, infection, health statistics, health education, and the evaluation of maternal and child health services. In addition to lectures and discussions, there were field visits to various institutions in Poland, including rural maternal and child health centres, during which special attention was paid to practical training.

WHO provided fellowships for thirteen English-speaking doctors from Bulgaria, Hungary, India, Iran, Nepal, Nigeria, Sierra Leone, Sudan, Syria, Uganda and United Arab Republic, and three consultants to teach special subjects and lead discussions.

Inter-regional 0474 Travelling Seminar on Plague, Union of Soviet Socialist Republics (14 May - 6 June 1968) UNDP/TA

The seminar was similar to those held in September 1965 and June 1967. It was conducted in English and Russian and was held in Moscow, Alma-Ata and Erevan. The aim was to provide an opportunity for medical personnel from countries where natural foci of plague exist to study modern epidemiological and bacteriological methods used in the field and laboratory for the prevention of the disease. There were sixteen participants from Ecuador, Indonesia, Iran, Iraq, Japan, Malaysia, Nepal, Peru, Philippines, Singapore, Thailand, Turkey and United Arab Republic.

WHO provided the cost of attendance of the participants and conference staff.

Inter-regional 0475 Assistance to National Radiation Health Programmes (Sept. 1968 - 1970) R

To assist governments in planning and implementing radiation health programmes and in training national personnel.

Inter-regional 0476 Seminar on Teaching Methods and Teaching AIDS, Ankara (9-14 Sept. 1968) R

The purpose of the seminar was to provide for study of recent advances in teaching methods and the use of teaching aids applicable to medical and allied education. It was held at the Faculty of Medicine, Hacettepe University, Ankara, and was attended by twenty-one deans and representatives of medical schools from Afghanistan, Algeria, Ceylon, Democratic Republic of the Congo, Ethiopia, Ghana, Haiti, India, Indonesia, Ivory Coast, Morocco, Pakistan, Philippines, Romania, Senegal, Syria, Thailand and Turkey.

WHO provided three consultants, two temporary advisers, the cost of attendance of participants, and the services of staff members. Supplies and equipment for exhibition and demonstration of teaching aids were provided by the United States National Medical Audio-Visual Centre, Washington, D.C.

Inter-regional 0478 Immunology Research Team (1967-1970) R

To advice on training, organize courses in immunology and immunological techniques, and to collaborate in research and in developing regional training centres for research in immunology, especially as related to parasitic and other tropical diseases.

Inter-regional 0483 Seminars and Courses on Smallpox Eradication R

Seminar on Smallpox Eradication, Bangkok
(11-16 Dec. 1967)

The purpose of the seminar was to enable staff in charge of national smallpox eradication programmes to discuss problems of programme planning, organization of services, methods of surveillance and assessment, developments in research, and inter-country co-ordination. The seminar consisted of lectures, group discussions, and field and laboratory demonstrations. There were twenty-four participants from Afghanistan, Burma, India, Indonesia, Laos, Malaysia, Nepal, Pakistan, Philippines, Republic of Viet-Nam and Thailand. They presented detailed reports on the smallpox situation in their respective countries.

WHO provided four consultants, the cost of attendance of the participants, and the services of staff members.

Joint WHO/National Communicable Disease Center Course in Smallpox Eradication, Atlanta, Ga., USA
(8 July - 16 Aug. 1968)

The course, which was organized jointly by the United States National Communicable Disease Center and WHO, provided detailed instruction in all operational and technical elements of the smallpox eradication programme. It was attended by national smallpox eradication personnel and by personnel of the United States Public Health Service assigned to the bilateral West African smallpox eradication programme of the United States Agency for International Development, as well as by six WHO staff members serving with smallpox eradication projects.

WHO provided the services of two staff members for the faculty of the course.

Inter-regional 0484 Travelling Seminar on Cholera Control, Moscow and Calcutta (12 June - 5 July 1968) R

The purpose of the seminar was to enable bacteriologists, clinicians and epidemiologists or public health administrators to review modern methods of diagnosis, treatment and control of cholera. Lectures and demonstrations on various aspects of cholera epidemiology, bacteriology and control were given in Moscow; clinical work on diagnosis and management and practical laboratory work were carried out in Calcutta, where, in addition, field visits were arranged. There were fifteen participants from Afghanistan, India, Iran, Iraq, Nepal, Pakistan, Turkey, Union of Soviet Socialist Republics, and United Arab Republic.

WHO provided the cost of attendance of the participants, a consultant, three temporary advisers and conference staff, and contributed to the expenses of running the seminar.

Inter-regional 0487 Travelling Seminar on the Public Health and Sanitation Aspects of City Planning, Union of Soviet Socialist Republics (24 May - 15 June 1968) UNDP/TA

The aims of the seminar were to enable the participants to study the principles of public health and sanitation applied to...
city and regional planning in the USSR and to observe the application of these principles in newly established towns and neighbouring districts; and to provide them with information on the scientific research work on health requirements that forms the basis for the establishment of standards and regulations on housing and town planning and on the structural organization that assures the control over and collaboration of the Ministry of Health in housing and town planning and construction work carried out by other ministries and governmental agencies. The seminar was held in Moscow, Baku and Sochi. It consisted of conferences, discussion sessions, visits and demonstrations. The subjects dealt with included the organization, functions and responsibilities of the sanitary and epidemiological services of the Ministry of Health and of the agencies under the State Committee for Construction; the health principles applied to the planning of urban centres and rural communities; the influence of climatic factors in the design of cities and villages; the health importance of zoning and land use, of green open spaces, recreation grounds, cultural and rest centres, etc.; the provision of water supply, sewerage and solid waste disposal as basic health requirements; measures for preventing environmental pollution and abating noise in cities; and particular problems of town planning and construction in seismic zones, in areas where natural foci of disease exist, etc.

WHO provided two consultants and the cost of attendance of the participants—nineteen health and sanitation officers, civil and sanitary engineers, architects and town planners, from Afghanistan, Ceylon, Costa Rica, Cuba, Ethiopia, Indonesia, Iraq, Japan, Libya, Nigeria, Philippines, Singapore, Spain, Uganda and Uruguay.

Inter-regional 0488 Travelling Seminar on the Disinfection of Drinking-water, Union of Soviet Socialist Republics
(2-24 Sept. 1968) UNDP/TA

The seminar, which was conducted in English, was attended by fifteen public health physicians and sanitary engineers from Afghanistan, Brazil, Bulgaria, Ceylon, India, Iran, Iraq, Laos, Malaysia, Poland, Sierra Leone, Syria and Venezuela. They studied modern disinfection and water treatment methods and visited installations, laboratories and research institutions in Moscow and Kiev.

WHO provided two consultants and the cost of attendance of the participants.

Inter-regional 0489 Refresher Course on Anaesthesiology, Copenhagen
(2-22 June 1968) UNDP/TA

A course, the fifth of a series, for WHO trainees having attended one of the annual courses at the Anaesthesiology Training Centre, Copenhagen.

WHO provided three lecturers and fourteen fellowships for trainees from Brazil, Bulgaria, China (Taiwan), Costa Rica, Czechoslovakia, Finland, Iraq, Japan, Peru, Philippines, Poland, Republic of Korea, Saudi Arabia and United Arab Republic.

Inter-regional 0491 Travelling Seminar on Hospital and Sanitary-Epidemiological Station Laboratory Services, Union of Soviet Socialist Republics
(3-26 April 1968) UNDP/TA

The purpose of the seminar was to enable directors of laboratory services from developing countries to study the organization of hospital and sanitary-epidemiological laboratory services in the USSR, their functioning at union and republic levels, and methods of training technical and scientific personnel.

WHO provided two consultants and fellowships for nineteen participants from Afghanistan, Argentina, Australia, Brazil, India, Indonesia, Iran, Iraq, Japan, Jordan, Lebanon, Malaysia, Mongolia, Pakistan, Philippines, Spain, Turkey, United Arab Republic and Yugoslavia.

Inter-regional 0495 Course on the Quality Control of Drugs, Copenhagen
(17 March - 7 April 1968) UNDP/TA

The purpose of the course was to outline the theoretical background for quality control systems and, by practical training and demonstrations, to illustrate how such systems could be operated in practice. The programme covered the legislative basis for inspection of pharmaceutical manufacturing firms; the methodology of sampling; systems of numbering batches and storage techniques; and principles for the basic training of pharmaceutical analysts.

WHO provided fellowships for the seventeen trainees from Burma, Cyprus, Ghana, Hungary, India, Iran, Jordan, Lebanon, Malaysia, Nigeria, Pakistan, Philippines, Republic of Korea, Singapore, Sudan, Thailand and Turkey.

Inter-regional 0496 Travelling Seminar on the Organization of Refresher Courses for Medical Staff, Union of Soviet Socialist Republics
(8-31 Oct. 1968) UNDP/TA

The purpose of the seminar was to enable senior medical administrators from developing countries to study methods of organizing and conducting refresher courses and, in general, post-graduate education for medical staff in the USSR. It was held in Moscow, Tashkent and Suhumi and was attended by eighteen medical officers engaged in post-graduate training from Afghanistan, Brazil, Guatemala, Hungary, Iran, Iraq, Japan, Mongolia, Peru, Spain, Sudan, Syria, Thailand, Uganda, United Arab Republic, Venezuela and Yugoslavia.

WHO provided two consultants (one of whom was a senior Soviet medical administrator), administrative staff and fellowships for the participants.

Inter-regional 0498 Joint FAO/WHO Course for Meat Inspectors, Nairobi
(7 Jan. - 30 April 1968) UNDP/TA (FAO)

The purpose of the course, which was the third of a series organized in collaboration with FAO, was to train personnel from African countries in the hygienic handling and inspection of meat. In addition to covering national and international aspects of meat control, the course touched upon transportation of and trade in meat, veterinary administration and animal diseases.

WHO provided fellowships for four trainees from Lesotho, Mauritius, Somalia and Sudan, and two staff members presented lectures.

Inter-regional 0504 Joint AID/OCCGE/WHO Technical Meeting on the Feasibility of Onchocerciasis Control, Tunis
(1-3 July 1968) R

The meeting was sponsored by the United States Agency for International Development (AID), the Organisation de Coordination et de Coopération pour la Lutte contre les Grandes Endémies (OCCGE) and WHO. It was convened for the purposes of (i) forming an opinion on the feasibility of onchocerciasis control at the present time, taking into account the results achieved by existing control methods and the economic aspects of disease and disease control, (ii) indicating priorities for control, and (iii) defining a working programme for a large-scale priority onchocerciasis control project. There were twenty-seven participants—experts representing various disciplines involved in the control of onchocerciasis—a representative from the International Bank for Reconstruction and Development and an observer from the French Office de la Recherche scientifique et technique d'Outre-Mer.
WHO assumed the responsibility for technical and administrative arrangements on behalf of the two other sponsoring organizations.

Inter-regional 0505 Conference on Training of Health Statistical Personnel, Kampala, Uganda (1-10 April 1968) R

The conference considered the need for statistical personnel at different levels of health administration, the training of such personnel, and how the training should be organized. There were twenty participants from China (Taiwan), Dahomey, Democratic Republic of the Congo, Indonesia, Iran, Iraq, Kenya, Lebanon, Malaysia, Nigeria, Pakistan, Republic of Korea, Thailand, Uganda, United Arab Republic and United Republic of Tanzania, and eight observers from Ethiopia, Lebanon and Uganda.

WHO provided three consultants and the cost of attendance of the participants.

Inter-regional 0510 Seminar on Smallpox Eradication, Kinshasa (19-26 Nov. 1968) R

Responsible officers for smallpox eradication programmes and WHO advisers from eleven countries in the Eastern Mediterranean and African Regions attended the seminar. Detailed reports were presented on the smallpox situation in each country and the methods used to eradicate or control the disease. In addition to the group discussions, covering assessment, surveillance and containment measures, field and laboratory demonstrations were arranged for the participants.

WHO provided the cost of attendance of the thirty-two participants, and four consultants who assisted in the teaching aspects of the seminar.

Inter-regional 0511 Symposium on Basic Environmental Problems of Man in Space, Geneva (19-22 Nov. 1968) R (International Academy of Astronautics) (International Astronautical Federation)

The purpose of the symposium, which was dedicated to the twentieth anniversary of WHO, was to discuss recent results of research in space biology, with emphasis on their applicability to general health-oriented research and to preventive and clinical medicine. It was organized by the International Astronautical Federation and the International Academy of Astronautics, with the co-operation of WHO, and was the third international symposium on the subject. There were some hundred participants.

WHO contributed to the cost of the symposium and provided conference facilities.

Inter-regional 0528 East Africa Aedes Research Unit, Dar-es-Salaam (1968- ) Special Account for Medical Research

To study the ecology, behaviour and distribution of the urban and peri-urban mosquito vectors of yellow fever in East Africa.

Inter-regional 0531 Pilot Research Project for International Drug Monitoring, Alexandria, Va., USA (1967- ) Special Account for Medical Research

To study the modalities of an international system for monitoring adverse reactions to drugs contributed by drug monitoring centres of several Member States are recorded in the WHO centre for computer storage and analysis. Terminology and classifications for adverse reactions, drug names and related case-history data are developed to provide the basis for further studies.

Inter-regional 0532 Burma/India/Pakistan Malaria Co-ordination Meeting, Maymyo, Burma (26-29 Feb. 1968) R

The meeting, which provided for the exchange of technical information and the co-ordination of malaria eradication activities, particularly in border areas, was the tenth between Burma and India and the seventh in which Pakistan participated.

WHO provided the cost of attendance of a participant from each of the three countries and the services of WHO staff from India, Pakistan and the Regional Office for South-East Asia.


The purpose of the meeting was to revise and bring up to date the WHO document, prepared in 1956, on "Guiding Principles in the Medical Examination of Applicants for Motor Vehicle Driving Permits". There were six participants from France, Japan, Sweden, Union of Soviet Socialist Republics, United Kingdom and United States of America.

WHO provided the costs of attendance of the participants and conference services.

Inter-regional 0541 Meeting of Regional Smallpox Advisers, Rio de Janeiro (3-10 April 1968) R

This meeting, which was the second annual meeting of the WHO regional smallpox advisers, held for the purpose of co-ordinating operational and administrative approaches to smallpox eradication planning and methods, was attended also by consultants from the Union of Soviet Socialist Republics and the United States of America, to permit co-ordination of these countries' significant bilateral commitments for smallpox eradication.

Inter-regional 0565 Advisory Team on Cardiovascular Diseases, Kampala, Uganda (Oct. 1968 - 1973) R

To carry out research into the etiology, pathogenesis and prevention of cardiomyopathies, including rheumatic fever and rheumatic heart diseases, and assist in the cardiovascular research training programme. The team provided for under this project, composed of an epidemiologist (team leader) and a cardiologist, works in co-operation with the WHO Cardiovascular Research and Training Centre at Makerere College, University of East Africa, Kampala.

Inter-regional 0578 Exchange of Malaria Workers (1968- ) R

To enable national professional workers in malaria to study eradication methods employed in countries other than their own.

Inter-regional 0585 Advisory Groups on Malaria Eradication Strategy (1967 - 1969) MESA

To identify and assess in selected malaria eradication programmes at various stages of progress, the socio-economic, administrative and technical factors, both favourable and unfavourable, related to their planning and implementation.

Inter-regional 0587 Medical Education (1968- ) R

To assist the School of Hygiene, University of Montreal, which provides training facilities for French-speaking WHO fellows from outside the Americas.
### Annex 1

MEMBERS AND ASSOCIATE MEMBERS OF THE WORLD HEALTH ORGANIZATION

at 31 December 1968

At 31 December 1968 the World Health Organization had 128 Member States and three Associate Members. 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>Country</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>Argentina *</td>
<td>22 October 1948</td>
</tr>
<tr>
<td>Austria *</td>
<td>2 February 1948</td>
</tr>
<tr>
<td>Austria</td>
<td>30 June 1947</td>
</tr>
<tr>
<td>Barbados</td>
<td>25 April 1967</td>
</tr>
<tr>
<td>Belgium *</td>
<td>25 June 1948</td>
</tr>
<tr>
<td>Bolivia</td>
<td>23 December 1949</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>Cambodia *</td>
<td>17 May 1950</td>
</tr>
<tr>
<td>Cameroon</td>
<td>6 May 1960</td>
</tr>
<tr>
<td>Canada *</td>
<td>29 August 1946</td>
</tr>
<tr>
<td>Central African Republic *</td>
<td>20 September 1960</td>
</tr>
<tr>
<td>Ceylon</td>
<td>7 July 1948</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>Congo (Brazzaville)</td>
<td>26 October 1960</td>
</tr>
<tr>
<td>Congo, Democratic Republic</td>
<td>24 February 1961</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>Dahomey</td>
<td>20 September 1960</td>
</tr>
<tr>
<td>Denmark *</td>
<td>19 April 1948</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>El Salvador</td>
<td>22 June 1948</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>11 April 1947</td>
</tr>
<tr>
<td>Federal Republic of Germany</td>
<td>29 May 1951</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>Ghana</td>
<td>8 April 1957</td>
</tr>
<tr>
<td>Greece</td>
<td>12 March 1948</td>
</tr>
<tr>
<td>Guatemala *</td>
<td>26 August 1949</td>
</tr>
<tr>
<td>Guinea *</td>
<td>19 May 1959</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>Israel *</td>
<td>20 October 1947</td>
</tr>
<tr>
<td>Italy *</td>
<td>11 April 1947</td>
</tr>
<tr>
<td>Ivory Coast *</td>
<td>28 October 1960</td>
</tr>
<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>Laos *</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>Libya *</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 Islands</td>
<td>5 November 1965</td>
</tr>
<tr>
<td>Mali *</td>
<td>17 October 1960</td>
</tr>
<tr>
<td>Malta *</td>
<td>1 February 1965</td>
</tr>
<tr>
<td>Mauritania</td>
<td>7 March 1961</td>
</tr>
<tr>
<td>Mauritius</td>
<td>9 October 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>Nepal *</td>
<td>2 September 1953</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>24 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>Pakistan *</td>
<td>23 June 1948</td>
</tr>
<tr>
<td>Panama</td>
<td>20 February 1951</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>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>Saudi Arabia</td>
<td>26 May 1947</td>
</tr>
<tr>
<td>Senegal *</td>
<td>31 October 1960</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>Southern Yemen</td>
<td>6 May 1966</td>
</tr>
<tr>
<td>Spain</td>
<td>28 May 1951</td>
</tr>
<tr>
<td>Sudan</td>
<td>14 May 1956</td>
</tr>
<tr>
<td>Sweden</td>
<td>28 August 1947</td>
</tr>
<tr>
<td>Switzerland</td>
<td>26 March 1947</td>
</tr>
<tr>
<td>Syria</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>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>Union of Soviet Socialist Republics</td>
<td>24 March 1948</td>
</tr>
<tr>
<td>United Arab Republic *</td>
<td>16 December 1947</td>
</tr>
<tr>
<td>United Kingdom of Great Britain and Northern Ireland *</td>
<td>22 July 1946</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>Western Samoa</td>
<td>16 May 1962</td>
</tr>
<tr>
<td>Yemen</td>
<td>20 November 1953</td>
</tr>
<tr>
<td>Yugoslavia *</td>
<td>19 November 1947</td>
</tr>
<tr>
<td>Zambia</td>
<td>2 February 1965</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.
Annex 2

MEMBERSHIP OF THE EXECUTIVE BOARD

1. Forty-first Session (Geneva, 23 January-1 February 1968)

Professor E. AUJALEU
Dr J. C. AZURIN
Dr D. BADAROU, Rapporteur
Dr A. BENYAKHLEF
Dr E. A. DUALEH
Dr A. ENGEL
Dr C. K. HASAN
Dr A. A. AL-HURAIBI
Dr H. M. EL-KADI
Dr O. KEITA
Professor L. VON MANGER-KOENIG
Professor P. MACUCH, Vice-Chairman

Designated by
France
Philippines
Dahomey
Morocco
Somalia
Sweden
Pakistan
Yemen
United Arab Republic
Federal Republic of Germany
Czechoslovakia

Dr P. D. MARTINEZ, Vice-Chairman.
Professor I. MORARU
Dr R. A. MORENO
Dr K. B. N'DIA
Dr V. V. OLGUIN
Dr M. P. OTOLORIN, Rapporteur
Dr PE KYIN
Dr K. N. RAO, Chairman
Sir William REFSHAUGE
Dr D. D. VENEDIKTOV
Professor I. MORARU
Dr K. B. N’DIA Rapporteur
Dr M. P. OTOLORIN, Rapporteur
Sir William REFSHAUGE
Dr D. D. VENEDIKTOV
Professor I. MORARU
Dr K. B. N’DIA

Designated by
Mexico
Romania
Panama
Ivory Coast
Argentina
Nigeria
Burma
India
Australia
Union of Soviet Socialist Republics
Peru
United States of America

Dr J. ANOUTI
Professor E. AUJALEU
Dr J. C. AZURIN, Vice-Chairman
Dr D. BADAROU
Dr A. E. CALVO
Dr B. DEMBEREL
Dr E. A. DUALEH
Sir George GODBER
Professor J. F. GOOSSENS
Dr C. K. HASAN
Dr B. JURICIC
Dr I. S. KADAMA
Dr H. M. EL-KADI
Dr U. KO KO
Dr B. D. B. LAYTON
Professor L. VON MANGER-KOENIG
Professor I. MORARU
Dr K. B. N’DIA
Dr V. V. OLGUIN
Dr M. P. OTOLORIN, Vice-Chairman
Sir William REFSHAUGE
Professor B. REXED
Dr D. D. VENEDIKTOV, Chairman
Dr C. C. WEDDERBURN, Rapporteur

Lebanon
Philippines
Dahomey
Somalia
United Kingdom of Great Britain and Northern Ireland
Belgium
Pakistan
Chile
Uganda
United Arab Republic
Burma
Canada
Federal Republic of Germany

