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Note: Corrections to this provisional summary record should be submitted in writing to the
Chief, Records Service, Room A.843, within 48 hours of its distribution.
1. REVIEW AND APPROVAL OF THE PROGRAMME AND BUDGET ESTIMATES FOR 1969 - DETAILED REVIEW OF THE OPERATING PROGRAMME: Item 2.2.3 of the Agenda (continued) (Resolution EB41.14; Official Records Nos 163 and 166; Documents A21/P&B/15 and A21/P&B/21)

Programme Activities (continued)

Section 4.4.5 - Virus Diseases

Dr HSU (China) said that Japanese B. encephalitis was becoming the most important epidemic disease in the northern part of the Western Pacific Region. In China (Taiwan) the number of cases had trebled between 1964 and 1967, when there had been 1024 cases with 206 deaths. A field study of mouse-brain vaccine conducted in China in 1965 had indicated that two doses of the vaccine could give 81 per cent. protection. He asked WHO for assistance in starting local production of the vaccine.

Japan and the Republic of Korea were experiencing a similar increase of cases, and there was a need for combined efforts in an international study which it was hoped WHO would support.

Dr DURAI SWAMI (India) said that India's trachoma control programme had been launched in March 1963 to cover as large a population as possible in four states in northern and western India, where pilot studies had revealed an incidence of the disease ranging between 56 and 79 per cent. The programme was also being carried out on a more limited basis in other states where the incidence was lower. A target coverage of five-and-a-half million of the population had been set for the current five-year plan, but that had been exceeded by over a million. The Government was being assisted by voluntary organizations. Between 1966 and 1968 a rural population of some twelve million had been covered by the programme. He expressed his country's gratitude to UNICEF for having provided assistance to the value of three-and-a-half million rupees up to the end of 1967, with antibiotic ophthalmic ointment, transport, slit lamps and other supplies.

The National Trachoma Research Centre had isolated the trachoma agent in cultures on live chick embryos. Thus far 108 isolations had been made. Investigations on the role of flies in the dissemination of the disease and on staining techniques were in progress.

The viral etiology of haemorrhagic fever in outbreaks in Calcutta in 1963, 1964 and 1965 had been studied, and a serological survey was being made of the residents of Calcutta and some towns in West Bengal, together with virological investigations of febrile cases and characterization of the dengue and chikungunya viruses isolated. The vectors and animal reservoirs were also being investigated. It had appeared that arboviruses might not be the major factor in those cases investigated, and it was proposed to study the role, if any, of enteroviruses in encephalitis in Calcutta.

By the end of September 1967, Kyasanur forest disease virus had been isolated in 72 cases in India. Studies on wild monkeys, from which the infection had been contracted by persons living in the forests, had revealed ticks carrying the virus.

Professor PENSO (Italy) asked what was the Organization's policy on anti-trachoma vaccines, of which some had given valid results in trials, particularly those of the Haile Selassie Institute of Ophthalmology in Ethiopia and the Istituto Superiore di Sanita in Rome. There were favourable comments in the relevant literature also - in particular by Collier, who had formerly been against the vaccine - stressing the need for further tests.
His delegation would be glad if WHO could carry out such tests on a wide scale in countries where trachoma was endemic. The Italian producers were ready to put the vaccine at WHO's disposal. It must be remembered that trachoma was one of the commonest communicable diseases, especially in developing countries.

He asked what had been the results of WHO trials of measles vaccines in Africa.

Dr ADEMOLA (Nigeria) said that indeed trachoma was a major problem in his country, which offered ideal conditions for a study of the kind recommended by the previous speaker.

Dr COCKBURN (Virus Diseases), replying to the delegate of China, said that WHO recognized the seriousness of the problem of Japanese B. encephalitis in his country, and in Japan and the Republic of Korea, where the Organization had been assisting research for many years. In particular, WHO had supported a vaccine study in China (Taiwan). A team was to be set up to study the vectors and assess the effects of the vaccine in a three-year project beginning in 1968 in the Republic of Korea; work would probably start in China (Taiwan) the following year.

The work in trachoma control in India, using antibiotics, had been noted. A study of the epidemiological and long-term results of treatment of the disease - one of the largest epidemiological studies ever made - was now being completed in China (Taiwan). It had already yielded important results and would certainly have a major influence on the future methods of trachoma control and treatment.

To the delegate of Italy he replied that one of the main points of WHO's virus programme was the comparison of different vaccines. The Organization was in a unique position to carry out such comparative studies. Information on a wide variety of strains of trachoma agent had been collected, and laboratory studies were in progress to determine how they differed from each other. Studies of the varying etiology of the disease in different parts of the world were also being made. Such studies of strains and of the differing behaviour of the disease in different regions were an essential preliminary to the establishment of comparative vaccine studies.

On measles vaccines he said that WHO had supported field studies of all strains produced to date and no serious long-term effects had been revealed. All gave good immunity. The "fall-off" in antibodies had indeed been so slow after vaccination as to indicate that immunity would last considerably longer than the nine years which had so far elapsed since vaccine was first used.