Designated by

Unexpired term
of office at the time of closure of the Twenty-first World Health Assembly

3 years
1 year
1 year
1 year
2 years
3 years
1 year
3 years
2 years
1 year
2 years
2 years
3 years
3 years

2 Dr G. Wynne Griffith, alternate, attended the session.

Dr J. ANOUTI
Professor E. AUJALEU
Dr J. C. AZURIN, Vice-Chairman
Dr D. BADAROU
Dr A. E. CALVO
Dr B. DEMBEREL
Dr E. A. DUALEH
Sir George GODBER
Professor J. F. GOOSSENS
Dr C. K. HASAN
Dr B. JURICIC
Dr I. S. KADAMA
Dr H. M. EL-KADI
Dr U. KO KO
Dr B. D. B. LAYTON
Professor L. VON MANGER-KOENIG
Professor I. MORARU
Dr K. B. N’DIA
Dr V. V. OLGUIN
Dr M. P. OTOLORIN, Vice-Chairman
Sir William REFSHAUGE
Professor B. REXED
Dr D. D. VENEDIKTOV, Chairman
Dr C. C. WEDDERBURN, Rapporteur

Lebanon
Philippines
Dahomey
Somalia
United Kingdom of Great Britain and Northern Ireland
Belgium
Pakistan
Chile
Uganda
United Arab Republic
Burma
Canada
Federal Republic of Germany

Designated by

Unexpired term
of office at the time of closure of the Twenty-first World Health Assembly

3 years
1 year
1 year
2 years
3 years
2 years
2 years
2 years
2 years
1 year
1 year
3 years
3 years

1 Dr I. Kone, alternate, attended the session.
Annex 3

ORGANIZATIONAL AND RELATED MEETINGS IN 1968

Executive Board, forty-first session: Standing Committee on Administration and Finance
Executive Board: Standing Committee on Headquarters Accommodation, fifteenth session
Executive Board, forty-first session
Executive Board, forty-first session: Darling Foundation Committee
Executive Board, forty-first session: Standing Committee on Non-governmental Organizations
Executive Board, forty-first session: Léon Bernard Foundation Committee
Executive Board, forty-first session: Dr A. T. Shousha Foundation Committee
Executive Board: Ad Hoc Committee
Twenty-first World Health Assembly
Executive Board, forty-second session
Regional Committee for the Eastern Mediterranean: Sub-Committee A
Regional Committee for Africa, eighteenth session
Regional Committee for South-East Asia, twenty-first session
Regional Committee for Europe, eighteenth session
Regional Committee for the Western Pacific, nineteenth session
Regional Committee for the Americas, twentieth session / Directing Council of PAHO, XVIII meeting

Annex 4

EXPERT ADVISORY PANELS AND COMMITTEES

1. EXPERT ADVISORY PANELS

The expert advisory panels in existence at 31 December 1968 were on the following subjects:

- Air pollution
- Antibiotics
- Bacterial diseases
- Biological standardization
- Biology of human reproduction
- Brucellosis
- Cancer
- Cardiovascular diseases
- Chronic degenerative diseases
- Dental health
- Drug dependence
- Environmental health
- Food additives
- Food hygiene
- Health education
- Health laboratory services
- Health of seafarers
- Health statistics
- Human genetics
- Immunology
- Insecticides
- International pharmacopoeia and pharmaceutical preparations
- International quarantine
- Leprosy
- Malaria
- Maternal and child health
- Medical research
- Mental health
- Nursing
- Nutrition
- Occupational health
- Organization of medical care
- Parasitic diseases
- Professional and technical education of medical and auxiliary personnel
- Public health administration
- Rabies
- Radiation
- Rehabilitation
- Trachoma
- Tuberculosis
- Venereal infections and treponematoses
- Virus diseases
- Zoonoses

\(^1\) See resolution WHA12.17.
2. EXPERT COMMITTEES

The membership of the expert committees that met in 1968 was as follows:

**Expert Committee on Non-Proprietary Names for Pharmaceutical Preparations**

*Geneva, 24-26 April*

Dr T. Itai, Director, Osaka Branch Laboratory, National Institute of Hygienic Sciences, Osaka, Japan

Dr J. B. Jerome, Assistant Director, Department of Drugs, American Medical Association, Chicago, Ill., USA

Professor P. Lechat, Director, Pharmacological Institute, Faculty of Medicine, University of Paris, France

Dr K. Schriefer, Institute of Pharmacy and Food Chemistry, University of Munich, Federal Republic of Germany

Professor V. V. Zakusov, Director, Institute of Pharmacology and Chemotherapy, Academy of Medical Sciences of the USSR, Moscow, USSR

**Expert Committee on Urban Air Pollution with Particular Reference to Motor Vehicles**

*Geneva, 2-8 July*

Mr J. M. Dave, Assistant Director, Central Public Health Engineering Research Institute, Nagpur, India

Professor L. T. Friberg, Institute of Hygiene, Karolinska Institute, Stockholm, Sweden

Professor A. Giovanardi, Director, University Institute of Hygiene, Milan, Italy

Dr M. Hashimoto, Chief, Environmental Pollution Control Section, Bureau of Environmental Sanitation, Ministry of Health and Welfare, Tokyo, Japan

Professor D. Högger, President, Federal Clean Air Board, Zurich, Switzerland

Dr J. H. Ludwig, Associate Commissioner for Control Technology Research and Development, National Air Pollution Control Administration, Arlington, Va., USA

Mr D. Rondia, Laboratory of Medical Chemistry, Toxicology and Hygiene, University of Liège, Belgium

**Expert Committee on Amoebiasis**

*Teheran, 2-6 September*

Dr M. M. Brooke, Chief, Laboratory Consultation and Development Section, National Communicable Disease Center, Atlanta, Ga., USA

Dr L. S. Diamond, Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Md., USA

Dr Rawewan Jarumilinta, Department of Medical Research, Ciba S.A., Basel, Switzerland

Dr L. Lamy, Chief, Protozoology Department, Pasteur Institute, Paris, France

Professor B. G. Maegraith, Department of Tropical Medicine, School of Tropical Medicine, Liverpool, England

Professor A. Neghme-Rodriguez, Dean, Faculty of Medicine, University of Chile, Santiago, Chile

Dr E. Nnochiri, Bacteriology Department, Fulham Hospital, Hammersmith, London, England

Dr A. Zweibbaum, Immunobiology Institute, National Institute of Health and Medical Research — Association Claude Bernard, Hôpital Broussais, Paris, France

**Expert Committee on Human Genetics (Genetic Counselling)**

*Geneva, 24-30 September*

Professor J. Boök, Institute for Medical Genetics, University of Uppsala, Sweden

Professor A. E. Boyo, Department of Pathology, College of Medicine, University of Lagos, Nigeria

Dr J. A. Fraser Roberts, Paediatric Research Unit, Guy's Hospital Medical School, London, England

Dr N. Freire-Maia, Faculty of Philosophy, Federal University of Paraná, Curitiba, Paraná, Brazil

Dr Elizabeth Goldschmidt, Professor of Genetics, Faculty of Science, Hebrew University, Jerusalem, Israel

Professor D. Klein, Director, Institute of Medical Genetics, University of Geneva, Switzerland

Professor J. Lejeune, Faculty of Medicine, University of Paris, France

Professor E. Matsunaga, Head, Department of Human Genetics, National Institute of Genetics, Mishima, Japan

**Expert Committee on Biological Standardization**

*Geneva, 30 September - 5 October*

Dr N. K. Dutta, Director, Haffkine Institute, Bombay, India

Dr A. Lafontaine, Director, Institute of Hygiene and Epidemiology, Brussels, Belgium

Mr J. W. Lightbown, Division of Biological Standards, National Institute for Medical Research, London, England

Professor B. Lunenfeld, Director, Institute of Endocrinology, Tel-Hashomer Government Hospital and Bar Ilan University, Tel-Hashomer, Israel

Dr R. Murray, Director, Division of Biologics Standards, National Institutes of Health, Bethesda, Md., USA

Dr J. D. van Ramshorst, Head, Laboratory of Biological Standardization, National Institute of Public Health, Utrecht, Netherlands

Dr J. Spaun, Deputy Director, Department of Biological Standards, Statens Serum Institut, Copenhagen, Denmark

---


Mr J. R. Thayer, National Biological Standards Laboratory, Parkville, Victoria, Australia
Dr G. V. Vygodčkov, Head of Department, Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR
Dr G. R. Zahnd, Chargé de recherches, University Polyclinic, Geneva, Switzerland

**Expert Committee on Drug Dependence**

*Geneva, 1-7 October*

Mr H. D. Archibald, Executive Director, Alcohol and Drug Addiction Research Foundation, Toronto, Ont., Canada
Dr E. A. Babajan, Head, Department for the Introduction of New Drugs and Medical Technology; President, Psychiatric Council; President, Committee on Narcotics, Ministry of Health of the USSR, Moscow, USSR
Dr P. H. Connell, Director, Drug Dependence Clinical Research and Treatment Unit, The Bethlem Royal Hospital and The Maudsley Hospital, London, England
Dr N. B. Eddy, Consultant on Narcotics, National Institutes of Health, Bethesda, Md., USA
Dr L. Goldberg, Professor of Research on Alcohol and Analgesics, Karolinska Institute, Stockholm, Sweden
Dr M. Granier-Doyeux, Professor of Pharmacology and Toxicology, Faculty of Medicine, Central University of Venezuela, Caracas, Venezuela
Dr E. Hosoya, Professor of Pharmacology, School of Medicine, Keio Gijuku University, Tokyo, Japan

**Expert Committee on Specifications for Pharmaceutical Preparations**

*Geneva, 14-19 October*

Professor M. A. Attisso, Professor of Galenical Pharmacy, Faculty of Medicine and Pharmacy, University of Dakar, Senegal
Mr J. Burianek, Director, State Institute for the Control of Drugs, Prague, Czechoslovakia
Dr T. Canback, Director of Chemical Research, Central Pharmaceuticals Laboratory, Solna, Sweden
Dr L. F. Dodson, Director, National Biological Standards Laboratory, Department of Health, Canberra, Australia
Dr D. Ghosh, Director, Central Drugs Laboratory, Calcutta, India
Mr C. A. Johnson, Scientific Director, British Pharmacopoeia Commission, London, England
Dr K. G. Krebs, Director of Quality Control, E. Merck AG, Darmstadt, Federal Republic of Germany
Professor M. D. Maškovskij, Chairman of the Pharmacopoeia Commission of the USSR, Ministry of Health of the USSR, Moscow, USSR
Dr L. C. Miller, Director of Revision, United States Pharmacopoeia, Bethesda, Md., USA
Mr R. J. Samsom, Director of Public Health (Drugs), Ministry of Social Affairs and Public Health, The Hague, Netherlands

---


---

**Expert Committee on the WHO Immunology Research and Training Programme**

*Geneva, 28 October - 1 November*

Professor O. G. Bier, Head, WHO Immunology Research and Training Centre, Escola Paulista de Medicina, São Paulo, Brazil
Dr R. A. Binaghi, Laboratory of Experimental Medicine, Collège de France, Paris, France
Dr C. F. Biro, Department of Immunology, National Institute of Cardiology, Mexico City, Mexico
Professor H. Islíker, Director, Institute of Biochemistry, Lausanne, Switzerland
Professor N. K. Jerne, Director, Paul-Ehrlich Institute, Frankfurt-am-Main, Federal Republic of Germany
Professor E. A. Kabat, Columbia-Presbyterian Medical Center, New York, N.Y., USA
Dr D. S. Nelson, Department of Bacteriology, University of Sydney, Australia
Dr I. Riha, Department of Immunology, Institute of Microbiology, Czechoslovak Academy of Science, Prague, Czechoslovakia

**Expert Committee on Community Water Supply**

*Geneva, 29 October - 4 November*

Professor A. Acra, Chairman, Department of Environmental Health, School of Public Health, American University of Beirut, Lebanon
Professor S. J. Arceivala, Director, Central Public Health Engineering Research Institute, Nagpur, India
Mr K. Baalsrud, Director, Norwegian Institute for Water Research, Oslo, Norway
Dr C. L. González, Technical Adviser, Directorate of Public Health, Caracas, Venezuela
Mr T. F. Hope, General Manager, Guma Valley Water Company, Freetown, Sierra Leone
Dr W. H. H. Jebb, Director, Regional Public Health Laboratory, Radcliffe Infirmary, Oxford, England
Professor B. Teodorovic, Chief, Department of Environmental Health, Andrija Stampar School of Public Health, Zagreb, Yugoslavia
Dr A. Wolman, Emeritus Professor of Sanitary Engineering, Johns Hopkins University, Baltimore, Md., USA

**Expert Committee on Early Detection of Cancer**

*Geneva, 11-16 November*

Professor F. H. Cabanne, Director, Centre Anticancéreux G. F. Leclerc, Dijon, France
Dr E. C. Easson, Director of Radiotherapy, Christie Hospital and Holt Radium Institute, Withington, Manchester, England
Dr S. Krishnamurthi,² Director, Cancer Institute, Madras, India
Dr R. Prado, Director, Department of Cytopathology and Cancer Control, Faculty of Medicine, University of Chile, Santiago, Chile

² Unable to attend.
Professor H. Rahmatian, Director, Cancer Research Institute, Pahlavi Hospital (Taj Pahlavi Foundation), Teheran, Iran
Professor A. J. Rakov, Director, Institute of Oncology, Ministry of Health of the USSR, Leningrad, USSR
Dr I. Rodé, Director, State Institute of Oncology, Budapest, Hungary
Dr W. L. Ross, Chief, Cancer Control Program, National Center for Chronic Disease Control, United States Public Health Service, Arlington, Va., USA

Expert Committee on Medical Rehabilitation

*Geneva, 12-18 November*

Dr B. O. Adebonojo, Consultant in Physical Medicine and Rehabilitation to the Federal Government of Nigeria, Royal Orthopaedic Hospital, Igbobi, Yaba, Nigeria
Professor T. P. Bogdanov, Head, Orthopaedics and Traumatology Department, Ukrainian Research Institute of Orthopaedics and Traumatology, Kiev, Ukrainian Soviet Socialist Republic
Miss M. Fish, Training Consultant, Social and Rehabilitation Services, Department of Health, Education and Welfare, Washington, D.C., USA
Dr G. Gingras, Executive Director, Rehabilitation Institute of Montreal, Quebec, Canada
Professor P. Houssa, Medical Director, Traumatology and Rehabilitation Centre, Brugmann Hospital, Brussels, Belgium
Professor A. S. Manugian, Medical Director, Lebanon Hospital for Mental and Nervous Disorders, Asfuriyeh, Lebanon
Professor Trân Ngoc Ninh, Professor of Orthopaedics, Faculty of Medicine, University of Saigon, Viet-Nam
Dr M. V. Sant, Medical Director, All-India Institute of Physical Medicine and Rehabilitation, Mahalaxmi, Bombay, India
Professor M. Weiss, Director, Institute of Rehabilitation, Warsaw School of Medicine, Konstancin, Poland

Expert Committee on Health Statistics (Statistics of Health Services and their Activities)

*Geneva, 12-18 November*

Dr M. H. Adham, Director-General, Department of Health Statistics and Evaluation, Ministry of Health, Teheran, Iran
Mr F. Harris, Director, Health and Welfare Division, Dominion Bureau of Statistics, Ottawa, Ont., Canada
Dr R. Mbarga, Chief, Service des Etudes et des Statistiques sanitaires et hospitalières, Ministry of Public Health, Yaoundé, Cameroon
Dr P. Muresan, Deputy Director, Division of Health Statistics, Ministry of Health, Bucharest, Romania
Dr G. Rösch, Deputy Director, Centre de Recherches et de Documentation sur la Consommation, Institut national de la Statistique et des Etudes économiques; Chef de la Division d'Economie médicale, Paris, France
Professor I. S. Slučanko, Professor of Health Statistics, Department of Social Hygiene and Organization of Medical Care, Central Post-graduate Medical Institute, Moscow, USSR

Professor R. C. Wofinden, Medical Officer of Health and Social Services, City and County of Bristol; Professor of Public Health, University of Bristol, England
Mr T. D. Woolsey, Director, National Center for Health Statistics, Health Services and Mental Health Administration, United States Public Health Service, Washington, D.C., USA

Expert Committee on Insecticides (Insecticide Resistance and Vector Control)

*Geneva, 19-25 November*

Dr A. W. A. Brown, Head, Department of Zoology, University of Western Ontario, London, Ont., Canada
Dr J. R. Busvine, London School of Hygiene and Tropical Medicine, London, England
Dr W. Z. Coker, Department of Zoology, University of Ghana, Accra, Ghana
Mr J. Hamon, Director of Research, Overseas Scientific and Technical Research Office, Paris, France; Head, Entomological Laboratory, Centre Muraz, Organization for Co-ordination and Co-operation in the Control of Major Endemic Diseases (OCCGE), Bobo-Dioulasso, Upper Volta
Dr V. V. Kučeruk, Head, Laboratory of Medical Entomology, Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR
Dr H. F. Schoof, Chief, Biology Section, National Communicable Disease Center, United States Public Health Service, Savannah, Ga., USA
Dr K. P. R. Singh, Virus Research Centre, Poona, India

Expert Committee on the Organization and Administration of Maternal and Child Health Services

*Geneva, 26 November - 2 December*

Sir Dugald Baird (formerly Professor of Obstetrics and Gynaecology, University of Aberdeen, and Director, Obstetric Medicine Research Unit, Medical Research Council) Medical Sociology Research Unit of the Medical Research Council, Centre for Social Studies, Aberdeen, Scotland
Dr Harbans Dhillon, Deputy Director of Health Services for the Punjab, Chandigarh, Punjab, India
Dr I. S. Kadama, Chief Medical Officer; Permanent Secretary, Ministry of Health, Entebbe, Uganda
Miss H. Merchiers, Head Nursing Inspector, Œuvre nationale de l'Enfance, Brussels, Belgium
Dr A. Nozari, Senior Adviser, Ministry of Health, Teheran, Iran
Professor M. Studenikin, Director, Institute of Paediatrics, Academy of Medical Sciences of the USSR, Moscow, USSR
Dr Helen M. Wallace, Professor of Maternal and Child Health, School of Public Health, University of California, Berkeley, Calif., USA

Joint Committees

Joint ILO/WHO Committee on Occupational Health

*Geneva, 4-10 June*

Dr E. Bolinder, Medical Adviser, Swedish Confederation of Trade Unions, Stockholm, Sweden

---

1 Unable to attend.
Dr D. B. Byaruhanga, Consultant in Occupational Health, Occupational Health Unit, Ministry of Labour, Kampala, Uganda

Dr H. Ehrlicher, Chief, Occupational Hygiene Research Office, Medical Division, Farbenfabriken Bayer AG, Leverkusen, Federal Republic of Germany

Dr S. Harashima, Emeritus Professor, Department of Preventive Medicine and Public Health, School of Medicine, Keio Gijuku University, Tokyo, Japan

Dr C. R. Harihara lyer, Deputy Director, Central Labour Institute, Sion, Bombay, India

Mr E. King, Director, Occupational Hygiene Service, Department of Occupational Health, University of Manchester, England

Dr E. Mastromatteo, Chief, Occupational Health Service, Ontario Department of Health, Toronto, Ont., Canada

Professor I. Sanotskij, Chief, Toxicological Laboratory, Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences of the USSR, Moscow, USSR

Dr H. E. Stokinger, Chief, Laboratory of Toxicology and Pathology, Occupational Health Program, National Center for Urban and Industrial Health, Department of Health, Education and Welfare, Cincinnati, Ohio, USA

Professor J. Teisinger, Director, Institute of Industrial Hygiene and Occupational Diseases, Prague, Czechoslovakia

Professor E. C. Vigliani, Director, Occupational Health Clinic " Luigi Devoto " , Milan, Italy

Dr S. Yllner, Medical Adviser, Swedish Employers' Confederation, Stockholm, Sweden

Joint FAO/WHO Expert Committee on African Trypanosomiasis

Geneva, 25-30 November

Dr F. J. C. Cambournac, Director, National School of Public Health and Tropical Medicine, Lisbon, Portugal

Dr D. A. Dame, United States Department of Agriculture Entomology Research Division, c/o American Consulate, Salisbury, Southern Rhodesia

Mr J. Ford, Hope Department of Entomology, University Museum, Oxford, England

Professor P. G. Janssens, Director, Prince Léopold Institute of Tropical Medicine, Antwerp, Belgium

Dr R. Labusquière, Secretary-General, Organization for Coordination and Co-operation in the Control of Major Endemic Diseases in Central Africa (OCEAC), Yaoundé, Cameroon

Mr T. M. Leach, Director, Nigerian Institute for Trypanosomiasis Research, Kaduna, Nigeria

Professor W. H. R. Lumsden, Head, Department of Medical Protozoology, London School of Hygiene and Tropical Medicine, London, England

Dr T. A. M. Nash, Director, Tsetse Research Laboratory, Department of Veterinary Medicine, University of Bristol, England

Dr B. A. Newton, Director, Medical Research Council Unit for Biochemical Parasitology; Director, Molteno Institute of Biology and Parasitology, Cambridge, England

Dr R. J. Onyango, Director, East African Trypanosomiasis Research Organization, Tororo, Uganda

Dr F. Sérié, Director, Major Endemic Disease Service, Directorate General of Public Health, Abidjan, Ivory Coast

Joint Meeting of the FAO Working Party of Experts and the WHO Expert Committee on Pesticide Residues

Geneva, 9-16 December

Dr W. F. Almeida, Director, Division of Microbiology and Hygiene, Biological Institute, São Paulo, Brazil

Dr V. Beneš, Head, Department of Toxicology, Institute of Hygiene, Prague, Czechoslovakia

Dr M. Beroza, Investigation Leader (Chemist), Agriculture Research Center, United States Department of Agriculture, Beltsville, Md., USA

Mr J. W. Cook, Deputy Director, Division of Pesticides, Food and Drug Administration, Department of Health, Education and Welfare, Washington, D.C., USA

Dr F. Coulston, Professor of Pathology and Toxicology, Director, Institute of Experimental Pathology and Toxicology, Albany Medical College, Albany, N.Y., USA

Dr J. C. Dacre, Head, Toxicology Research Unit of the Medical Research Council of New Zealand, Medical School, University of Otago, Dunedin, New Zealand

1 Unable to attend.
Dr H. Egan, Senior Superintendent, Environmental Chemistry Group, Laboratory of the Government Chemist, London, England

Dr G. J. van Esch, Head, Laboratory for Toxicology, National Institute of Public Health, Utrecht, Netherlands

Dr H. Hurtig, Research Co-ordinator (Pesticides), Research Branch, Department of Agriculture, Ottawa, Ont., Canada

Professor F. Korte, Institute of Ecological Chemistry, University of Bonn, Federal Republic of Germany

Dr E. Y. Spencer, Director, Research Institute of the Department of Agriculture, University of Western Ontario, London, Ont., Canada

Dr N. van Tiel, Director, Plant Protection Service, Ministry of Agriculture and Fisheries, Wageningen, Netherlands

Professor R. C. Truhaut, Director, Toxicological Research Centre, Faculty of Pharmacy, University of Paris, France

3. ADVISORY COMMITTEE ON MEDICAL RESEARCH

The Advisory Committee on Medical Research was established pursuant to resolution WHA12.17.

Tenh Session, Geneva, 17-21 June

Professor D. Bovet, Director, Institute of Pharmacology, University of Sassari, Sardinia, Italy

Professor I. T. Costero, Director, Department of Pathological Anatomy, National Institute of Cardiology, Mexico City, Mexico

Sir John C. Eccles, Director, Institute for Biomedical Research, Chicago, Ill., USA

Dr J. C. Edozien, Professor of Chemical Pathology, Nigeria

Dr M. Florkin, Professor of Biochemistry, University of Liège, Belgium

Dr B. N. Halpern, Professor at the Collège de France; Member of the Institut de France, Paris, France

Professor N. K. Jerne, Director, Paul-Ehrlich Institute, Frankfurt-am-Main, Federal Republic of Germany

Professor W. Kurylowicz, Director, State Institute of Hygiene, Warsaw, Poland

Professor A. M. Lwoff, Director, Institut de Recherches scientifiques sur le Cancer, Villejuif, Val-de-Marne, France

Professor S. R. Mardashev, Vice-President, Academy of Medical Sciences of the USSR; Chair of Biochemistry, First Medical Institute, Moscow, USSR

Teheran, 14-19 September

Teheran, 16-23 September

Geneva, 8-14 October

Geneva, 10-16 December

Geneva, 14-20 October

Geneva, 10-16 December

Geneva, 25-29 October

Geneva, 28 October - 2 November

Geneva, 11-15 November

Geneva, 2-7 December

Geneva, 10-16 December

Scientific Group on Cholera Immunology

Scientific Group on the Parasitology of Malaria

Scientific Group on Cell-mediated Immune Responses

Scientific Group on the Optimal Level of Physical Performance Capacity for Adults

Scientific Group on Genetic Factors in Congenital Malformations

Scientific Group on the Biochemistry of Mental Disorders

Scientific Group on Developments in Fertility Control

Scientific Group on Principles for the Testing and Evaluation of Drugs for Carcinogenicity

Scientific Group on Research in Health Education

Scientific Group on Field Studies of Human Reproduction

---

1 Unable to attend.

2 Scientific group reports published in 1968 are listed on page 70 and in Annex 15.
Annex 6

NON-GOVERNMENTAL ORGANIZATIONS IN OFFICIAL RELATIONS WITH WHO

at 31 December 1968

Biometric Society
Central Council for Health Education
Council for International Organizations of Medical Sciences
Inter-American Association of Sanitary Engineering
International Academy of Legal Medicine and of Social Medicine
International Air Transport Association
International Association for Child Psychiatry and Allied Professions
International Association of Logopedics and Phoniatrics
International Association of Microbiological Societies
International Association for Prevention of Blindness
International Astronautical Federation
International Brain Research Organization
International Commission on Radiological Protection
International Commission on Radiation Units and Measurements
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 of Nurses
International Council of Scientific Unions
International Council on Social Welfare
International Council of Societies of Pathology
International Dental Federation
International Diabetes Federation
International Epidemiological Association
International Federation of Gynecology and Obstetrics
International Federation for Housing and Planning
International Federation for Medical and Biological Engineering
International Federation of Physical Medicine
International Federation of Sports Medicine
International Federation of Surgical Colleges
International Fertility Association
International Hospital Federation
International Hydatidological Association
International League of Dermatological Societies
International League against Rheumatism
International Leprosy Association
International Organization against Trachoma
International Paediatric Association
International Pharmaceutical Federation
International Planned Parenthood Federation
International Society of Biometeorology
International Society of Blood Transfusion
International Society of Cardiology
International Society for Criminology
International Society of Orthopaedic Surgery and Traumatology
International Society of Radiographers and Radiological Technicians
International Society for Rehabilitation of the Disabled
International Union of Architects
International Union against Cancer
International Union for Child Welfare
International Union for Health Education
International Union of Local Authorities
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
League of Red Cross Societies
Medical Women’s International Association
Permanent Commission and International Association on Occupational Health
Transplantation Society
World Confederation for Physical Therapy
World Federation of the Deaf
World Federation for Mental Health
World Federation of Neurology
World Federation of Occupational Therapists
World Federation of Societies of Anaesthesiologists
World Federation of United Nations Associations
World Medical Association
World Psychiatric Association
World Union OSE
World Veterans Federation
World Veterinary Association
Annex 7

REGULAR BUDGET FOR 1968

<table>
<thead>
<tr>
<th>Appropriation Section</th>
<th>Purpose of Appropriation</th>
<th>Original amount voted</th>
<th>Amounts withdrawn from the Working Capital Fund</th>
<th>Reimbursement of the Working Capital Fund</th>
<th>Revised Appropriation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>US $</td>
<td>US $</td>
<td>US $</td>
<td>US $</td>
</tr>
<tr>
<td><strong>PART I: ORGANIZATIONAL MEETINGS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. World Health Assembly</td>
<td></td>
<td>416 890</td>
<td>1 500</td>
<td>415 390</td>
<td></td>
</tr>
<tr>
<td>2. Executive Board and its Committees</td>
<td></td>
<td>194 745</td>
<td>7 700</td>
<td>187 045</td>
<td></td>
</tr>
<tr>
<td>3. Regional Committees</td>
<td></td>
<td>115 900</td>
<td></td>
<td>115 900</td>
<td></td>
</tr>
<tr>
<td>Total - Part I</td>
<td></td>
<td>727 535</td>
<td></td>
<td>9 200</td>
<td>718 335</td>
</tr>
<tr>
<td><strong>PART II: OPERATING PROGRAMME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Programme Activities</td>
<td></td>
<td>45 958 044</td>
<td>74 000</td>
<td>66 800</td>
<td>45 965 244</td>
</tr>
<tr>
<td>5. Regional Offices</td>
<td></td>
<td>4 969 987</td>
<td></td>
<td>32 000</td>
<td>4 937 987</td>
</tr>
<tr>
<td>Total - Part II</td>
<td></td>
<td>51 165 231</td>
<td>74 000</td>
<td>98 800</td>
<td>51 140 431</td>
</tr>
<tr>
<td><strong>PART III: ADMINISTRATIVE SERVICES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Administrative Services</td>
<td></td>
<td>3 630 234</td>
<td>34 000</td>
<td></td>
<td>3 664 234</td>
</tr>
<tr>
<td>Total - Part III</td>
<td></td>
<td>3 630 234</td>
<td>34 000</td>
<td></td>
<td>3 664 234</td>
</tr>
<tr>
<td><strong>PART IV: OTHER PURPOSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Headquarters Building Fund</td>
<td></td>
<td>500 000</td>
<td></td>
<td></td>
<td>500 000</td>
</tr>
<tr>
<td>9. Revolving Fund for Teaching and Laboratory Equipment</td>
<td></td>
<td>100 000</td>
<td></td>
<td></td>
<td>100 000</td>
</tr>
<tr>
<td>Total - Part IV</td>
<td></td>
<td>600 000</td>
<td></td>
<td></td>
<td>600 000</td>
</tr>
<tr>
<td><strong>EFFECTIVE WORKING BUDGET (PARTS I, II, III AND IV)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>56 123 000</td>
<td>108 000</td>
<td>108 000</td>
<td>56 123 000</td>
</tr>
<tr>
<td><strong>PART V: RESERVE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Undistributed Reserve</td>
<td></td>
<td>3 742 580</td>
<td></td>
<td></td>
<td>3 742 580</td>
</tr>
<tr>
<td>Total - Part V</td>
<td></td>
<td>3 742 580</td>
<td></td>
<td></td>
<td>3 742 580</td>
</tr>
<tr>
<td><strong>TOTAL - ALL PARTS</strong></td>
<td></td>
<td>59 865 580</td>
<td>108 000</td>
<td>108 000</td>
<td>59 865 580</td>
</tr>
</tbody>
</table>

---

1 Appropriation Resolution for 1968 (resolution WHA20.33) incorporating transfers between sections concurred in by the Executive Board (resolution EB41.R4).
Annex 8

NUMBERS AND DISTRIBUTION OF THE STAFF
at 30 November 1967 and 30 November 1968

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Staff as at 30 November 1967</th>
<th>Staff as at 30 November 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Regular Budget</td>
</tr>
<tr>
<td>Headquarters ²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>425</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>655</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1080</td>
<td>1029</td>
</tr>
<tr>
<td>Regional Offices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>192</td>
<td></td>
</tr>
<tr>
<td></td>
<td>242</td>
<td>242</td>
</tr>
<tr>
<td>The Americas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>82</td>
<td>80</td>
</tr>
<tr>
<td>South-East Asia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td></td>
<td>172</td>
<td>172</td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td></td>
<td>136</td>
<td>136</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>142</td>
<td>142</td>
</tr>
<tr>
<td>Western Pacific</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>WHO Representatives ³ and Zone Offices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Locally recruited</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>120</td>
</tr>
</tbody>
</table>

³ International Agency for Research on Cancer.
² Including liaison offices.
## Distribution

<table>
<thead>
<tr>
<th>Field Staff in Countries</th>
<th>Staff as at 30 November 1967</th>
<th>Staff as at 30 November 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Regular</td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>908</td>
<td>522</td>
</tr>
<tr>
<td>Locally recruited</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>946</td>
<td>522</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Offices</th>
<th>Staff as at 30 November 1967</th>
<th>Staff as at 30 November 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Regular</td>
</tr>
<tr>
<td>International Children’s Centre, Paris</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Locally recruited</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inter-regional Activities</th>
<th>Staff as at 30 November 1967</th>
<th>Staff as at 30 November 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Regular</td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>58</td>
<td>34</td>
</tr>
<tr>
<td>Locally recruited</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staff on loan to WHO, or on leave without pay</th>
<th>Staff as at 30 November 1967</th>
<th>Staff as at 30 November 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staff on secondment or loan to other organizations</th>
<th>Staff as at 30 November 1967</th>
<th>Staff as at 30 November 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short-term consultants</th>
<th>Staff as at 30 November 1967</th>
<th>Staff as at 30 November 1968</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>138</td>
<td>180</td>
</tr>
</tbody>
</table>

| WHO GRAND TOTAL                      | 3302                        | 3507                        |
| PAHO GRAND TOTAL                     | 915                         | 953                         |

1 International Agency for Research on Cancer.

a Including 56 agents in the Democratic Republic of the Congo.

b Including 45 agents in the Democratic Republic of the Congo.
### Annex 9

**COMPOSITION OF THE STAFF BY NATIONALITY**

at 30 November 1968

<table>
<thead>
<tr>
<th>Country</th>
<th>WHO</th>
<th>PAHO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Argentina</td>
<td>27</td>
<td>16</td>
<td>43</td>
</tr>
<tr>
<td>Australia</td>
<td>31</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>Austria</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Belgium</td>
<td>30</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>Bolivia</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Brazil</td>
<td>25</td>
<td>22</td>
<td>47</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Burma</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Burundi</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Cameroon</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Canada</td>
<td>56</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>Ceylon</td>
<td>14</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Chile</td>
<td>19</td>
<td>31</td>
<td>50</td>
</tr>
<tr>
<td>China</td>
<td>25</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>Colombia</td>
<td>17</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>4</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Cuba</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Cyprus</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>34</td>
<td>3</td>
<td>37</td>
</tr>
<tr>
<td>Dahomey</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Denmark</td>
<td>26</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Ecuador</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>El Salvador</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Federal Republic of Germany</td>
<td>50</td>
<td>1</td>
<td>51</td>
</tr>
<tr>
<td>Finland</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>France</td>
<td>127</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>Gambia</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Ghana</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Greece</td>
<td>16</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Guatemala</td>
<td>5</td>
<td>36</td>
<td>41</td>
</tr>
<tr>
<td>Haiti</td>
<td>20</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Honduras</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Hungary</td>
<td>12</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>India</td>
<td>55</td>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>Indonesia</td>
<td>8</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Iran</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Iraq</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Ireland</td>
<td>17</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Israel</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Italy</td>
<td>32</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>Jamaica</td>
<td>7</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Japan</td>
<td>19</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Jordan</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Lebanon</td>
<td>19</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Madagascar</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Malta</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Mauritius</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Mexico</td>
<td>11</td>
<td>16</td>
<td>27</td>
</tr>
<tr>
<td>Morocco</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Nepal</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Netherlands</td>
<td>34</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>New Zealand</td>
<td>12</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1613</td>
<td>344</td>
<td>1957</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>WHO</th>
<th>PAHO</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicaragua</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nigeria</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Norway</td>
<td>11</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Pakistan</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Panama</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Paraguay</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Peru</td>
<td>14</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td>Philippines</td>
<td>22</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>Poland</td>
<td>25</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Portugal</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Romania</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Senegal</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Singapore</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Somalia</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>South Africa</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Spain</td>
<td>18</td>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>Sudan</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Sweden</td>
<td>26</td>
<td>26</td>
<td>52</td>
</tr>
<tr>
<td>Switzerland</td>
<td>47</td>
<td>47</td>
<td>94</td>
</tr>
<tr>
<td>Syria</td>
<td>8</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Thailand</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Togo</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>9</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Tunisia</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Turkey</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Union of Soviet Socialist Republic</td>
<td>48</td>
<td>48</td>
<td>96</td>
</tr>
<tr>
<td>United Arab Republic</td>
<td>40</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>United Kingdom of Great Britain and Northern Ireland</td>
<td>185</td>
<td>14</td>
<td>199</td>
</tr>
<tr>
<td>United Republic of Tanzania</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>United States of America</td>
<td>168</td>
<td>74</td>
<td>242</td>
</tr>
<tr>
<td>Uruguay</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Venezuela</td>
<td>5</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Viet-Nam</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>26</td>
<td>26</td>
<td>52</td>
</tr>
<tr>
<td>Zambia</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Stateless</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1613</td>
<td>344</td>
<td>1957</td>
</tr>
</tbody>
</table>

**International Agency for Research on Cancer**

| Research on Cancer | 19  | 19  |
| Geographically excepted posts | 111 | 111 |
| Short-term consultants    | 180 | 220 |
| Agents in the Democratic Republic of the Congo | 45 | 45 |
| Staff locally recruited   | 1539 | 2108 |

**GRAND TOTAL**

|          | 3507 | 953 | 4460 |
### Annex 10

#### STATUS OF MALARIA ERADICATION

<table>
<thead>
<tr>
<th>Region of the Americas</th>
<th>European Region</th>
<th>Eastern Mediterranean Region</th>
<th>Western Pacific Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominica</td>
<td>Bulgaria</td>
<td>Cyprus</td>
<td></td>
</tr>
<tr>
<td>Grenada and Carriacou</td>
<td>Hungary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamaica</td>
<td>Poland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St Lucia</td>
<td>Romania</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>Spain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venezuela</td>
<td>Tanzanian</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>African Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mauritius</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guinea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Region of the Americas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guadeloupe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martinique</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puerto Rico</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States of America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virgin Islands (USA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>European Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algeria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Eastern Mediterranean Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iran</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iraq</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lebanon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Western Pacific Region</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papaua and New Guinea</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Countries and Territories entered on WHO Official Register of Areas where Malaria Eradication has been achieved

- Dominica
- Grenada and Carriacou
- Jamaica
- St Lucia
- Trinidad and Tobago
- Venezuela

2. Countries and Territories where Malaria Eradication has been claimed but not yet registered

- African Region
  - Mauritius
- Region of the Americas
  - Guadeloupe
  - Martinique
  - Puerto Rico
  - United States of America
  - Virgin Islands (USA)

3. Countries and Territories in which Malaria Eradication Programmes were in Operation at 31 December 1968

- African Region
  - Cape Verde Islands
  - South Africa
  - Swaziland
  - United Republic of Tanzania (Zanzibar and Pemba)

- South-East Asia Region
  - Afghanistan
  - Burma
  - Ceylon
  - India
  - Indonesia

4. Countries and Territories assisted by WHO in 1968 with Antimalaria Activities other than Eradication Programmes

1. Major part of country entered on the WHO official register as having eradicated malaria.
2. Eradication programme previously received assistance from WHO.
3. Programme not directly assisted by WHO in 1968.
4. Programme assisted by WHO until June 1968.
# Annex 11

## Fellowships Awarded, by Subject of Study and by Region

### 1 December 1967 - 30 November 1968

<table>
<thead>
<tr>
<th>Subject of Study</th>
<th>Africa</th>
<th>The Americas</th>
<th>South-East Asia</th>
<th>Europe</th>
<th>Eastern Mediterranean</th>
<th>Western Pacific</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Organization and Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PUBLIC HEALTH ADMINISTRATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public health administration</td>
<td>31</td>
<td>63</td>
<td>21</td>
<td>51</td>
<td>30</td>
<td>21</td>
<td>217</td>
</tr>
<tr>
<td>Hospital and medical care administration</td>
<td>14</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>20</td>
<td>7</td>
<td>68</td>
</tr>
<tr>
<td>Construction of health institutions</td>
<td></td>
<td>3</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Medical librarianship</td>
<td></td>
<td>8</td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td><strong>Sub-total — Public Health Administration</strong></td>
<td>45</td>
<td>84</td>
<td>28</td>
<td>64</td>
<td>57</td>
<td>29</td>
<td>307</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL HEALTH</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental sanitation</td>
<td>59</td>
<td>87</td>
<td>18</td>
<td>92</td>
<td>29</td>
<td>28</td>
<td>313</td>
</tr>
<tr>
<td>Housing and town planning</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Food control</td>
<td>6</td>
<td>3</td>
<td></td>
<td>13</td>
<td>10</td>
<td>3</td>
<td>35</td>
</tr>
<tr>
<td><strong>Sub-total — Environmental Health</strong></td>
<td>67</td>
<td>93</td>
<td>22</td>
<td>106</td>
<td>44</td>
<td>34</td>
<td>366</td>
</tr>
<tr>
<td><strong>NURSING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing and midwifery</td>
<td>20</td>
<td>54</td>
<td>26</td>
<td>20</td>
<td>52</td>
<td>17</td>
<td>189</td>
</tr>
<tr>
<td>Public health nursing</td>
<td>23</td>
<td>14</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>Medical social work</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>Sub-total — Nursing</strong></td>
<td>44</td>
<td>69</td>
<td>30</td>
<td>24</td>
<td>58</td>
<td>26</td>
<td>251</td>
</tr>
<tr>
<td><strong>MATERNAL AND CHILD HEALTH</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>2</td>
<td>16</td>
<td>4</td>
<td>12</td>
<td>12</td>
<td>16</td>
<td>62</td>
</tr>
<tr>
<td>Paediatrics and obstetrics</td>
<td>14</td>
<td>14</td>
<td>18</td>
<td>16</td>
<td>13</td>
<td>7</td>
<td>82</td>
</tr>
<tr>
<td><strong>Sub-total — Maternal and Child Health</strong></td>
<td>16</td>
<td>30</td>
<td>22</td>
<td>28</td>
<td>25</td>
<td>23</td>
<td>144</td>
</tr>
<tr>
<td><strong>OTHER HEALTH SERVICES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental health</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>23</td>
<td>13</td>
<td>12</td>
<td>61</td>
</tr>
<tr>
<td>Health education</td>
<td></td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Occupational health</td>
<td>6</td>
<td>9</td>
<td>15</td>
<td>34</td>
<td>7</td>
<td>11</td>
<td>82</td>
</tr>
<tr>
<td>Nutrition</td>
<td>15</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>45</td>
</tr>
<tr>
<td>Health statistics</td>
<td>7</td>
<td>47</td>
<td>18</td>
<td>32</td>
<td>7</td>
<td>7</td>
<td>118</td>
</tr>
<tr>
<td>Dental health</td>
<td>11</td>
<td>7</td>
<td>7</td>
<td>13</td>
<td>8</td>
<td>14</td>
<td>60</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>7</td>
<td>24</td>
<td>8</td>
<td>35</td>
<td>17</td>
<td>6</td>
<td>97</td>
</tr>
<tr>
<td>Control of pharmaceutical and biological preparations</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>15</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td><strong>Sub-total — Other Health Services</strong></td>
<td>53</td>
<td>107</td>
<td>72</td>
<td>158</td>
<td>74</td>
<td>68</td>
<td>532</td>
</tr>
<tr>
<td><strong>TOTAL — HEALTH ORGANIZATION AND SERVICES</strong></td>
<td>225</td>
<td>383</td>
<td>174</td>
<td>380</td>
<td>258</td>
<td>180</td>
<td>1600</td>
</tr>
</tbody>
</table>

<p>| Percentage | 47 | 59 | 47 | 60 | 39 | 49 | 51 |</p>
<table>
<thead>
<tr>
<th>Subject of Study</th>
<th>Region</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Africa</td>
<td>The Americas</td>
</tr>
<tr>
<td>Communicable Diseases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Venereal diseases and treponematoses</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>Other communicable diseases</td>
<td>25</td>
<td>63</td>
</tr>
<tr>
<td>Laboratory services</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>Chemotherapy, antibiotics</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total — Communicable Diseases</strong></td>
<td>67</td>
<td>114</td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Clinical Medicine, Basic Medical Sciences and Medical and Allied Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery and medicine</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Anaesthesiology</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Radiology</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Haematology</td>
<td>2</td>
<td>—</td>
</tr>
<tr>
<td>Other medical and surgical specialties</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td><strong>Sub-total — Clinical Medicine</strong></td>
<td>46</td>
<td>11</td>
</tr>
<tr>
<td>Basic Medical Sciences and Medical and Allied Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic medical sciences</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Medical and allied education</td>
<td>5</td>
<td>134</td>
</tr>
<tr>
<td>Undergraduate medical studies</td>
<td>115</td>
<td>—</td>
</tr>
<tr>
<td><strong>Sub-total — Basic Medical Sciences and Medical and Allied Education</strong></td>
<td>143</td>
<td>135</td>
</tr>
<tr>
<td><strong>Total — Clinical Medicine, Basic Medical Sciences and Medical and Allied Education</strong></td>
<td>189</td>
<td>146</td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td>39</td>
<td>23</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>481</td>
<td>643</td>
</tr>
</tbody>
</table>
Annex 12

RESEARCH GRANTS FOR TRAINING AND EXCHANGE IN 1968,
BY SUBJECT AND TYPE OF GRANT

<table>
<thead>
<tr>
<th>Subject</th>
<th>Training grants</th>
<th>Grants for exchange of research workers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial diseases (other than leprosy and tuberculosis)</td>
<td>—</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Biology, pharmacology and toxicology:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological standardization</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Human genetics</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Human reproduction</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Immunology</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Pharmacology and toxicology</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Chronic and degenerative diseases:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>5</td>
<td>—</td>
<td>5</td>
</tr>
<tr>
<td>Environmental health</td>
<td>1</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Leprosy</td>
<td>—</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Malaria</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mental health</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition</td>
<td>1</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Occupational health</td>
<td>1</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Parastic diseases (other than malaria)</td>
<td>—</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Public health administration: Organization of medical care</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Research in epidemiology and communications science:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecology</td>
<td>1</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>1</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Vector biology and control</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Venereal diseases and treponematoses</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Veterinary public health</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Virus diseases</td>
<td>9</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Other fields: Electro-physiological measurements in hearing</td>
<td>—</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL ¹</td>
<td>42</td>
<td>39</td>
<td>81</td>
</tr>
</tbody>
</table>

¹ In addition, research grants were awarded, supported entirely or in part by the Government of Czechoslovakia (2), the Government of Israel (4) and the Swedish National Association against Heart and Chest Diseases (3).
### Annex 13

**WHO COLLABORATIVE RESEARCH: CONTRACTS CONCLUDED WITH INSTITUTIONS FOR PROJECTS INITIATED IN 1968**

<table>
<thead>
<tr>
<th>Subject of Research</th>
<th>Region</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Africa</td>
<td>The Americas</td>
<td>South-East Asia</td>
<td>Europe</td>
<td>Eastern Mediterranean</td>
<td>Western Pacific</td>
</tr>
<tr>
<td>Bacterial diseases (other than leprosy and tuberculosis)</td>
<td></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>—</td>
<td>3</td>
</tr>
<tr>
<td>Biology, pharmacology and toxicology:</td>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>Biological standardization</td>
<td></td>
<td>—</td>
<td>—</td>
<td>3</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Drug safety and monitoring</td>
<td></td>
<td>2</td>
<td>—</td>
<td>3</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Human genetics</td>
<td></td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Human reproduction</td>
<td></td>
<td>—</td>
<td>—</td>
<td>2</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Immunology</td>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>Chronic and degenerative diseases: Cardiovascular diseases</td>
<td></td>
<td>—</td>
<td>—</td>
<td>2</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Dental health</td>
<td></td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>1</td>
</tr>
<tr>
<td>Environmental health: Community water supply</td>
<td></td>
<td>1</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Leprosy</td>
<td></td>
<td>2</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>3</td>
</tr>
<tr>
<td>Malaria</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Mental health</td>
<td></td>
<td>2</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Occupational health</td>
<td></td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Parasitic diseases (other than malaria)</td>
<td></td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>2</td>
<td>—</td>
</tr>
<tr>
<td>Public health administration: Organization of medical care</td>
<td></td>
<td>—</td>
<td>—</td>
<td>4</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Radiation health</td>
<td></td>
<td>—</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Research in epidemiology and communications science</td>
<td></td>
<td>—</td>
<td>—</td>
<td>2</td>
<td>2</td>
<td>—</td>
</tr>
<tr>
<td>Smallpox</td>
<td></td>
<td>—</td>
<td>—</td>
<td>2</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td></td>
<td>1</td>
<td>1</td>
<td>—</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Vector biology and control</td>
<td></td>
<td>1</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Venereal diseases and treponematoses</td>
<td></td>
<td>1</td>
<td>—</td>
<td>3</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Veterinary public health</td>
<td></td>
<td>1</td>
<td>3</td>
<td>12</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td>Virus diseases (other than smallpox)</td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>12</td>
<td>27</td>
<td>7</td>
<td>66</td>
<td>7</td>
</tr>
</tbody>
</table>
Annex 14

WHO REFERENCE CENTRES

Below are listed the institutions that served as international or regional reference centres during 1968.

BACTERIAL DISEASES

Enteric Infections

*International Reference Centre for Enteric Phage-Typing*
Central Public Health Laboratory, London, England

*International Escherichia Centre*
Statens Seruminstitut, Copenhagen, Denmark

*International Salmonella Centre*
Institut Pasteur, Paris, France

*International Shigella Centres*
Central Public Health Laboratory, London, England
National Communicable Disease Center, Atlanta, Ga., USA

*International Reference Centre for Vibrio Phage-Typing*
Indian Institute of Experimental Medicine, Calcutta, India

Meningococcal Infections

*International Reference Centre for Meningococci*
Laboratoire de Microbiologie, Centre de Recherches du Service de Santé des Troupes de Marine, Marseilles, France

Staphylococcal Infections

*International Reference Centre for Staphylococcal Phage-Typing*
Central Public Health Laboratory, London, England

Streptococcal Infections

*International Reference Centre for Streptococcus Typing*
Streptococcus Reference Laboratory, Institute of Epidemiology and Microbiology, Prague, Czechoslovakia

BIOLOGY, PHARMACOLOGY AND TOXICOLOGY

Antibiotics

*International Centre for Information on Antibiotics*
Laboratoire de Microbiologie générale et médicale, University of Liège, Belgium

BIOLOGY, PHARMACOLOGY AND TOXICOLOGY

Biological Standardization

*International Laboratories for Biological Standards*
Statens Seruminstitut, Copenhagen, Denmark
National Institute for Medical Research, London, England
Central Veterinary Laboratory, Ministry of Agriculture, Fisheries and Food, Weybridge, England

Human Genetics

*International Reference Centre for Abnormal Haemoglobins*
Medical Research Council's Abnormal Haemoglobin Research Unit, Department of Biochemistry, University of Cambridge, England

*International Reference Centre for Glucose-6-Phosphate Dehydrogenase*
Department of Medicine — Medical Genetics, University of Washington, Seattle, Wash., USA

*Regional Reference Centres for Glucose-6-Phosphate Dehydrogenase*
Department of Haematology, Tel-Hashomer Government Hospital, Israel
Sub-Department of Haematology, University College Hospital, Ibadan, Nigeria

*International Reference Centre for the Processing of Human Genetics Data*
* Department of Genetics, School of Medicine, University of Hawaii, Honolulu, Hawaii

*International Reference Centre for Serum Protein Groups*
Zoology Department, University of Texas, Austin, Tex., USA

Human Reproduction

*International Reference Centre for the Biology of Spermatozoa*
* Department of Obstetrics and Gynaecology, New York Medical College, New York, N.Y., USA

Immunology

*International Reference Centre for Genetic Factors of Human Immunoglobulins*
Centre départemental de Transfusion sanguine et de Génétique humaine, Bois-Guillaume, Seine-Maritime, France

* Initiated in 1968.
Regional Reference Centres for Genetic Factors of Human Immunoglobulins
Department of Medical Microbiology, University of Lund, Sweden
Department of Biology, Western Reserve University, Cleveland, Ohio, USA
International Reference Centre for Immunoglobulins
Institut de Biochimie, University of Lausanne, Switzerland
Regional Reference Centre for Immunoglobulins
National Cancer Institute, National Institutes of Health, Bethesda, Md., USA
International Reference Centre for the Use of Immunoglobulin Anti-D in the Prevention of Rh Sensitization
Medical Research Council's Experimental Haematology Research Unit, St Mary's Hospital Medical School, London, England
International Reference Laboratory for the Serology of Autoimmune Disorders
Rheumatoid Research Department, Middlesex Hospital Medical School, London, England
Regional Reference Centres for the Serology of Autoimmune Disorders
* The Walter and Eliza Hall Institute of Medical Research, Melbourne University, Australia
Department of Bacteriology and Immunology, State University of New York at Buffalo, N.Y., USA
International Reference Centre for Testing of Natural Resistance Factors
Department of Immunology, Institute of Epidemiology and Microbiology, Prague, Czechoslovakia
International Reference Centre for Tumour-Specific Antigens
Division of Immunology and Oncology, Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR
Regional Reference Centres for Immunology (Research and Training)
Department of Microbiology and Immunology, Instituto Butantan, São Paulo, Brazil
Department of Chemical Pathology, University College Hospital, Ibadan, Nigeria
Institut de Biochimie, University of Lausanne, Switzerland
Pharmaceuticals
International Reference Centre for Chemical Reference Substances
Centre for Authentic Chemical Substances, Apotekens Central-laboratorium, Solna, Stockholm, Sweden

CHRONIC AND DEGENERATIVE DISEASES

Cancer
International Reference Centre for Comparative Oncology
Armed Forces Institute of Pathology, Washington, D.C., USA
International Reference Centre for Evaluation of Methods of Diagnosis and Treatment of Breast Cancer
* Institut Gustave Roussy, Villejuif, Val-de-Marne, France
International Reference Centre for Evaluation of Methods of Diagnosis and Treatment of Melanoma
* National Institute for the Study and Treatment of Tumours, Milan, Italy
International Reference Centre for the Histopathology of Bone Tumours
Latin American Registry of Bone Pathology, Osteo-articular Pathology Centre, Italian Hospital, Buenos Aires, Argentina
International Reference Centre for the Histopathology of Gastro-Oesophageal Tumours
* Cancer Research Institute, Faculty of Medicine, Kyushu University, Fukuoka, Japan
International Reference Centre for the Histopathology of Intestinal Tumours
* Research Department, St Mark's Hospital, London, England
International Reference Centre for the Histopathology of Male Urogenital Tract Tumours
Armed Forces Institute of Pathology, Washington, D.C., USA
International Reference Centre for the Histopathology of Mammary Tumours
Bland Sutton Institute of Pathology, Middlesex Hospital, London, England
International Reference Centre for the Histopathology of Odontogenic Tumours
Department of Oral Pathology, Royal Dental College, Copenhagen, Denmark
International Reference Centre for the Histopathology of Oral Precancerous Conditions
Department of Oral Pathology, Royal Dental College, Copenhagen, Denmark
International Reference Centre for the Histopathology of Oro-pharyngeal Tumours
Sarojini Naidu Medical College, Agra, Uttar Pradesh, India
International Reference Centre for the Histopathology of Ovarian Tumours
Institute of Oncology, Leningrad, USSR
International Reference Centre for the Histopathology of Salivary Gland Tumours
Bland Sutton Institute of Pathology, Middlesex Hospital, London, England

* Initiated in 1968.
International Reference Centre for the Histopathology of Skin Tumours
Pathology Department, University of Western Australia, Perth, Australia

International Reference Centre for the Histopathology of Soft Tissue Tumours
Armed Forces Institute of Pathology, Washington, D.C., USA

International Reference Centre for the Histopathology of Thyroid Gland Tumours
University Institute of Pathology, Cantonal Hospital, Zurich, Switzerland

International Reference Centre for the Histopathology of Uterine Tumours and Related Conditions
Institute of Radiopathology, Karolinska Institute, Stockholm, Sweden

International Reference Centre for Nomenclature in Cytology (Female Genital Tract)
* Centre de Cytologie et de Dépistage du Cancer des Polycliniques universitaires, Geneva, Switzerland

International Reference Centre for the Provision of Frozen Transplantable Tumour Strains
Department of Tumour Pathology, Karolinska Institute, Stockholm, Sweden

International Reference Centre for the Provision and Study of Tumour-bearing Animals
Netherlands Cancer Institute, Amsterdam, Netherlands

Cardiovascular Diseases
Centre for Cardiovascular Diseases (Research and Training)
Makerere College, University of East Africa, Kampala, Uganda

Rheumatic Diseases
International Reference Centre for the Study of the Diffuse Connective Tissue Diseases
Hôpital Cochin, Paris, France

ENVIRONMENTAL HEALTH

Air Pollution
International Reference Centre on Air Pollution
Medical Research Council’s Air Pollution Research Unit, St Bartholomew’s Medical College, London, England

Community Water Supply
International Reference Centre on Community Water Supply
* Chemical Bacteriological Department, Institute for Water Supply, The Hague, Netherlands

Wastes Disposal
International Reference Centre on Wastes Disposal
* Federal Institute for Water Supply, Sewage Purification and Water Pollution Control, Zurich, Switzerland

LEPROSY
International Reference Centre for the Serology of Leprosy
* Department of Microbiology and Immunology, Ribeirão Preto Faculty of Medicine, University of São Paulo, Brazil

MALARIA
International Malaria Reference Centre
Laboratory of Parasite Chemotherapy, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Md., USA

Regional Malaria Reference Centres
Horton Malaria Reference Laboratory, Epsom, England
National Institute of Communicable Diseases, New Delhi, India

International Reference Centre for Avian Malaria Parasites
* Department of Biology, Memorial University of Newfoundland, St John’s, Newfoundland, Canada

Regional Reference Centre for Screening of Potential Antimalarial Compounds
* Department of Parasitology, Liverpool School of Tropical Medicine, Liverpool, England

MENTAL HEALTH
International Reference Centre for Information on Psychotropic Drugs
National Institute of Mental Health, Chevy Chase, Md., USA

International Reference Centre for the Study of Adverse and Side Effects of Psychotropic Drugs
Centre psychiatrique Sainte-Anne, Paris, France

Regional Reference Centres for the Study of Psychotropic Drugs
Faculty of Medicine, Hokkaido University, Sapporo, Japan
Clinique neuropsychiatrique, Faculté mixte de Médecine et de Pharmacie, University of Dakar, Senegal
* Psychiatric Clinic, Faculty of Medicine, University of Basel, Switzerland

NUTRITION

Anaemias
International Reference Centre for Anaemias
School of Medicine, University of Washington, Seattle, Wash., USA

Regional Reference Centres for Anaemias
Department of Pathology, St Bartholomew’s Medical College, London, England
Venezuelan Institute for Scientific Research, Caracas, Venezuela

* Initiated in 1968.
PARASITIC DISEASES 1

Leishmaniasis

*International Reference Centre for Leishmaniasis*
Department of Parasitology, Hadassah Medical School, Jerusalem, Israel

Schistosomiasis

*Snail Identification Centre*
Danish Bilharziasis Laboratory, Copenhagen, Denmark

Trypanosomiasis

*International Reference Centre for Trypanosomiasis*
East African Trypanosomiasis Research Organization, Tororo, Uganda

RADIATION HEALTH

*Regional Reference Centres for Secondary Standard Radiation Dosimetry*

* Laboratory for Dosimetry, National Atomic Energy Commission, Buenos Aires, Argentina

* Radiation Hygiene Laboratory, Institute of Hygiene, Bucharest, Romania

TUBERCULOSIS

*Tuberculosis Diagnosis Reference Laboratory*

Tuberculosis Research Institute, Prague, Czechoslovakia

*International Reference Centre for BCG Seed-lots and Control of BCG Products*

BCG Department, Statens Seruminstitut, Copenhagen, Denmark

*Regional Reference Centre for Tuberculosis*

* National Tuberculosis Institute, El Algodonal, Caracas, Venezuela

VECTOR BIOLOGY AND CONTROL

*International Reference Centre for the Diagnosis of Diseases of Vectors*

Department of Zoology and Entomology, Ohio State University, Columbus, Ohio, USA

*International Reference Centres for the Evaluation and Testing of New Insecticides*

Toxicology Research Unit, Medical Research Council Laboratories, Cshalton, Surrey, England

Tropical Pesticides Research Unit, Porton Down, Wiltshire, England

Department of Entomology, University of California, Riverside, Calif., USA

VENEREAL DISEASES AND TREPONEMATOSES

*International Reference Centre for Endemic Treponematoses*

Institut Alfred Fournier, Paris, France

*International Reference Centre for Gonococci*

Neisseria Department, Statens Seruminstitut, Copenhagen, Denmark

*International Treponematoses Laboratory Centre*

Johns Hopkins University, Baltimore, Md., USA

*Serological Reference Centres for Treponematoses*

Treponematoses Research Laboratory, Statens Seruminstitut, Copenhagen, Denmark

Veneréal Disease Research Laboratory, National Communicable Disease Center, Atlanta, Ga., USA

VIRUS DISEASES 3

Arbovirus Diseases

*International Reference Centre for Arboviruses*

Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, Conn., USA

*Regional Reference Centres for Arboviruses*

Queensland Institute of Medical Research, Brisbane, Australia

Institute of Virology, Bratislava, Czechoslovakia

Service de la Fièvre jaune et des Arbovirus, Institut Pasteur, Paris, France

Department of Virology and Rickettsiology, National Institute of Health, Tokyo, Japan

Institut Pasteur, Dakar, Senegal

East African Virus Research Institute, East African Common Services Organization, Entebbe, Uganda

---

1 The reference centres for malaria are shown under a separate heading.

2 Not including rabies, shown under Zoonoses.

3 Not including rabies, shown under Zoonoses.
Viral Encephalitides Section, Institute of Poliomyelitis and Viral Encephalitides, Moscow, USSR
Virology Section, National Communicable Disease Center, Atlanta, Ga., USA

Cell Cultures
International Reference Centre for Cell Cultures
American Type Culture Collection, Rockville, Md., USA

Enterovirus Diseases
International Reference Centre for Enteroviruses
Department of Virology and Epidemiology, Baylor University College of Medicine, Houston, Tex., USA
Regional Reference Centres for Enteroviruses
Enterovirus Department, Statens Seruminstitut, Copenhagen, Denmark
Section de Virologie, Laboratoire national de la Santé publique, Lyons, France
Department of Enteroviruses, National Institute of Health, Tokyo, Japan
Department of Bacteriology, University of Singapore
Institute of Poliomyelitis and Viral Encephalitides, Moscow, USSR

Influenza
World Influenza Centre
National Institute for Medical Research, London, England
International Influenza Centre for the Americas
Virology Section, National Communicable Disease Center, Atlanta, Ga., USA

Mycoplasmas
International Reference Centre for Human Mycoplasmas
Laboratory of Viral Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Md., USA
FAO/WHO International Reference Centre for Animal Mycoplasmas
Institute of General Pathology and Bacteriology, University of Aarhus, Denmark

Respiratory Virus Diseases other than Influenza
International Reference Centres for Respiratory Virus Diseases other than Influenza
Common Cold Research Unit, National Institute for Medical Research, Harvard Hospital, Salisbury, England
Laboratory of Viral Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Md., USA
Regional Reference Centres for Respiratory Virus Diseases other than Influenza
Epidemiological Research Unit, Fairfield Infectious Diseases Hospital, Melbourne, Australia
Institute of Epidemiology and Microbiology, Prague, Czechoslovakia
Respiratory Virus Laboratory, National Institute of Health, Tokyo, Japan
South African Institute for Medical Research, Johannesburg, South Africa
Ivanovskij Institute of Virology, Moscow, USSR
Respirovirus Unit, Virology Section, National Communicable Disease Center, Atlanta, Ga., USA

Rickettsioses
Regional Reference Centres for Human Rickettsioses
* Institute of Virology, Bratislava, Czechoslovakia
Rocky Mountain Laboratory, National Institute of Allergy and Infectious Diseases, Hamilton, Mont., USA

Smallpox
Regional Reference Centres for Smallpox
National Communicable Disease Center, Atlanta, Ga., USA
Research Institute of Virus Preparations, Moscow, USSR

Trachoma
International Reference Centre for Trachoma
Francis I. Proctor Foundation for Research in Ophthalmology, University of California Medical Center, San Francisco, Calif., USA

VITAL AND HEALTH STATISTICS

Classification of Diseases
International Reference Centres for the Classification of Diseases
Institut national de la Santé et de la Recherche médicale, Section Information sur la Santé publique, Boulogne-sur-Seine, France
Department of Public Health Statistics, Semashko Institute of Social Hygiene and Public Health Administration, Moscow, USSR
Latin American Centre for Classification of Diseases, Centro Simón Bolivar, Caracas, Venezuela

ZOONOSES

Brucellosis
FAO/WHO Brucellosis Centres
Commonwealth Serum Laboratories, Parkville, Victoria, Australia

* Initiated in 1968,
State Veterinary Serum Laboratory, Copenhagen, Denmark
Central Veterinary Laboratory, Ministry of Agriculture, Fisheries and Food, Weybridge, England
Centre de Recherches sur la Fièvre ondulante, Institut Bouisson-Bertrand, Montpellier, France
Veterinary Microbiological Institute, Athens, Greece
Indian Veterinary Research Institute, Mukteswar-Kumaon, Uttar Pradesh, India
Centre for the Study of Brucellosis, Institute of Hygiene and Microbiology, University of Florence, Italy
National Institute of Animal Health, Tokyo, Japan
Medical Research Institute, General Hospital, Mexico City, Mexico
Institut Pasteur, Tunis, Tunisia
Institute of Veterinary Bacteriology and Serology, Istanbul, Turkey
Department of Medicine, University of Minnesota, Minneapolis, Minn., USA
Brucellosis Centre, State Laboratory of Hygiene, Rijeka, Yugoslavia

WHO Brucellosis Centre
Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR

Leptospirosis

WHO/FAO Leptospirosis Reference Laboratories
Laboratory of the Department of Health and Home Affairs, Brisbane, Australia
London School of Hygiene and Tropical Medicine, London, England
Israel Institute for Biological Research, Ness-Ziona, Israel
Istituto Superiore di Sanità, Rome, Italy
National Institute of Health, Tokyo, Japan
Institute for Tropical Hygiene and Geographical Pathology (Royal Tropical Institute), Amsterdam, Netherlands
Division of Veterinary Medicine, Walter Reed Army Medical Center, Washington, D.C., USA

WHO Leptospirosis Reference Laboratory
Gamaleja Institute of Epidemiology and Microbiology, Moscow, USSR

Rabies

International Reference Centres for Rabies
Institut Pasteur, Paris, France
Pasteur Institute of Southern India, Coonoor, India
* Institute of Poliomyelitis and Viral Encephalitides, Moscow, USSR
Wistar Institute, Philadelphia, Pa., USA

Regional Reference Centre for Rabies in the Americas
Rabies Laboratory, National Communicable Disease Center, Atlanta, Ga., USA

OTHER FIELDS

Blood Groups

International Blood Group Reference Laboratory
Medical Research Council’s Blood Group Reference Laboratory, Lister Institute of Preventive Medicine, London, England

Research in Epidemiology and Communications Science

Epidemiological Research Centre
* Institute of Public Health Research, School of Public Health, University of Teheran, Iran

Serum Reference Banks

Institute of Epidemiology and Microbiology, Prague, Czechoslovakia
South African Institute for Medical Research, Johannesburg, South Africa
Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, Conn., USA

* Initiated in 1968.
Annex 15

PUBLICATIONS ISSUED BY THE WORLD HEALTH ORGANIZATION IN 1968

This annex lists the publications issued by WHO in 1968 and the language of issue.¹

MONOGRAPH SERIES

29 Infant Nutrition in the Subtropics and Tropics, second edition, by D. B. Jelliffe (E)
51 Statistical Methods in Malaria Eradication, by Satya Swaroop (F)
52 Trials of Prophylactic Agents for the Control of Communicable Diseases. A Guide to their Organization and Evaluation, by T. M. Pollock (F, S)
55 Laboratory Techniques in Brucellosis, by G. G. Alton and Lois M. Jones (F, R)
56 Cardiovascular Survey Methods, by G. A. Rose and H. Blackburn (E)
57 Interactions of Nutrition and Infection, by N. S. Scrimshaw, C. E. Taylor and J. E. Gordon (E)

PUBLIC HEALTH PAPERS

31 A Guide for Staffing a Hospital Nursing Service, by Margerite Paetznick (F)
33 The Physiological Basis of Health Standards for Dwellings, by M. S. Gorosmov (E, F)
34 Principles and Practice of Screening for Disease, by J. M. G. Wilson and G. Jungner (E)
35 Prevention of Suicide (E)
36 A Review of the Nature and Uses of Examinations in Medical Education, by J. Charvat, C. McGuire and V. Parsons (E)

TECHNICAL REPORT SERIES

348 Procedures for Investigating Intentional and Unintentional Food Additives, report of a WHO Scientific Group (R)
349 Measurement of the Public Health Importance of Bilharziasis, report of a WHO Scientific Group (R, S)
350 National Health Planning in Developing Countries, report of a WHO Expert Committee (R)
351 Conference of Directors of Schools of Public Health, report of a WHO Inter-Regional Conference (R)
352 WHO Expert Committee on Cholera, second report (R)
356 Safe Use of Pesticides in Public Health, sixteenth report of the WHO Expert Committee on Insecticides (R)
357 WHO Expert Committee on Malaria, thirteenth report (R)
358 Teaching of Immunology in the Medical Curriculum, report of a WHO Expert Committee (R)
359 WHO Expert Committee on Filariasis (Wuchereria and Brugia Infections), second report (R, S)
360 Biology of Fertility Control by Periodic Abstinence, report of a WHO Scientific Group (R)
361 WHO Expert Committee on Biological Standardization, nineteenth report (R, S)
362 Requirements of Vitamin A, Thiamine, Riboflavin and Niacin, report of a Joint FAO/WHO Expert Group (R)
363 Services for the Prevention and Treatment of Dependence on Alcohol and Other Drugs, fourteenth report of the WHO Expert Committee on Mental Health (R, S)
364 Principles for the Testing of Drugs for Teratogenicity, report of a WHO Scientific Group (R)
365 Epidemiological Methods in the Study of Chronic Diseases, eleventh report of the WHO Expert Committee on Health Statistics (R, S)
366 Standardization of Procedures for the Study of Glucose-6-Phosphate Dehydrogenase, report of a WHO Scientific Group (R, S)
367 Treatment and Disposal of Wastes, report of a WHO Scientific Group (S)
368 Mosquito Ecology, report of a WHO Scientific Group (S)
369 Arboviruses and Human Disease, report of a WHO Scientific Group (S)
370 Pesticide Residues in Food, joint report of the FAO Working Party on Pesticide Residues and the WHO Expert Committee on Pesticide Residues (F, S)
371 Research in Psychopharmacology, report of a WHO Scientific Group (R, S)
372 Epidemiology and Control of Schistosomiasis, report of a WHO Expert Committee (R, S)
374 Prevention of the Re-Introduction of Malaria, report of a WHO Meeting (S)
375 Chemotherapy of Malaria, report of a WHO Scientific Group (F, S)
376 The Education of Engineers in Environmental Health, report of a WHO Expert Committee (S)
377 Joint FAO/WHO Expert Committee on Nutrition, seventh report (F, S)
379 Control of Ascariasis, report of a WHO Expert Committee (S)

¹ C = Chinese; E = English; F = French; P = Portuguese; R = Russian; S = Spanish; E-F = English and French; E/F = bilingual edition.
Current Problems in Leptospirosis Research, report of a WHO Expert Group (S)

Neurophysiological and Behavioural Research in Psychiatry, report of a WHO Scientific Group (E, F, S)

WHO Expert Committee on Malaria, fourteenth report (E, F, S)

Specifications for the Identity and Purity of Food Additives and their Toxicological Evaluation: Some Flavouring Substances and Non-Nutritive Sweetening Agents, eleventh report of the Joint FAO/WHO Expert Committee on Food Additives (E, F)

WHO Expert Committee on Biological Standardization, twentieth report (E, F, S)

Training of Medical Assistants and Similar Personnel, seventeenth report of the WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel (E, F)

Hormonal Steroids in Contraception, report of a WHO Scientific Group (E, F)

Research on Human Population Genetics, report of a WHO Scientific Group (E, F, S)

Exercise Tests in Relation to Cardiovascular Function, report of a WHO Meeting (E, F)

Morbidity Statistics, twelfth report of the WHO Expert Committee on Health Statistics (E, F, S)

Medical Radiation Physics, report of a Joint IAEA/WHO Expert Committee (E, S)

Pesticide Residues, report of the 1967 Joint Meeting of the FAO Working Party and the WHO Expert Committee (E, F)

Organization of Services for the Mentally Retarded, fifteenth report of the WHO Expert Committee on Mental Health (E, F, S)

Smallpox Eradication, report of a WHO Scientific Group (E, F, S)

Streptococcal and Staphylococcal Infections, report of a WHO Expert Committee (E, F)

Hospital Administration, report of a WHO Expert Committee (E, F, S)

Immunology of Malaria, report of a WHO Scientific Group (E, F)

Intra-Uterine Devices: Physiological and Clinical Aspects, report of a WHO Scientific Group (E, F)

Cytogenetics of Vectors of Disease of Man, report of a WHO Scientific Group (E, F)

Microbiological Aspects of Food Hygiene, report of a WHO Expert Committee with the participation of FAO (E, F)

Paediatric Research, report of a WHO Scientific Group (E, F)

Screening for Inborn Errors of Metabolism, report of a WHO Scientific Group (E, F)

Genetics of the Immune Response, report of a WHO Scientific Group (E, F)

Principles for the Clinical Evaluation of Drugs, report of a WHO Scientific Group (E, F)

Water Pollution Control in Developing Countries, report of a WHO Expert Committee (E, F)

Nutritional Anaemias, report of a WHO Scientific Group (E, F)

Research into Environmental Pollution, report of five WHO Scientific Groups (E, F)

NON-SERIES PUBLICATIONS

Methods of Radiochemical Analysis (F)
World Directory of Dental Schools, 1963 (R)
World Directory of Schools of Pharmacy, 1963 (F)
World Directory of Schools of Public Health, 1965 (E)
World Directory of Veterinary Schools, 1964 (E, F)
Guide to Ship Sanitation, by V. B. Lamoureux (R)
International Histological Classification of Tumours No. 2: Histological Typing of Breast Tumours (E, F, S)
The Work of WHO Virus Reference Centres and the Services they Provide (E, F)
Routine Surveillance for Radionuclides in Air and Water (E)
Medical Certification of Cause of Death, third edition (E)
The Second Ten Years of the World Health Organization (E, F, S)
Specifications for Pesticides Used in Public Health—Insecticides—Rodenticides—Molluscicides—Repellents—Methods, third edition (F)
Vaccination Certificate Requirements for International Travel, Situation as on 1 January 1968 (E/F)
Ports designated in Application of the International Sanitary Regulations, Situation as on 2 August 1968 (E/F)

OFFICIAL RECORDS SERIES

Third Report on the World Health Situation, 1961-1964 (R)
Executive Board, Thirty-ninth Session Part I — Resolutions, Annexes (R)
Executive Board, Thirty-ninth Session Part II — Report on the Proposed Programme and Budget Estimates for 1968 (R)
Twentieth World Health Assembly Part I — Resolutions and Decisions, Annexes (R)
Twentieth World Health Assembly Part II — Plenary Meetings: Verbatim Records. Committees: Summary Records and Reports (R)
Executive Board, Forty-first Session (R)
Proposed Programme and Budget Estimates for 1969 (R)
Executive Board, Forty-first Session Part I — Resolutions, Annexes (E, F, S)
Executive Board, Forty-first Session Part II — Report on the Proposed Programme and Budget Estimates for 1969 (E, F, S)
Annex 15

253

168 Twenty-first World Health Assembly
   Part I — Resolutions and Decisions, Annexes (E, F, S)

169 Twenty-first World Health Assembly
   Part II — Plenary Meetings: Verbatim Records. Committees: Summary Records and Reports (E, F, S)

170 Executive Board, Forty-second Session (E, F, S)

171 Proposed Programme and Budget Estimates for 1970
   (E, F, S)

Basic Documents, nineteenth edition (E, F, R, S)
Handbook of Resolutions and Decisions, ninth edition (R)

PERIODICALS

World Health
   Monthly (E, F, P, R, S)

WHO Chronicle
   Volume 22, Nos. 1-12 (C, E, F, R, S)

Bulletin of the World Health Organization
   Volume 36, Nos. 1-6 (R)
   Volume 37, Nos. 1-6 (R)
   Volume 38, Nos. 1-6 (E-F)
   Volume 39, Nos. 1-6 (E-F)

International Digest of Health Legislation
   Volume 19, Nos. 1-4 (E, F)

   Volume 21, Nos. 1-12 (E/F)

World Health Statistics Annual
   1963 — Volume II (R)
   1964 — Volume II (E/F)
   1964 — Volume III (E/F)
   1965 — Volume I (E/F)
   1965 — Volume II (E/F)
Annex 16

WHO LIBRARY STATISTICS, 1968

Acquisitions

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periodicals received:</td>
<td></td>
</tr>
<tr>
<td>by subscription</td>
<td>792</td>
</tr>
<tr>
<td>by exchange with WHO publications</td>
<td>1,357</td>
</tr>
<tr>
<td>by gift</td>
<td>799</td>
</tr>
<tr>
<td></td>
<td>2,948</td>
</tr>
<tr>
<td>Annual reports received</td>
<td>1,498</td>
</tr>
<tr>
<td>Books and pamphlets ordered</td>
<td>1,479</td>
</tr>
<tr>
<td>Books and pamphlets received</td>
<td>3,835</td>
</tr>
<tr>
<td>Volumes bound</td>
<td>2,134</td>
</tr>
</tbody>
</table>

Catalogue

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titles catalogued</td>
<td>2,041</td>
</tr>
<tr>
<td>Articles in journals indexed</td>
<td>10,908</td>
</tr>
<tr>
<td>Documents indexed</td>
<td>4,864</td>
</tr>
<tr>
<td>Index cards filed</td>
<td>35,604</td>
</tr>
<tr>
<td>Index cards distributed to Headquarters Secretariat and Regional Offices</td>
<td>192,878</td>
</tr>
</tbody>
</table>

Loans

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lent to WHO Secretariat</td>
<td>12,272</td>
</tr>
<tr>
<td>Lent to other libraries</td>
<td>5,524</td>
</tr>
<tr>
<td>Borrowed from other libraries</td>
<td>2,608</td>
</tr>
<tr>
<td>Periodicals circulated to WHO Secretariat</td>
<td>72,099</td>
</tr>
<tr>
<td>Photocopying (number of exposures)</td>
<td>113,055</td>
</tr>
<tr>
<td>Items consulted in reading rooms</td>
<td>35,986</td>
</tr>
</tbody>
</table>

Medical literature supply

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders placed for</td>
<td></td>
</tr>
<tr>
<td>Headquarters Secretariat (number)</td>
<td>477</td>
</tr>
<tr>
<td>(items)</td>
<td>1,346</td>
</tr>
<tr>
<td>Regional Offices (number)</td>
<td>1,888</td>
</tr>
<tr>
<td>(items)</td>
<td>10,410</td>
</tr>
<tr>
<td>Duplicates distributed to Regional Offices and to other libraries</td>
<td>869</td>
</tr>
</tbody>
</table>
THE WORK OF WHO, 1968

ANNUAL REPORT OF THE DIRECTOR-GENERAL

TO THE

WORLD HEALTH ASSEMBLY AND TO THE UNITED NATIONS

INDEX

WORLD HEALTH ORGANIZATION

GENEVA

June 1969
INDEX

Main references by subject, and main references to the project list by country, are in heavy type.

Abattoir management and operation, course, Roskilde, 48, 218
Abortion, studies, 44, 97
Accidents, 40, 64, 70, 114, 115, 116
European liaison meeting on the prevention and control of road accidents, Copenhagen, 191
symposium on the prevention of accidents in the home, Salzburg, 114, 191
Ad Hoc Committee of Experts to Examine the Finances of the United Nations and the Specialized Agencies, 81
Administrative Committee on Co-ordination (ACC), 58, 72
ad hoc Working Group on Human Resources, 50
Consultative Committee on Administrative Questions, 81
Sub-Committee on Population, 45
Sub-Committee on Statistical Activities, 66
Sub-Committee on Water Resources Development, 63
Working Group on Housing and Urbanization, 62
Advertising of drugs, 49
Advisory Committee on Medical Research, 70, 234
Aedes, 8, 17, 20, 21, 22
research units, Bangkok, 19, 21, 22, 105, 219
Dar-es-Salaam, 17, 20, 223
Aedes aegypti, 18, 19, 20, 21, 22
Aedes aegypti eradication, 18, 166
Barbados, 54, 93, 148; Brazil, 93; Caribbean area, 18, 93, 166; Colombia, 153; Cuba, 93, 154; El Salvador, 155; French Antilles and Guiana, 93, 156; Guatemala, 93, 156; Honduras, 93, Surinam, 93, 160; Trinidad, 93; United States of America, 161; Venezuela, 162
Afghanistan, 4, 5, 9, 10, 28, 52, 53, 54, 61, 68, 81, 104, 105, 106, 107, 108, 120, 172-173, 181, 183
African Development Bank, 57, 88
African Region, 85-91, 135-146
Aged persons, see Elderly
Air pollution, 57, 58, 60, 75, 115, 230
Argentina, 147; Brazil, 150; Chile, 102, 152; Hungary, 186; Israel, 198; Kuwait, 198
courses, Paris, 191
seminar, Rio de Janeiro, 60, 165
see also Environmental pollution
Aircraft disinsection, 17, 20
Albania, 4, 113, 184
Alcohol and Addictions, International Council on, 37, 74
Alcoholism, 37, 78, 94, 114
Algeria, 4, 5, 53, 54, 55, 113, 115, 116, 117-118, 184-185, 191
American Indians, biomedical problems, 98, 99
American Samoa, 207
Américas, Region of the, 92-103, 147-171
Amoebiasis, 8, 17, 230
Anaemia, 38, 43, 95, 117, 123, 130
Anaesthesiology courses, Copenhagen, 218, 222
Anaesthetists, training, 216
Ankylostomiasis, 23
Andean region development programmes, 74, 148, 155, 160
Anguilla, 163
Anniversary of WHO, twentieth, 77, 82, 108, 115, 128
Anopheles, 4, 6, 17, 18, 19, 21
Anopheles control research units, 19, 20, 218, 219
Antigua, 96, 162, 163
Arab States Training Centre for Education in Community Development, Sirs-el-Layyan, 51, 72, 205
Arboviruses, 8, 11, 13, 23
Argentina, 12, 93, 94, 95, 96, 97, 98, 99, 101, 102, 147-148, 166, 170
Asian Development Bank, 57
Asian Institute for Economic Development and Planning, 106, 182
Associate Members, 79, 227
Association of Medical Schools in the Middle East, meeting of organizing committee, Alexandria, 122, 206
Astronautical Federation, International, 41, 223
Astronautics, International Academy of, 41, 223
Atherosclerosis, 34, 35, 36, 66
Australia, 11, 12, 32, 54, 207
Austria, 31, 185
Automation of laboratory services, 191
Auxiliary health personnel, training, 67, 104, 106, 111
Argentina, 148; Bolivia, 148; Brazil, 151; British Solomon Islands Protectorate, 207; Cameroon, 68, 73, 87, 135; Colombia, 153; Ethiopia, 195, 206; Ghana, 137; Guatemala, 156; Honduras, 157; Laos, 68, 210; Libya, 68, 199, 206; Morocco, 187; Nepal, 68; Nicaragua, 158; Panama, 159; Paraguay, 159; Peru, 160; Republic of Korea, 210; Saudi Arabia, 120, 201, 206; Somalia, 68, 202, 206; St Helena, 143; Uruguay, 161; Yemen, 68, 205
conference on the training and utilization of auxiliary sanitation personnel, New Delhi, 61, 107, 182
see also Sanitarians
Bacterial diseases, 28-30, 46, 71
Bahamas, 163
Bahrain, 79
Barbados, 54, 93, 94, 96, 97, 148, 162
Basic health services, see Health services
BCG vaccination and vaccines, 25, 86, 93, 105, 115, 122
Ceylon, 174; Democratic Republic of the Congo, 136; Ethiopia, 123; Kenya, 138; Mali, 140; Mauritius, 140; New Hebrides, 125; Republic of Viet-Nam, 214; Rwanda, 142; Senegal, 142; Sudan, 119; Swaziland, 90
production, India, 105, 178; Pakistan, 200
seminar, Argentina, 93
trials of use in leprosy control, 27-28, 66, 71, 218
see also Tuberculosis
Belgium, 5, 10, 16, 31, 32, 52, 59, 185
Bermuda, 162
Biennial programming, 88, 116, 123, 128
Bilharziasis Chemotherapy Centre, Tanga, 15
Biological Programme, International, 41
Biological standardization, 25, 32, 42-43, 46, 230
India, 177
course, Zagreb, 43, 219
Biological substances, production, 73, 96
see also Vaccine production
Biomedical sciences, 42-46
Biosphere, intergovernmental conference on the scientific basis for rational use and conservation of resources, Paris, 58, 220
Blindness, prevention, 191
Yugoslavia, 190
Blood banks, 124
Blood grouping, 53
Blood transfusion, course on organization and operation of services, Budapest, 52, 220
panel of donors of rare blood groups, 53
Bolivia, 9, 93, 94, 96, 97, 99, 101, 102, 148-149, 166
Botsswana, 16, 89, 135
Brazil, 3, 5, 9, 10, 11, 12, 14, 15, 16, 17, 20, 23, 27, 29, 35, 44, 55, 66, 92, 93, 94, 95, 96, 97, 99, 101, 102, 106, 149-151, 166, 170
British Honduras, 3, 151
British Solomon Islands Protectorate, 5, 207
British Virgin Islands, 162, 163
Brucellosis, 30
Bulgaria, 12, 13, 28, 72, 114, 185
Cancer, International Union against, 34
Cancer, International Agency for Research on, 20, 34, 113
Cancer, 20, 33-34, 46, 47, 64, 70, 78, 94, 105, 113, 116, 192, 231
Afganistan, 105, 172; Albania, 113, 184; Chile, 152; India, 34, 105, 178; Iran, 196; Iraq, 120, 197; Jordan, 198;
Mongolia, 105, 179; Philippines, 126, 213; Sudan, 120, 124, 203; Tunisia, 120; United Arab Republic, 120, 204;
Yugoslavia, 189
advisory team, 94, 220
cytology, training of teachers, 193
cytopathology courses, Teheran, 206
Cancer, International Agency for Research on, 20, 34, 113
Cancer, International Union against, 34
Cardiomyopathies, 35
Cardiovascular diseases, 34-36, 70, 71, 113-114, 115, 116
Mongolia, 105
advisory team, Kampala (Uganda), 223
course on diagnosis, treatment and prevention, Copenhagen, 36, 219
epidemiological methods, training, 194
evaluation of health education, 194
evaluation of programme, European Region, 193
meeting on comparative studies, European Region, 192
rehabilitation of patients, 113-114, 194
seminar on prevention and control, Manila, 36, 126, 215
see also Coronary care; Ischaemic heart disease
Cardiovascular Survey Methods, 35
Caribbean area, 18, 19, 93, 96, 162, 165, 166, 167, 168, 170
Causes of death, studies on medical certification, 65, 113, 167, 194
Central African Republic, 62, 73, 87, 135
Cerebrospinal meningitis, 29-30
seminar, Niamey and Bobo-Dioulasso, 29, 220
see also Meningococcal infections
Cerebrovascular diseases, 35, 36
Ceylon, 3, 4, 15, 52, 54, 57, 73, 104, 105, 106, 107, 111-112, 174-175, 181, 182
Chad, 85, 87, 135-136
Chagas' disease, 16, 17, 18, 21, 93, 165
Charter of Punta del Este, public health programme, 92, 100
Chemotherapy, filariasis, 15, 209
malaria, 4, 5-6, 45, 92, 164, 218
Colombia, 153
schistosomiasis, 120
tuberculosis, 26, 123
Children, dental health, 192
course, Copenhagen, 36, 219
handicapped, rehabilitation, 183
Spain, 188
malnourished, study on brain development, Chile, 152
mortality in, inter-American investigation, 98, 167
seminar on the health needs of the pre-school child, Karachi, 206
see also Maternal and child health; Paediatrics
Chile, 12, 38, 52, 93, 94, 95, 96, 97, 98, 102, 106, 152, 170
China (Taiwan), 12, 13, 17, 38, 51, 52, 54, 62, 66, 72, 125, 126, 127, 208
Cholera, 8, 9, 28-29, 81, 104, 105, 120, 125, 128
control teams, 28, 105, 182, 219
traveling seminar on cholera control, Moscow and Calcutta, 28, 120, 221
Chronic diseases, 122, 170
Classification of diseases, 36, 64-65, 98, 107
WHO centres, 64, 65, 98, 164, 171
Climatic environments, extreme, 41
Clinical chemistry course, Copenhagen, 52, 218
Codex Alimentarius Commission, 48
Collaborative International Pesticides Analytical Committee, 20
Commission on Narcotic Drugs (Economic and Social Council), 72
Commission for Social Development (Economic and Social Council), 72
Commission on Narcotic Drugs (Economic and Social Council), 47
Committee on International Quarantine, 9, 20
Committee on Occupational Health (ILO/WHO), 40, 232
Communicable diseases, 8-32, 77, 85-86, 93-94, 104-105, 108, 113, 119-120, 121, 122, 125, 128
Afghanistan, 172; China (Taiwan), 208; Ecuador, 155; India, 177; Nepal, 180; Sierra Leone, 143
advisory team, Western Pacific, 215
course on the epidemiology of communicable diseases, Prague and New Delhi, 8, 104
seminar on basic health services in relation to mass communicable disease campaigns, Brazzaville, 86, 91, 146
Communicable eye diseases, Algeria, 54, 184; Morocco, 118, 187; Sudan, 120, 202; Syria, 120, 203; United Republic of Tanzania, 143
see also Trachoma
Community development, 51, 72, 75, 97, 122
Venezuela, 102-103, 162
training centres, 51, 72, 97, 167, 205
Community water supplies, see Water supplies
Comparative studies, cardiovascular and cerebrovascular diseases, 35, 36
oncology, 33
virology, 32
Computer(s), seminar on the public health use of electronic computers, London, 114, 193
uses in medicine and public health, 19, 25, 44, 48, 65, 66, 77, 98, 116, 117, 122
INDEX

Dichlorvos, 20
Diffuse connective tissue diseases, 52
Diphtheria, 23, 29, 43, 86, 105, 176, 198
Disappearing diseases, epidemiology, 70, 71
Disinsection, aircraft, 17, 20
Dominica, 163
Dominican Republic, 3, 5, 92, 93, 94, 96, 97, 154-155
Drinking-water, fluoridation, 169
quality control, 58
standards, 115, 192
travelling seminar on treatment and disinfection, USSR, 58, 222
see also Water supplies
Driving licences, meeting for review of guiding principles for medical examination of applicants, Geneva, 40, 223
Drug addicts, rehabilitation, Iran, 196
Drug dependence, 37, 47-48, 78, 114, 231
Drug safety and monitoring, 47
pilot research project, Alexandria, Va., USA, 223
Drugs, advertising, 49
evaluation, 70
quality control, 49, 95, 106, 108, 120, 169, 182
Burma, 173; Ceylon, 174; Costa Rica, 154; Cyprus, 195; India, 177; Iran, 196; Nigeria, 142; Pakistan, 201;
Panama, 159; Republic of Viet-Nam, 214; Sudan, 203
conference, Helsinki, 49, 114, 192
course, Copenhagen, 49, 114, 222
see also Pharmaceuticals

East African Community, 88
Eastern Mediterranean Region, 77, 119-124, 195-206
Echinococcosis, 32
Economic and Social Council, 58, 72
Working Group on Human Resources, 69
see also Commission for Social Development; Commission on Narcotic Drugs; Population Commission
Economic Commission for Africa (ECA), 50, 62, 87, 88, 122, 146, 218
Economic Commission for Asia and the Far East (ECAFE), 122
Mekong Committee, 73, 126, 215, 216
Economic Commission for Europe (ECE), 40, 48, 60, 115
Economic Commission for Latin America (ECLA), 62, 98, 166
Economic development, health aspects, 74, 88
Ecuador, 3, 5, 29, 52, 92, 93, 94, 95, 96, 97, 99, 155
Cameroon, 68, 73, 87, 135; Democratic Republic of the Congo, 73, 136; Saudi Arabia, 201
reversing fund, 80, 81, 107
see also Auxiliary health personnel; Dental health; Fellowships; Medical education; Nursing; Public health training; Sanitarians; Sanitary engineering; Veterinary medicine education
Elderly, care of, course on medical and social aspects, Kiev, 114, 193
services for, 64
Electro-medical equipment, see Medical equipment
El Salvador, 5, 54, 92, 94, 95, 96, 97, 99, 155-156
Emergency assistance, provision of supplies and equipment, 81
vector control and insecticide poisoning, 22
Encaphelitis, Japanese, 125, 128
Endemic goitre, see Goitre
Enteric diseases, 29, 130
Spain, 188
see also Diarrhoeal diseases
Enteroviruses, 11, 12-13

WHO Computer, use by other organizations, 81
see also Data processing
Congo (Brazzaville), 5, 77, 81, 136
Congo, Democratic Republic of, 9, 10, 29, 58, 68, 69, 73, 81, 85, 86, 87, 136
Constitution, WHO, acceptance of amendments, 79
Consultative Committee on Administrative Questions (ACC), 81
Contributions, collection, 80
Convention on the Privileges and Immunities of the Specialized Agencies, 79, 227
Cook Islands, 209
Co-operation with other organizations, 72-76, 87-88, 107-108, 115, 122, 127
see also under names of individual organizations
Coronary care, 194
courses, Moscow and Paris, 113, 192
evaluation study, 194
units, Burma, Ceylon, India, Indonesia and Thailand, 105
Costa Rica, 5, 54, 94, 95, 96, 97, 153-154, 170
Council for International Organizations of Medical Sciences (CIOMS), 70
Council of Europe, 60, 75, 114, 115
Crime prevention, 36, 75
Crime, 3, 5, 92, 93, 96, 98, 154
Culex pipiens fatigans, 15, 18, 19, 21, 105
Cyprus, 51, 120, 195, 206
Cysticeriosis, 31
Cytology, International Academy of, 33
Cytology and cytopathology, cancer, 33, 193, 206
Czechoslovakia, 5, 10, 11, 12, 13, 21, 26, 31, 32, 35, 59, 66, 185

Dahomey, 136-137
Danish Tuberculosis Index, 26
Data processing, 19
centre, Argentina, 147
see also Computer(s)
DDT, 18
carcinogenicity studies, 20
Deaf mutism, 64
Chile, 152
Democratic Republic of the Congo, 9, 10, 29, 58, 68, 69, 73, 81, 85, 86, 87, 136
Demographic problems and research, see Population dynamics
Dengue, 8, 104
Denmark, 11, 12, 31, 37, 49, 52, 114, 115, 185
Dental Federation, International, 34, 36
Dental health, 36, 66, 70, 94, 126, 169, 171, 192
Bolivia, 149; Brazil, 151; Burma, 105, 174; Chile, 94; Colombia, 94, 153; Costa Rica, 154; Dominican Republic, 155; Ecuador, 155; El Salvador, 156; French Polynesia, 209; India, 36, 105, 177; Indonesia, 105, 179; Iran, 197; Jamaica, 94; Malta, 186, 192; Netherlands, 192; Nicaragua, 159; Pakistan, 201; Paraguay, 159; Senegal, 36, 87, 143; Thailand, 105, 181; United Republic of Tanzania, 144; Venezuela, 94, 162
conference on undergraduate dental education, Copenhagen, 114, 191
course for teachers of child dentistry, Copenhagen, 36, 219
course on oral microbiology, Medellin, 94
seminar on the training and use of dental personnel in developing countries, New Delhi, 219
Diabetes mellitus, 64
Diarrhoeal diseases, Ceylon, 174; Gilbert and Ellice Islands, 209
see also Enteric diseases
Environmental health (sanitation), 51, 57-63, 67, 87, 97-98, 107, 111, 115, 121, 127, 128, 165

Afghanistan, 172; Algeria, 184; Brazil, 149; Burundi, 135; Cambodia, 207, 208; Cameroon, 135; Caribbean area, 165; Central African Republic, 135; Chad, 135; Chile, 152; Costa Rica, 153; Dahomey, 137; Fiji, 216; Gabon, 137; Ghana, 55, 138; Guinea, 138; Iraq, 121; Kenya, 90-91, 138; Liberia, 139; Libya, 121, 199, 200; Madagascar, 140; Malaysia, 128-129, 211; Mali, 140; Mauritius, 140; Morocco, 187; Niger, 141; Nigeria, 55, 141; Pakistan, 121, 200; Peru, 160; Qatar, 201; Republic of Korea, 55, 210; Republic of Viet-Nam, 214; Saudi Arabia, 121, 201; Senegal, 142; Sierra Leone, 143; Singapore, 213; South Pacific area, 215; Sudan, 121, 203; Togo, 144; Tunisia, 121, 204; Turkey, 189; Uganda, 144; Zambia, 145

course on training and utilization of auxiliary sanitation personnel, New Delhi, 61, 182

Epidemiological surveillance, 8-9, 104
course on methods of epidemiological surveillance, Karlov Vary and Geneva, 220

Epidemiology, 93, 108, 115, 128, 146, 163, 191

Afghanistan, 172; Albania, 184; Algeria, 184; Burundi, 173; Cambodia, 125, 207; Canada, 68; Ceylon, 174; China (Taiwan), 208; Democratic Republic of the Congo, 136; Ethiopia, 195; India, 177; Iraq, 197; Liberia, 139; Mongolia, 179; Morocco, 187; Nigeria, 141; 142; Pakistan, 200; Republic of Korea, 125, 210; Sierra Leone, 143; Thailand, 180; Togo, 144; Uganda, 145

centre, Nairobi, 145
course on the epidemiology of communicable diseases, Prague and New Delhi, 8, 104
courses, London, 65, 193

Epidemiology and communications science, research in, 70-71

Epilepsy, 37

Ergonomics, 40

Ethiopia, 4, 5, 9, 10, 13, 17, 22, 38, 41, 50, 51, 58, 68, 119, 120, 121, 122, 123, 195, 206

European Region, 113-118, 184-194

European Standards for Drinking-water, 115

Excreta disposal, Dahomey, 136; Kenya, 90, 138; Malaysia, 211; Mongolia, 179

see also Sewage and sewage disposal; Wastes disposal

Executive Board, membership, 79, 228

organizational study on co-ordination, 72

Expert Advisory Panel on Air Pollution, 60

Expert Advisory Panel on Biological Standardization, 32

Expert advisory panels, 229

Expert Committee on African Trypanosomiasis (FAO/WHO), 16, 233

Expert Committee on Amoebiasis, 8, 17, 230

Expert Committee on Biological Standardization, 25, 32, 42, 43, 230

Expert Committee on Community Water Supply, 58, 231

Expert Committee on Drug Dependence, 47, 231

Expert Committee on Early Detection of Cancer, 33, 231

Expert Committee on Food Additives (FAO/WHO), 48, 233

Expert Committee on Health Statistics, 64, 65, 232

Expert Committee on Human Genetics, 44, 230

Expert Committee on Insecticides, 18, 232

Expert Committee on Leprosy, 26

Expert Committee on Medical Rehabilitation, 52, 232

Expert Committee on Mental Health, 37

Expert Committee on Non-Proprietary Names for Pharmaceutical Preparations, 49, 230

Expert Committee on Pesticide Residues, 48, 233

Expert Committee on Specifications for Pharmaceutical Preparations, 49, 231

Expert Committee on Streptococcal and Staphylococcal Infections, 30

Expert Committee on the Organization and Administration of Maternal and Child Health Services, 55, 232

Expert Committee on the Professional and Technical Education of Medical and Auxiliary Personnel, 67

Expert Committee on the Teaching of Immunology in the Medical Curriculum. 45

Expert Committee on the WHO Immunology Research and Training Programme, 45, 231

Expert Committee on Urban Air Pollution with Particular Reference to Motor Vehicles, 60, 230

Expert Committee on Water Pollution Control in Developing Countries, 59

Expert Committee on Zoonoses (FAO/WHO), 31

Expert committees, 100, 230-234

Fellowships, 52, 53, 67, 68, 88, 190

number awarded (1 Dec. 1967-30 Nov. 1968), 241-242

Fertility, 44, 45, 66, 97

Fiji, 12, 54, 55, 63, 209, 216

Filariasis, 15, 18, 19, 64, 110, 125, 128

Ceylon, 15, 105, 174; French Polynesia, 209; Malaysia, 15, 214; Seychelles, 143; Western Samoa, 15, 125, 214

research unit for the control of mosquito vectors, Rangoon, 19, 21, 105, 218

Films, 77-78

Finland, 12, 185

Fluoridation of water supplies, 169

Fly control, Malaysia, 215

Food, contamination by pesticides, 22, 122

Food additives, 48, 66, 233

Food and Agriculture Organization (FAO), jointly assisted activities, 75, 86, 87, 88, 108, 115, 122, 127

food and nutrition, 38, 39, 48, 106, 118, 126, 127, 145, 168, 218, 222, 233

pesticides, 20, 48, 233

water resources development, 73, 127, 139, 140, 141, 202

zoonoses, 30, 116, 117, 219

Food hygiene, 30, 48, 169

Argentina, 147; Malaysia, 211; Morocco, 187; Panama, 159; Philippines, 212; Republic of Viet-Nam, 214

course for meat inspectors, Nairobi, 48, 222

course on abattoir management and operation, Røskilde, 48, 218
Food hygiene (continued)

seminar on food and drug control, San Salvador, 95

training centre for food inspectors, Region of the Americas, 169

Food Standards Programme, Joint FAO/WHO, 30, 48

Foot-and-mouth disease, 98, 165

Ford Foundation, 108

Foundations’ Fund for Research in Psychiatry, 94

France, 5, 6, 10, 11, 12, 13, 14, 16, 17, 18, 20, 23, 24, 30, 31, 32, 54, 185

French Antilles and Guiana, 93, 156

French Polynesia, 126, 209

French Territory of the Afars and the Issas, 195

Fungal diseases, 46

see also Mycetoma

Gabon, 14, 52, 87, 137

Gambia, 6

Genetics, see Human genetics; Vector genetics

Germany, Eastern, 12

Health Education, International Union for, 55

Health economics, 116

Health demonstration

Hallucinogenic drugs, 37, 47

Haiti, 5, 23, 92, 96, 97, 156-157

Haemoglobinopathies, 123

Haematology, 52, 53, 124

Haemolytic disease of the newborn, 46

Haemorrhagic fever, 8, 17, 22, 104, 128, 182

Haiti, 5, 23, 92, 96, 97, 156-157

Hallucinogenic drugs, 37, 47

Health demonstration areas, Cambodia, 129; Cuba, 154; Greece, 185; Guinea, 138; Lebanon, 199; Mauritania, 140; Nigeria, 141; Peru, 160; Philippines, 212; Republic of Korea, 210; Senegal, 143; Sierra Leone, 143; Somalia, 202; Spain, 188; Turkey, 189; Uganda, 144; Upper Volta, 145

Health economics, 116

seminar, Moscow, 117, 191

Health education, 54-55, 86, 96-97, 121, 122, 127, 167, 182, 191, 194

Afghanistan, 108, 172; Algeria, 184; Brazil, 150; Burundi, 173; Colombia, 97; Fiji, 55, 209; Ghana, 137; India, 55, 108, 175, 177; Indonesia, 55, 179; Iran, 121; Kuwait, 121; Malaysia, 211; Nepal, 180; Nigeria, 86, 141; Pakistan, 200; Papua and New Guinea, 55, 212; Phillipi-es, 130-131, 212, 213; Singapore, 127, 213; Uganda, 141

course, New Delhi, 107

course on measurement and evaluation techniques, Teheran, 54, 121, 206

seminar, Tegucigalpa, 54, 96, 167

Health Education, International Union for, 55

Health inspectors, training, Papua and New Guinea, 216; Jamaica, 157; Zambia, 145

Health laboratory services, see Laboratory services

Health manpower, 117

studies, Argentina, 148; Laos, 210; Venezuela, 162

symposium on methods of estimating health manpower, Budapest, 50, 114, 190

Health planning, Pan American Programme, 50, 72, 95, 168

see also National health planning

Health protection and promotion, 33-41, 94-95, 105-106, 113-114, 120, 126, 128

Health sciences, teaching and research programme, 100


Afghanistan, 106, 172; Argentina, 147; Barbados, 148; Bolivia, 148; Brazil, 150; British Honduras, 151; British Solomon Islands Protectorate, 207; Bulgaria, 72, 114, 185; Cambodia, 207; Cameroon, 135; Ceylon, 106; Chad, 135; Chile, 152; Colombia, 71, 153; Congo (Brazzaville), 136; Costa Rica, 153; Cuba, 154; Cyprus, 190, 195; Dahomey, 137; Democratic Republic of the Congo, 136; Dominican Republic, 154; Ecuador, 155; El Salvador, 155; Ethiopia, 195; Ghana, 137; Greece, 185; Guatemala, 156; Guinea, 138; Guyana, 156; Haiti, 157; Honduras, 157; India, 177; Indonesia, 106; Iraq, 197; Jamaica, 157; Kenya, 139; Laos, 126, 210; Lebanon, 199; Lesotho, 50, 139; Liberia, 139; Madagascar, 140; Malaysia, 126, 211; Maldive Islands, 110-111, 179; Mauritania, 140; Mexico, 158; Morocco, 113; Nepal, 106, 108, 179; Nicaragua, 158; Nigeria, 141; Panama, 159; Paraguay, 159; Peru, 160; Philippines, 212; Republic of Korea, 125, 210; Saudi Arabia, 120, 201; Senegal, 143; Seychelles, 143; Sierra Leone, 143; Somalia, 202; Southern Yemen, 120, 202; Spain, 188; Surinam, 160; Swaziland, 143; Thailand, 106, 180; Togo, 144; Trinidad and Tobago, 161; Uganda. 144; United Republic of Tanzania, 3, 144; Uruguay, 161; Upper Volta, 145; Western Samoa, 126, 214; Yemen, 120, 205

seminar on basic health services in relation to mass communicable disease campaigns, Brazzaville, 86, 91, 146

seminar on health services in rural areas, Tunis, 120, 206

special meeting of Ministers of Health, Buenos Aires, 92, 100, 168

training centres, Lagos and Lomé, 4, 145

training of personnel for mental health work, 36, 51

Heart transplantation, 70

see also Organ transplantation

Helminthiases, 17

Hepatitis, viral, 104

Histological Typing of Lung Tumours, 33

Honduras, 5, 54, 73, 92, 93, 96, 97, 98, 99, 157

Hong Kong, 12, 34, 66, 209

Hookworm, see Anclylostomiasis

Hospital administration and planning, 51, 54, 67, 73, 99, 106, 170, 182

Afghanistan, 108; Algeria, 184; Barbados, 148; Ceylon, 174; China (Taiwan), 51; Cyprus, 51, 195; Democratic Republic of the Congo, 136; Ethiopia, 51; Ghana, 137; India, 51; Indonesia, 51; Israel, 51, 198; Jamaica, 157; Thailand, 51, 180; Tonga, 214; Trinidad and Tobago, 161; Tunisia, 51; Uruguay, 161; West Indies, 163

Hospital physics, India, 106, 178

Hospital records, Singapore, 213

see also Medical records

Hospital statistics, see under Statistics

Hospitals, 52, 96, 117, 120, 182

role in surveillance of adverse reactions to drugs, 47

Houseflies, standardized and marker strains, 22
Maternal and child health (continued)

Young, 172; Argentina, 96, 148; Bolivia, 99, 149; Brazil, 99, 151; Burma, 68, 107, 173, 174; Cameroon, 68, 73, 87, 135; Canada, 68, 223; Ceylon, 107, 174; Chile, 152; Colombia, 99, 153; Czechoslovakia, 185; Democratic Republic of the Congo, 68, 69, 73, 87, 136; Dominican Republic, 154; Ecuador, 99, 155; El Salvador, 99; Ethiopia, 68, 122, 195; Ghana, 68, 87, 137; Guatemala, 156; Haiti, 157; Honduras, 99, 157; Hungary, 115, 186; India, 68, 107, 176, 177, 178; Indonesia, 68, 107, 178; Iran, 68, 196; Iraq, 122, 197; Israel, 68, 197; Jamaica, 99, 158; Kenya, 68, 87, 139; Kuwait, 68, 122, 198; Laos, 210; Libya, 122, 200; Malaysia, 68, 211; Mexico, 99, 158; Morocco, 115, 186; Nepal, 180; Nicaraguan, 159; Nigeria, 68, 87, 141; Pakistan, 68, 200; Panama, 99, 159; Peru, 99, 160; Poland, 115, 187; Republic of Korea, 68; Rwanda, 68, 87, 142; Saudi Arabia, 201; Surinam, 160; Syria, 68, 122, 204; Thailand, 180; Tunisia, 68, 122, 204; Turkey, 115; Uganda, 87, 145; United Republic of Tanzania, 68, 87, 145; Uruguay, 99, 161; Venezuela, 162; Zambia, 68, 87, 145

meeting of Deans of medical schools, Brazzaville, 87, 146

meeting of organizing committee of the Association of Medical Schools in the Middle East, Alexandria, 122, 206

seminar on teaching methods and teaching aids, Ankara, 68, 221

seminar on the place of psychiatry in medical education, Agra, 36, 107

staff exchanges between medical schools, Africa, 146

traveling seminar on the organization of refresher courses for medical staff, USSR, 69, 222

see also Public health training

Medical Education Information Centre, Region of the Americas, 99

Medical equipment, maintenance and repair, India, 39, 106, 177

Indonesia, 39, 106, 178; Tunisia, 120, 124, 204

see also X-ray technicians

Medical examination of applicants for motor vehicle driving permits, meeting to review 1956 guiding principles, Geneva, 40, 223

Medical records, 171, 181

Cambodia, 127; Malaysia, 211; Pakistan, 200; Tonga, 127; Trinidad and Tobago, 161

see also Statistics

Medical research, collaborative projects, 244

co-ordination, 70, 98, 166

grants for training and exchange, 67, 68, 243

see also Advisory Committee on Medical Research; Research

Medical Research Council, London, 12, 15, 86

Medical Sciences, Council for International Organizations of, 70

Medical textbooks, 170

Medical Women's International Association, 56

Mekong Basin development programme, 73, 126, 215, 216

Member States, 79, 227

emergency assistance, 81

supply services to, 81

Meningococcal infections, 29-30, 64

see also Cerebrospinal meningitis

Mental health, 36-38, 51, 64, 116, 169

Argentina, 94, 147; Brazil, 94; Burma, 173; Caribbean area, 94; Chile, 94, 152; China (Taiwan), 126, 208; Costa Rica, 94; India, 175; Jamaica, 94, 157; Japan, 126, 209; Liberia, 139; Malaysia, 126, 211; Malta, 186; Morocco, 186; Nigeria, 141; Philippines, 126, 212; Poland, 188; Spain, 188; Thailand, 180; Uruguay, 94; Venezuela, 94, 162

advisory team on epidemiology of mental disorders, 219

conference on planning of mental health services, Madrid, 36, 114, 192

see also Psychiatry

Mental Health, World Federation for, 36

Metabolic disorders, 44

Mexico, 3, 5, 12, 18, 23, 73, 93, 96, 97, 98, 99, 101-102, 158

Microbiology, Albania, 184; Brazil, 151; Chile, 152; India, 177

Midwifery, 53, 54, 146, 166, 168, 217

Afghanistan, 172; Algeria, 184; Brazil, 96, 150; British Solomon Islands Protectorate, 207; Cambodia, 208; Cameroon, 135; Chad, 136; Congo (Brazzaville), 136; Costa Rica, 96; Democratic Republic of the Congo, 136; Gilbert and Ellice Islands, 209; Hungary, 186; India, 175, 176, 177; Indonesia, 178; Jamaica, 96; Laos, 210; Libya, 199, Malaysia, 211; Mali, 140; Morocco, 187; Nepal, 179; Peru, 96; Senegal, 142; Togo, 144; Upper Volta, 145

Milk hygiene, 48

Mining development, health implications, Botswana, 135

Molluscicides, 14-15, 120

Mongolia, 8, 30, 105, 106, 107, 179

Monkeys, measures for transport and handling, 13, 32, 43

Monograph Series, 35, 38, 55

Montserrat, 162, 163

Morocco, 4, 5, 6, 52, 53, 58, 61, 66, 73, 113, 115, 116, 118, 186-187, 191

Mosquitoes, standardized and marker strains, 22

see also Aedes; Aedes aegypti; Anopheles

Mozambique, 10

Mycetoma, 17

survey, Sudan, 203

Mycobacterium, 25

Mycoplasma, 11, 12

Narcotics control, 47, 49

see also Drug addicts; Drug dependence

National health planning, 50-51, 54, 71, 88, 95, 96, 106, 118, 117, 122, 126, 128, 166, 167, 168, 216
National health planning (continued)

Argentina, 147; Brazil, 150; Cambodia, 126; Caribbean area, 166; Colombia, 153; Costa Rica, 153; El Salvador, 155; Ethiopia, 50, 120, 195; Guatemala, 156; Indonesia, 50; Jamaica, 157; Kenya, 50, 139; Liberia, 139; Libya, 120, 199; Nicaragua, 158; Panama, 159; Paraguay, 159; Republic of Korea, 126, 210; Rwanda, 142; Sierra Leone, 143

course, 126, 216

course for officials of African Region, 86, 220

see also Health planning

National Institute for Medical Research, London, 45


Netherlands, 6, 10, 12, 28, 31, 32, 60, 127, 187, 192

New Guinea, see Papua and New Guinea

New Hebrides, 125, 212

New Zealand, 10, 12, 34, 54, 212

Niger, 3, 23, 85, 141

Nigeria, 5, 6, 14, 19, 22, 30, 31, 35, 37, 39, 41, 43, 44, 52, 54, 55, 66, 68, 71, 73, 77, 85, 86, 87, 141-142

Noise, 57, 116

Nomadism, 51

Nomenclature of disease, see also Classification of Diseases

Non-governmental organizations, 8, 52, 108

in official relations with WHO, 74, 82, 235

supply services to, 81

Non-proprietary names for pharmaceutical substances, 49, 230

Norway, 12, 34, 35, 187


Algeria, 117-118, 184; Argentina, 147; Brazil, 150; Cambodia, 126, 208; Caribbean area, 163, 168; Chile, 152; Cuba, 154; Democratic Republic of the Congo, 136; Dominican Republic, 154; Ecuador, 155; French, Polynesia 126, 209; Haiti, 157; India, 105-106, 182; Indonesia, 106; Iran, 120, 196; Ivory Coast, 138; Jordan, 120, 198; Kenya, 138; Libya, 120, 199; Madagascar, 140; Malaysia, 126, 211; Pakistan, 120, 200; Peru, 160; Philippines, 126; Senegal, 142; Singapore, 213; South Pacific area, 215; Sudan, 120, 203; Thailand, 106; United Arab Republic, 120; United Republic of Tanzania, 144; Venezuela, 162; West Indies, 163

conference on nutrition activities in local health services, Washington, D.C., 168

Joint FAO/WHO/UNU(STRC) Food and Nutrition Commission for Africa, 145

see also Malnutrition

Obstetrics, 107

India, 109-110, 176; Uganda, 146

Occupational health, 40-41, 102, 122, 190, 232

Chile, 102, 152; China (Taiwan), 209; Greece, 185; Kenya, 144; Lebanon, 199; Uganda, 144; United Republic of Tanzania, 144

course on occupational health in agriculture, Dundee, 40, 220 seminar, Lagos, 41

see also Industrial hygiene

Occupational health, Permanent Commission and International Association on, 41

Occupational therapy, China (Taiwan), 52, 208; Japan, 52, 209; Spain, 188; Venezuela, 162

Onchocerciasis, 15-16, 17, 18, 21, 85

Guinea, 138; Sudan, 203

advisory team, Africa, 15, 145

technical meeting on the feasibility of onchocerciasis control, Tunis, 15, 222

Organ transplantation, 46, 70

Organization for Co-ordination and Co-operation in the Control of Major Endemic Diseases (OCCGE), 15, 75, 87, 88, 222

Organization for Economic Co-operation and Development (OECD), 60, 114

Organization of African Unity (OAU), 76

Organization of American States (OAS), 100

Organization of medical care, see Medical care

Organizational meetings in 1968, 229

Organizational structure of WHO secretariat, 80

Organizational study on co-ordination with the United Nations and the specialized agencies, 72

Orthopaedic appliances, Argentina, 148; Brazil, 150-151; Ceylon, 174

Orthopaedic Surgery and Traumatology, International Society of, 74

Orthopaedics, Republic of Viet-Nam, 214; Thailand, 181

Osteomalacia, 117

Osteoporosis, 117

Outer space, peaceful uses, 41

see also Space medicine

Pacific Islands, Trust Territory of the, 51, 214

Paediatric Association, International, 56

Paediatrics, 56, 67, 107

Brazil, 151; Burma, 173; Chile, 152; Colombia, 153; India, 109-110, 176; Indonesia, 178; Sudan, 203

course, International Children's Centre, Paris, 190

course, London and Bombay, 56

course, Manilla, 147
Paediatrics (continued)

- course, Warsaw, 56, 221
- course on child health and paediatrics, Ankara, 56
- courses, Americas, 168
- workshop on paediatric education, Mexico, 56
- see also Children; Maternal and child health

PAHO Advisory Committee on Medical Research, 98, 1966

Pakistan, 3, 4, 5, 9, 10, 22, 28, 45, 56, 61, 66, 68, 119, 120, 121, 200-201, 206, 223

Pan American Foot-and-Mouth Disease Centre, 165

Pan American Health Organization (PAHO), Advisory Committee on Medical Research, 98, 166

Pan American Sanitary Engineering Centre, 165

Pan American Zoonoses Centre, 31, 93, 94, 147, 164

Panama, 12, 54, 92, 93, 96, 97, 99, 159, 170

Papua and New Guinea, 51, 54, 55, 71, 212, 216

Paraguay, 3, 92, 101, 159, 166

Parastrophic diseases, 13-17, 46, 130, 163

- Syria, 204
- Pasteur Institutes, 16, 29, 104
- Pathology, International Council of Societies of, 33, 34
- Pathology, training, 99
- Colombia, 153
- seminar, Djakarta, 107
- Permanent Commission and International Association on Occupational Health, 41

- Pertussis (whooping cough), 8, 23, 29, 43, 105
- Peru, 3, 9, 17, 29, 30, 35, 39, 44, 54, 93, 94, 95, 96, 97, 98, 99, 101, 102, 159-160, 170
- Pesticide residues, 48, 59, 122, 233
- Pesticides, contamination of foodstuffs with, 22, 122
- specifications, 20
- toxicity, 20, 48
- see also Insecticides; Molluscicides

Pharmaceuticals, 48-49, 77, 231

- non-proprietary names, 49, 230
- services, Lebanon, 199
- see also Drug safety and monitoring; Drugs

Pharmacology and toxicology, 47-49, 95, 106, 114, 120, 223

Pharmacy education, 122

Phenylketonuria, 116

Philippines, 3, 5, 8, 10, 27, 28, 31, 53, 54, 55, 62, 63, 125, 126, 130-131, 212-213

Physical performance capacity, 40

Physical therapy, Ceylon, 52, 174; China (Taiwan), 52, 208; India, 106, 178; Indonesia, 106, 178; Iran, 52, 196; Japan, 52, 209; Jordan, 52, 198; Lebanon, 52, 199; Nigeria, 52, 141; Spain, 188; Thailand, 52, 181; United Arab Republic, 52, 204; Venezuela, 162
- course, Mexico, 170
- course for clinical instructors, Copenhagen, 52, 219
- course on the physical therapy of children, Konstancin, 193
- see also Rehabilitation

Pinta, 22, 23, 24

Plague, 9, 18, 29, 81, 86, 93, 104, 125, 146, 165, 182

- Brazil, 149; Ecuador, 155; Peru, 160
- travelling seminar, USSR, 29, 221

Poland, 5, 11, 12, 31, 59, 81, 115, 187-188

Police Officers, International Federation of Senior, 114

Poliomyelitis, 12-13, 85, 86, 93, 96, 104, 111, 121
- Congo (Brazzaville), 81, 136; Democratic Republic of the Congo, 81, 136; Guinea, 138; Poland, 188; United Arab Republic, 204
- see also under Vaccine production

Polyneuritis, 26

Population Commission (Economic and Social Council), 64

Population dynamics, 44, 80, 97, 128, 171

- Brazil, 151; Caribbean area, 170
- conference on the teaching of demography, Bogotá, 170
- see also Family planning

Port health services, Ceylon and Indonesia, 106

Ports designated in application of the International Sanitary Regulations, 4, 9

Portuguese, 4, 12, 13

Preventive and social medicine, 67, 68, 99, 170, 171

- Bolivia, 149; Burma, 173; Dominican Republic, 154; Ecuador, 155; Guatemala, 156; Honduras, 157; Iraq, 197; Jamaica, 158; Malaysia, 211; Mexico, 158; Morocco, 186; Nicaragua, 159; Pakistan, 200; Peru, 160; Uganda, 146; Uruguay, 161; Venezuela, 162

- Primates, non-human, measures for transport and handling, 13, 32, 43

Principles and Practice of Screening for Disease, 33

Privileges and immunities, 79, 227

Programme and budget estimates, for 1970, 88, 100, 108, 116, 122, 128

- recommendations of the Ad Hoc Committee of Experts, 81
- see also Budget

Programme planning and evaluation, 72, 87, 100, 115, 116, 122, 128

- Programming, biennial, 88, 116, 123, 128

Progressive patient care, 170

Prospectics, see Rehabilitation

Protein Advisory Group, FAO/UNICEF/WHO, 38

Protein-rich food mixtures, 38, 118

Psychiatry, 37

- Uganda, 145
- seminar on diagnosis, classification and statistics, Moscow, 37, 218
- seminar on place in medical education, Agra, 36, 107
- see also Mental health

Psychotrophic drugs, 37, 47

Public health administration, 50-51, 96, 106, 114, 115, 128, 167

- Algeria, 184; Caribbean area, 166; Democratic Republic of the Congo, 136; India, 106, 177; Maldives Islands, 110-111, 179; Nepal, 180; Philippines, 213; Rwanda, 142; Saudi Arabia, 201; Southern Yemen, 202; Thailand, 181; Turkey, 189; Yemen, 205; Yugoslavia, 189

- see also Health services

Public health engineering, see Sanitary engineering

Public Health Papers, 34, 37

Public health services, see Health services

Public health training, 99, 146, 170

- Afghanistan, 172; Argentina, 148; Brazil, 97, 151; Bulgaria, 185; Ceylon, 174; Chile, 97, 152; China (Taiwan), 208; Colombia, 153; Cuba, 154; Federal Republic of Germany, 115; Iran, 196; Jamaica, 157; Laos, 210; Mexico, 158; Peru, 160; Republic of Korea, 210; Thailand, 180; Turkey, 188; Venezuela, 55, 162
- meeting of professors, Brazzaville, 87, 146

Public information, 77-78, 99

Publications, PAHO, 99

- WHO, 1968, 251-253
- see also under names of individual publications

Pulmonary diseases, chronic, 116

- Qatar, 201

- Quality control of drugs see under Drugs

Quarantine, 8-9, 20

- Republic of Viet-Nam, 214
INDEX

Rabies, 31, 93, 165
Brazil, 149; Grenada, 54, 93-94; Mexico, 93; Mexico/United States border, 93, 101-102, 165; West Indies, 162
conference on surveillance and control, Frankfurt-am-Main, 116, 190
Radiation health and protection, 39-40, 60-61, 95, 122, 169, 181, 221
Argentina, 95, 147; Bolivia, 149; Costa Rica, 95, 154; El Salvador, 95; India, 177; Iran, 197; Jamaica, 95, 157; Jordan, 198; Lebanon, 199; Malaysia, 215; Nicaragua, 95; Peru, 39, 95, 160; Singapore, 39, 213; Thailand, 39, 106, 181; Uruguay, 161
Radioisotopes, medical use, 39, 94, 165
Regional Office for Africa, 88
Regional Committee for the Americas, 99-100
Regional Committee for the Western Pacific, 127-128
Regional Office for Africa, 89
Regional Office for Europe, 116
Regional Office for the Americas, 100
Regional Office for the Eastern Mediterranean, 123
Rehabilitation, 52, 164, 170, 193, 232
Argentina, 96, 148; Brazil, 96, 150; Bulgaria, 185; Ceylon, 52, 174; Chile, 52, 96, 152; China (Taiwan), 209; Ecuador, 52, 96; Iran, 52, 196; Japan, 52, 209; Jordan, 52, 198; Laos, 52, 210; Lebanon, 52, 199; Maldives Islands, 106; Mexico, 96; Nigeria, 52, 141; Republic of Viet-Nam, 52, 214; Romania, 188; Spain, 188; Thailand, 52, 181; Tunisia, 52, 204; Venezuela, 96, 162
course, Copenhagen, 52, 217
see also Cardiovascular diseases; Drug addicts; Physical therapy
Report on the World Social Situation, 75
Republic of Korea, 4, 5, 53, 54, 55, 68, 125, 126, 127, 210
Republic of Viet-Nam, 4, 9, 28, 29, 52, 81, 125, 127, 214, 216
Research, in epidemiology and communications science, 70-71
see also Medical research
Research into Environmental Pollution, 59
Respiratory viruses, 11, 12
Spain, 188
Resuscitation and casualty services, Albania, 184
Reunion, 142
Revolving Fund for Teaching and Laboratory Equipment for Medical Education and Training, 80, 81, 107
Rheumatic diseases, 30, 34, 35, 52, 105, 126, 193
Rickettsioses, 23
River basin development, 73
Rodent control and rodenticides, 21-22, 120, 206
Romania, 6, 12, 13, 32, 188
Rubella, 11, 12
Rural health services, 51, 121, 164, 165
Afghanistan, 172; British Solomon Islands Protectorate, 207; Cambodia, 207; Congo (Brazzaville), 136; Cyprus, 120, 195; Ethiopia, 195; Greece, 183; Iraq, 197; Lebanon, 199; Malaysia, 126, 211; Spain, 188; Swaziland, 143; Thailand, 180; Uganda, 144; Western Samoa, 126, 214
seminar on health services in rural areas, Tunis, 120, 206
see also Health services
Rwanda, 68, 87, 142
Ryukyu Islands, 21, 125
Sanitarian, training; 205
Sanitarian, training; 205
Afghanistan, 107; Algeria, 115, 184; Cambodia, 127, 129, 207; Ceylon, 107; Iraq, 197; Malaysia, 129; Morocco, 115, 187; Nepal, 107; Somalia, 121, 202; Syria, 121, 203; Thailand, 107; Yemen, 121, 205
conference on the training and utilization of auxiliary sanitation personnel, New Delhi, 61, 182
Sanitary engineering, 61, 98, 165, 171, 193
Afghanistan, 61, 172; Argentina, 148; Bolivia, 149; Brazil, 151; British Honduras, 151; Cambodia, 127, 208; Chile, 152; China (Taiwan), 209; Colombia, 153; Costa Rica, 154; Cuba, 154; Ecuador, 155; El Salvador, 156; Ghana, 61, 137; Guatemala, 156; Honduras, 157; Hungary, 186; India, 59, 61, 73, 107, 176, 177; Indonesia, 61, 107, 178; Iran, 196; Kenya, 61; Liberia, 139; Malaysia, 127, 128-129, 211, 212; Mexico, 158; Morocco, 187; Nicaragua, 159; Nigeria, 141; Pakistan, 61, 200; Panama, 159; Paraguay, 159; Peru, 160; Saudi Arabia, 201; Sudan, 61, 203; Thailand, 61, 107; Turkey, 61, 115, 189; United Arab Republic, 204; Uruguay, 161; Venezuela, 162
Sanitary engineering (continued)
courses, Delft, 115
seminar, San José, Costa Rica, 165
seminar on teaching of sanitary engineering, Quito, 61, 171
training centre, proposed, Africa, 61
Sanitation, see Environmental health (sanitation)
Saudi Arabia, 4, 5, 53, 119, 120, 121, 201-202, 206
Schistosomiasis, 14-15, 77, 93, 125, 145, 165
Brazil, 14, 15, 93, 149; Ghana, 14, 137; Iran, 14, 196; Iraq, 197; Libya, 199; Syria, 203; United Arab Republic, 14, 120, 204; United Republic of Tanzania, 14, 144
research team, 14, 217
survey, Mekong River basin, 215
Schizophrenia, 37, 44, 166
Argentina, 94, 147; Jamaica, 94
School and University Health and Medicine, International Union of, 74
School health, 54
Scientific group on Cell-mediated Immune Responses, 46
Scientific Group on Cholera Immunology, 8, 29
Scientific Group on Developments in Fertility Control, 45
Scientific Group on Field Studies in Human Reproduction, 45
Scientific Group on Genetic Factors in Congenital Malformations, 44
Scientific Group on Principles for the Testing and Evaluation of Drugs for Carcinogenicity, 47
Scientific Group on Research in Health Education, 55
Scientific Group on the Biochemistry of Mental Disorders, 37
Scientific Group on the Immunology of Malaria, 5, 70
Scientific Group on the Parasitology of Malaria, 5, 68
Scientific groups, 59, 70, 234
Scientific publications (PAHO), 99
Scientific Unions, International Council of, 41
Seafarers, health, 40

Second Ten Years of the World Health Organization (The), 82
Senegal, 6, 11, 16, 17, 23, 36, 43, 44, 57, 58, 66, 73, 86, 87, 142-143
Serum reference banks, 8, 22, 23, 66, 250
Sewerage and sewage disposal, 73, 75, 127, 216
Argentina, 147; British Honduras, 151; Central African Republic, 62, 87; Ceylon, 73, 111, 175; Chile, 152; China (Taiwan), 62, 72, 127, 208; Colombia, 153; Dominican Republic, 154; El Salvador, 155; Fiji, 63, 216; Ghana, 73, 137; Guatemala, 156; India, 59, 178; Iran, 62, 121, 197; Iraq, 63, 197; Ivory Coast, 87, 138; Jordan, 121, 198; Kenya, 139; Libya, 121, 200; Malaysia, 62, 129, 212; Nepal, 107; Peru, 160; Philippines, 62, 213; Saudi Arabia, 121, 201; Senegal, 73, 87, 142; Thailand, 62, 181; Trinidad and Tobago, 160; Turkey, 115, 189; Uganda, 87, 144; Upper Volta, 87, 145
see also Excreta disposal; Wastes disposal
Seychelles, 52, 143
Sierra Leone, 5, 52, 87, 143
Silicosis, 102
Singapore, 9, 11, 12, 34, 39, 53, 54, 56, 127, 213
Smallpox, 9-10, 66, 77, 78, 81, 85, 100-101, 104, 108, 119, 122, 125, 146, 164, 206
Afghanistan, 10, 104, 172, Argentina, 101, 147; Bolivia, 101, 148; Brazil, 10, 101, 149; Burma, 104, 174; Burundi, 85, 135; Cambodia, 125, 207, 208; Chad, 136; Chile, 152; Colombia, 101, 153; Dahomey, 136; Democratic Republic of the Congo, 10, 85, 136; Ecuador, 155; Ethiopia, 9, 10, 195; Guinea, 85, 138; Haiti, 156; India, 9, 10, 104, 178; Indonesia, 9, 10, 104, 179; Iran, 119; Kenya, 85, 139; Laos, 125; Liberia, 139; Malawi, 140; Mali, 140; Mauritania, 140; Nepal, 10, 104, 180; Niger, 141; Nigeria, 85, 142; Pakistan, 9, 10, 66, 119, 200; Paraguay, 101, 159; Peru, 101, 159; Rwanda, 142; Saudi Arabia, 119, 201; Sierra Leone, 143; Somalia, 119, 202; Southern Yemen, 119; Sudan, 9, 119, 203; Thailand, 104; Togo, 144; United Republic of Tanzania, 85, 144; Upper Volta, 145; Uruguay, 161; Yemen, 119; Zambia, 85, 145
course on smallpox eradication, Atlanta, Ga., USA, 221
courses on laboratory diagnosis, São Paulo, 10, 101
eradication and epidemiological advisory team, South-East Asia, 181
meeting of regional advisers, Rio de Janeiro, 223
course, Kinshasa, 10, 85, 119, 223
seminar on smallpox eradication, Bangkok, 222
seminars, Americas, 164
see also under Vaccine production
Smoking, surveys on effects, 116
Snake venoms, 46
Social security, 51, 96
Mexico, 158
Somalia, 5, 13, 26, 68, 119, 121, 202, 206
South Africa, 12
South-East Asia Region, 104-112, 172-183
South Pacific area, 34, 53, 129-130, 215
South Pacific Commission, 15, 62, 76, 125, 127, 215
Southern Rhodesia, 10
Southern Yemen, 79, 81, 119, 202
Space medicine, symposium on basic environmental problems of man in space, Geneva, 41, 223
Spain, 12, 26, 113, 188
Spas, organization, Yugoslavia, 51, 189
Specialized agencies, co-ordination with, organizational study, 72
supply services to, 81
Specifications for Pesticides used in Public Health, 20
Staff of WHO, 80
composition by nationality, 239
numbers and distribution, 237-238
Stamps, commemorative, 77
Staphylococcal infections, 30
Statistical Commission (United Nations), 66
Algeria, 184; Argentina, 147, 148; Bolivia, 149; Brazil, 150, 151; Burma, 173; Cambodia, 207; Ceylon, 174; Costa Rica, 154; Ethiopia, 121, 195; India, 176, 177; Iran, 121; Ivory Coast, 138; Laos, 127, 211; Mexico, 158; Mongolia, 179; Morocco, 187; Nigeria, 141; Pakistan, 121, 200; Republic of Korea, 210; Senegal, 142; Sierra Leone, 143; Singapore, 213; Spain, 188; Sudan, 121, 203; Thailand, 180; Tunisia, 121, 204; Turkey, 189; United Republic of Tanzania, 144; Uruguay, 161
centre, Yaoundé, 146
course on teaching of demography, Bogotá, 98, 170
course on training of health statistical personnel, Kam pala, 65, 121, 223
course for coding instructors, New Delhi, 183
courses on application of statistical methods to public health, Bratislava and Brussels, 65, 115, 193
data bank, 65, 66
hospital, 64, 67, 107, 171, 181, 200
mental health, 37, 218
see also Medical records
Sterility survey, Central African Republic, 135
St Helena, 143
St Kitts, 162, 163
St Lucia, 93, 162, 163
Stomatology, Senegal, 36, 87, 143
Streptococcal infections, 30, 34, 35, 71, 86
St Vincent, 163
Sudan, 4, 5, 6, 9, 28, 59, 61, 119, 120, 121, 124, 202-203, 206
Suicide prevention, 37
Sulfones, 26-27
Supplies and equipment, 88
procurement for Members and other organizations, 81
Surgery and Traumatology, International Society of Orthopaedic, 74
Surinam, 3, 54, 55, 58, 73, 93, 160
Swaziland, 85, 89-90, 143
Sweden, 12, 14, 24, 32, 34, 35, 45, 52, 188
Switzerland, 10, 31, 35, 54, 188
Syphilis, 22, 23, 24, 86, 104, 125
Yugoslavia, 23
Syria, 3, 4, 5, 66, 68, 119, 120, 121, 122, 203-204, 206
Tanzania, United Republic of, 3, 6, 9, 14, 15, 19, 29, 31, 43, 68, 85, 86, 87, 143-144
Tax Equalization Fund, 100
Technical discussions, at Twenty-first World Health Assembly, 8
regional, 50, 88, 100, 108, 116, 122, 128
Tetanus, 23, 29, 89-90, 143
Thalassaemia, 43
Third Report on the World Health Situation, 51, 57
Togo, 55, 85, 144
Tonga, 29, 127, 214
Touring and Automobile Organization, World, 114
Town planning, Afghanistan, 172; Libya, 199; Saudi Arabia, 201
travelling seminar on public health and sanitation aspects of city planning, USSR, 62, 221
see also Urbanization
Toxoplasmosis, 23, 31-32
Trachoma, 13, 190
Afghanistan, 172; Algeria, 184; Burma, 173; China (Taiwan), 66, 208; India, 175; Morocco, 66, 118, 187; Spain, 113; Syria, 66, 203; Thailand, 66, 180; Yugoslavia, 113, 190
see also Communicable eye diseases
Traffic accidents, prevention, see under Accidents
Transplantation Society, 74
Traumatology, International Society of Orthopaedic Surgery and, 74
Treponematoses, 22-23, 24, 66, 86
advisory team, Africa, 22, 86, 145
epidemiological team, 8, 217
see also Yaws
Trinidad and Tobago, 3, 12, 93, 94, 96, 97, 106, 160-161
Tropical medicine, Burma, 173; Pakistan, 200; Thailand, 180
Trust Territory of the Pacific Islands, 51, 214
Trusteeship Council (United Nations), 51
Trypanosomiasis, 16, 45, 86, 233
Botswana, 16, 89, 135; Democratic of the Congo, 136; Kenya, 16, 86, 139
Tuberculosis, 24-26, 54, 66, 86, 93, 105, 110, 111, 113, 122, 130, 164
Afghanistan, 105, 172; Argentina, 93, 147; Bolivia, 93; Brazil, 93, 149; Burma, 105, 173; Cambodia, 207; Ceylon, 105, 174; Chile, 93; Colombia, 93; Democratic Republic of the Congo, 136; Dominican Republic, 154; Ecuador, 93, 155; Ethiopia, 119, 123, 195; French Territory of the Afars and the Issas, 195; Ghana, 137; Honduras, 157; India, 105, 175; Indonesia, 105; Kenya, 138; Libya, 119, 199; Malaysia, 212; Mauritius, 140; Mexico, 93; Mongolia, 105, 179; Nepal, 105, 180; New Hebrides, 125, 212; Niger, 141; Pakistan, 200; Peru, 93; Philippines, 212; Poland, 187; Republic of Korea, 210; Republic of Vietnam, 214; Rwanda, 142; Saudi Arabia, 119, 201; Senegal, 142; Singapore, 213; Somalia, 119, 202; Sudan, 119; Swaziland, 89-90, 143; Syria, 119; Thailand, 105, 180; Uganda, 145; Western Samoa, 214; Yugoslavia, 189
advisey team, western Pacific, 214
course, Tokyo, 24, 215
courses, Prague and Rome, 24, 105, 217
courses on bacteriology, Cuba and Venezuela, 93
study of effectiveness of programmes, Europe, 191
training and evaluation team, South-East Asia, 182
see also BCG vaccination and vaccines
Tunisia, 4, 5, 13, 51, 52, 53, 55, 68, 71, 89, 120, 121, 122, 204
Turkey, 4, 5, 58, 61, 77, 113, 115, 116, 188-189, 191
Typhoid fever, 29, 66, 105, 110, 111
Typhus, Bolivia, 148
Uganda, 6, 7, 11, 17, 31, 35, 43, 54, 57, 58, 71, 81, 86, 87, 144-145
UNDP, see United Nations Development Programme
UNESCO, see United Nations Educational, Scientific and Cultural Organization
UNICEF, see United Nations Children’s Fund
UNICEF/WHO Joint Committee on Health Policy, 57
Union of Soviet Socialist Republics, 10, 11, 12, 20, 23, 27, 32, 35, 37, 44, 53, 113, 189
United Arab Republic, 6, 14, 52, 74, 123, 121, 204-205, 206
United Kingdom of Great Britain and Northern Ireland, 5, 6, 11, 12, 14, 16, 17, 22, 23, 32, 35, 36, 37, 43, 47, 52, 66, 189
United Nations, 36, 41, 47, 51, 52, 60, 64, 66, 72, 74-75, 97, 100, 107, 108, 115, 122, 127, 189
coodination with, administrative, budgetary and financial matters, 81
organizational study, 72
supply services to, 81
United Nations Advisory Committee on the Application of Science and Technology to Development, 45, 72
jointly-assisted activities, 14, 15, 22, 26, 29, 48, 53, 54, 57, 73-74, 87, 90, 96, 106, 108, 115, 122, 123, 130
malaria, 4, 113
maternal and child health, 55, 56, 109, 110, 129
nutrition, 38, 106, 118
smallpox, 10, 104
supply services to, 81
United Nations Conference on the Exploration and Peaceful Uses of Outer Space, 41
United Nations Consultative Committee for Public Information, 78
United Nations Development Decade, 56, 72
Special Fund component, 62, 72-73, 80, 87, 90, 96, 115, 121, 127
Technical Assistance component, 73, 79, 88, 115
United Nations Educational, Scientific and Cultural Organization (UNESCO), 51, 52, 54, 55, 58, 61, 68, 69, 70, 72, 75, 77, 115, 122, 205
United Nations Enlarged Committee for Programme and Co-ordination, 72
United Nations Group of Experts on Marine Science and Technology, 60
United Nations High Commissioner for Refugees, 75, 88
United Nations Institute for Training and Research (UNITAR), 74
United Nations Institutes for Economic Development and Planning, 50
United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UNRWA), 38, 74, 122
United Nations Research Institute for Social Development (UNRISD), 50, 74
United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), 39
United Nations Social Defense Research Institute, 37, 75
United Nations Statistical Commission, 66
United Nations Trusteehip Council, 51
United Republic of Tanzania, 3, 6, 9, 14, 15, 19, 29, 31, 43, 68, 85, 86, 87, 143-144
United States Agency for International Development
United States of America, 4, 5, 14, 15, 19, 29, 31, 43, 68, 85, 86, 87, 143-144
United States of America, 6, 15, 19, 21, 23, 30, 58, 86, 87, 145
Universal Declaration of Human Rights, 78
Universal Declaration of Human Rights, 78
Universal Health and Medicine, International Union of, 68
Universal Institutes for Economic Development and Planning, 50
Universal Institutes for Economic Development and Planning, 50
Universal Institutes for Economic Development and Planning, 50
Universal Institutes for Economic Development and Planning, 50
Universal Institutes for Economic Development and Planning, 50
United Nations Group of Experts on Marine Science and Technology, 60
United Nations High Commissioner for Refugees, 75, 88
United Nations Institute for Training and Research (UNITAR), 74
United Nations Institutes for Economic Development and Planning, 50
United Nations Relief and Works Agency for Palestinian Refugees in the Near East (UNRWA), 38, 74, 122
United Nations Research Institute for Social Development (UNRISD), 50, 74
United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), 39
United Nations Social Defense Research Institute, 37, 75
United Nations Statistical Commission, 66
United Nations Trusteehip Council, 51
United Republic of Tanzania, 3, 6, 9, 14, 15, 19, 29, 31, 43, 68, 85, 86, 87, 143-144
United States Agency for International Development (AID), 4, 15, 88, 108, 109, 122
United States of America, 6, 15, 19, 21, 23, 30, 58, 86, 87, 145
United States of America, 6, 15, 19, 21, 23, 30, 58, 86, 87, 145
Universal Children's Day, 78
Universal Declaration of Human Rights, 78
Universities, International Association of, 68
University Health and Medicine, International Union of School and, 74
UNRWA, see United Nations Relief and Works Agency for Palestine Refugees in the Near East
Upper Volta, 6, 15, 19, 21, 23, 30, 58, 86, 87, 145
Urbanization, 57, 58, 59, 62, 70, 127, 166
Venezuela, 162
see also Town planning
Uruguay, 12, 94, 95, 96, 97, 99, 161, 166
Vaccination and vaccines, brucellosis, 30
cholera, 29, 120
diphtheria, pertussis and tetanus, and triple vaccine, 29, 43
malaria, research on, 5
meningococcal meningitis, 30
rabies, 31
reference preparations, 42
seminar on the administration of immunization programmes, Montevideo, 167
smallpox, 10, 119
typhoid, 29
see also BCG vaccination and vaccines
Vaccine production, 108, 167
Albania, 184; Burma, 173; Peru, 160; Venezuela, 162
brucellosis, Mongolia, 30, 105
colera, 28, 125
diphtheria, pertussis and tetanus, and triple vaccine, 182
India, 105, 176; Indonesia, 105; Jordan, 198; Thailand, 105
measles, United Arab Republic, 204
poliomyelitis, India, 104, 176, 177; Mexico, 158; United Arab Republic, 121, 204
rabies, 93
smallpox, 10, 85, 96, 101, 104, 119, 121, 125, 181
Guinea, 85, 138; India, 176
typhoid, India, 105
virus disease, India, 177; United Arab Republic, 204
yellow fever, 96
Brazil, 150; Colombia, 153
see also under BCG vaccination and vaccines
Vapour disinsection system, 17, 20
Vector biology and control, 17-22, 71
Malaysia, 211; Republic of Viet-Nam, 214; United Republic of Tanzania, 144
see also Aedes aegypti eradication; Anopholes control research units; and under Filariasis
Vector genetics, seminar, Notre Dame, Ind., USA, 18, 220
Venereal diseases, 22, 23-24, 93, 105, 164
Ceylon, 105, 174; Chile, 93, 152; China (Taiwan), 125, 208; Republic of Viet-Nam, 125, 214; Thailand, 181
seminar, Manila, 24, 125
Venezuela, 3, 24, 26, 35, 52, 55, 73, 93, 94, 96, 102-103, 161-162, 170
Veterinary medicine education, 99, 171
Bolivia, 149; Brazil, 99, 151; Guatemala, 156; Peru, 160; Uruguay, 161; Venezuela, 162
course in veterinary mycology, Guatemala, 94
Veterinary public health, 30-32, 70, 164, 165, 183
India, 105
symposium on the health aspects of the international movement of animals, San Antonio, Texas, 94, 165
see also Food hygiene
Viet-Nam, Republic of, 4, 9, 28, 29, 52, 54, 81, 125, 127, 214, 216
Virology, China (Taiwan), 208; French Antilles and Guiana, 156; Jordan, 198
course, Cairo, 52, 206
statistics, 66
team, Africa, 220
Virus diseases, 10-13, 32, 43, 46
India, 177; Spain, 188; Yugoslavia, 189
see also under Vaccine production
Voluntary Fund for Health Promotion, 45, 78, 80, 81, 127
Wastes disposal, 62-63, 87
Chile, 97; Democratic Republic of the Congo, 136; Greece, 186; Honduras, 98, 157; India, 63, 178; Israel, 63, 198; Jordan, 198; Lebanon, 121; Malta, 115, 186; Morocco, 115, 186; Niger, 141; Peru, 97, 160; Philippines, 63, 213; Venezuela, 97; Yugoslavia, 189
course on collection and disposal of solid wastes, Damascus, 63, 121, 206
see also Excreta disposal; Radioactive wastes; Sewerage and sewage disposal
Water pollution, 57, 59-60, 97, 115, 206
Brazil, 150; Hungary, 59; Poland, 59, 115, 188; Thailand, 181; Yugoslavia, 189
courses, Paris, 191
see also Environmental pollution
Water resources, development, 63, 72, 73, 97, 127, 166
Dahomey, 136; Mauritius, 140; Nigeria, 141; Somalia, 202
Uruguay, 161
management and protection, 59
seminar on river basin planning, Latin America, 97
Water supplies, 57-58, 73, 75, 88, 97, 127, 166, 181, 216, 219, 231
Afghanistan, 107, 172; Algeria, 115, 184; Argentina, 97, 147; Barbados, 148; Bolivia, 97; Brazil, 97, 150; British Honduras, 151; Burundi, 135; Caribbean area, 162; Ceylon, 58, 73, 107, 111-112, 174, 175; Chile, 97, 152; China (Taiwan), 208; Colombia, 97, 153; Costa Rica, 54, 97, 153; Dahomey, 136; Democratic Republic of the Congo, 58, 136; Dominican Republic, 97, 154; Ecuador, 97, 155; El Salvador, 54, 97, 155; Ethiopia, 58, 121, 195; Fiji, 216; Ghana, 58, 73, 137, 138; Greece, 185; Guatemala, 54, 97, 156; Guinea, 138; Haiti, 97, 156; Honduras, 54, 97, 157; India, 58, 59, 73, 107, 177, 178; Iraq, 58, 121, 197; Ivory Coast, 58, 138; Jamaica, 97, 157; Jordan, 144
Water supplies (continued)
121, 198; Kenya, 58, 90, 139; Liberia, 87, 139; Libya, 121, 200; Madagascar, 58, 140; Malaysia, 129, 211; Malta, 58, 115, 186; Mexico, 97, 158; Mongolia, 107, 179; Morocco, 58, 73, 115, 186; Nepal, 58, 107, 180; Nicaragua, 54, 97, 158; Niger, 141; Pakistan, 200; Panama, 54, 97, 159; Paraguay, 159; Peru, 97, 160; Republic of Vietnam, 214; Senegal, 58, 73, 87, 142; Sierra Leone, 87, 143; Somalia, 202; Sudan, 121, 203; Surinam, 58; Thailand, 107; Trinidad and Tobago, 97, 160; Turkey, 58, 115, 189; Uganda, 58, 87, 144; United Republic of Tanzania, 87; Upper Volta, 58, 145; Uruguay, 97, 161; Venezuela, 162; West Indies, 162; Yugoslavia, 189
advisory teams, 57
see also Drinking-water; Environmental health (sanitation)
Waterworks operators, training, Ghana, 137-138
Sudan, 203
Weekly Epidemiological Record, 4, 10
West Indies, 162-163
Western Pacific Region, 125-131, 207-216
Western Samoa, 15, 125, 126, 214
WHO Chronicle, 38, 49
Whooping cough, see Pertussis
WMO, see World Meteorological Organization
Working Capital Fund, advances to, 80
transfers, 79
World Directory of Medical Schools, 69
World Directory of Schools of Public Health, 69
World Directory of Veterinary Schools, 69
World Federation for Mental Health, 36

World Food Programme, 4, 10, 74, 87, 89, 113, 115, 122, 127
World Health, 77, 78
World Health Assembly, Twenty-second, 81-82
World Health Day, 77, 78, 82
World Health Statistics Annual, 65
World Health Statistics Report, 64, 65
World Influenza Centre, 12
World Meteorological Organization (WMO), 60, 75
World Touring and Automobile Organization, 114
X-ray technicians, training, 205
India, 177; Indonesia, 178; Mongolia, 179; Nigeria, 142; Sudan, 124
course, Baghdad, 120, 205
X-ray units, 39, 40, 111
Mongolia, 179

Yaws, 22-23, 24
Indonesia, 23, 105, 178; Nigeria, 22, 66, 86, 141, 142; Sierra Leone, 143
Yellow fever, 8, 9, 13, 17, 21, 22, 96, 150, 153
Somalia, 202
Yemen, 53, 68, 119, 120, 121, 205
Yugoslavia, 3, 4, 6, 10, 12, 13, 22, 23, 29, 32, 38, 51, 60, 66, 113, 189-190

Zambia, 68, 85, 86, 87, 148
Zanzibar and Pemba, see United Republic of Tanzania
Zoonoses, 30-32, 93, 94, 98, 105, 122, 164
Argentina, 147