He had noted the comments on haemorrhagic fever. Epidemiological and laboratory research on that subject was receiving considerable support from WHO. It was hoped to expand the virological side of the work in the next year in conjunction with a group working on vector control.

Encephalitis was an important problem in tropical countries. Its etiology was obscure. It was hoped to complement studies in India with similar studies of etiology in Africa.

Section 4.4.6 - Smallpox Eradication

There were no comments.
Section 4.4.7 - Leprosy

Dr DURAI SWAMI (India) said that it had been estimated that there were approximately two-and-one-half million people suffering from leprosy in India. In some areas in Andhra Pradesh and Madras the incidence of leprosy was as high as 40 per 1000. About 20 per cent, of the estimated leprosy cases were infectious.

The leprosy control programme in India was thirteen years old. Out of a population of three hundred million in endemic areas, some 67 million were covered by the programme; about 710 000 leprosy cases had been registered. The object of the programme was to control the spread of leprosy by intensive mass treatment by chemotherapy, using especially sulfone compounds. A leprosy control unit had been established in an area with a prevalence rate of over 10 per 1000.

He emphasized the importance of training doctors and paramedical workers in leprosy control and of rehabilitation of leprosy patients.

He expressed the hope that WHO, which had been assisting the programme in his country since 1961, would be able to investigate the effectiveness of BCG vaccination in leprosy control.

Dr TRAORÉ (Upper Volta) paid tribute to the Raoul Follereau Foundation of France, which was assisting in leprosy control in his country, where 140 000 cases were registered, 40 000 cured and 27 000 under observation without treatment. The control programme was being conducted in a remarkable fashion by the major endemic disease service, which was not only treating patients in hospital, but also providing out-patient care and mobile teams. Instruction in self-treatment was being given in the villages.

Dr U KO KO (Burma) emphasized the need for long-term studies on the relapse rate among leprosy cases released from control. From the clinical point of view, cases should remain under observation for a very long time - ideally, for life.

Dr OBAME NGUEMA (Gabon) asked what was the position of WHO regarding the use of long-acting sulfonamides against leprosy.

Dr BECHELLI (Leprosy) said that WHO had been following with great interest, especially through contacts and visits, the great effort of the Indian Government to control leprosy. If India had a little less than one-quarter of the estimated number of leprosy patients in the world, it had on the other hand many outstanding leprologists, and its school of leprology was one of the most important. Indian leprologists were trying to find a breakthrough in that difficult problem. On the other hand, WHO had been giving financial support to many research centres: the Central Leprosy Teaching and Research Institute, Chingleput; Acworth Leprosy Home, Bombay, and the Tata Memorial Centre, Bombay, where investigations were currently in progress on chemoprophylaxis, drug trials, standardization of lepromin, and cultivation of M. leprae. He stressed the importance of the proposed study on the prevention of leprosy by BCG which the Indian Government was willing to carry out, and said that WHO would follow with great interest all the efforts of the Indian Government and leprologists in that research.

Replying to the delegate of Upper Volta, he noted with satisfaction the substantial support given by the Ordre de la Charité to the leprosy control campaign in that country. He was also pleased to hear that the Service des Grandes Endémies was actively and efficiently co-operating in the control of leprosy in Upper Volta. He was aware of the efforts and activities of the Service des Grandes Endémies, not only in Upper Volta but also in many other African countries, and would like to pay a tribute to that organization.
In replying to the delegate of Burma, he said that the Government of that country and the leprosy control staff were performing very important work. Only a few years ago, 12,000 cases were registered and at present that number was over 170,000. WHO was also giving special attention to that project.

With regard to the question concerning relapse rates in lepromatous patients released from control, consideration of the subject should take into account, on the one hand, the tuberculoid benign cases, and on the other the lepromatous cases, considered as the malignant form of the disease. In tuberculoid cases regression of the disease was obtained with treatment and in the majority of cases even without treatment. That would indicate that in leprosy control, when resources and staff available could not cope with the bulk of the lepromatous cases, tuberculoid cases should have second priority, so that all efforts could be concentrated on the infectious cases. Those cases required treatment for many years; in the less advanced cases, bacteriology became negative in about 80 per cent. of the cases at the end of three years, while for the most advanced lepromatous cases ten or more years of treatment were necessary to achieve the negativity in about 85 per cent. of the cases. That gave an idea of the slow action of sulfones, and ideal drugs for the treatment of leprosy - as compared with penicillin in yaws - did not yet exist. One of the most serious problems in leprosy control was that of case-holding. It was extremely difficult to keep patients under regular treatment for many years. By way of comparison, he recalled that in some clinics in Germany, in the treatment of syphilis before penicillin therapy, only 15 per cent. of the patients had completed a treatment scheduled for two or three years. It was clear that there was a pressing need for a new and more efficient drug to reduce the load of infectiousness, and/or a vaccine to prevent the spread of the disease. Relapse rates in lepromatous cases had been studied in Brazil in a recent paper - which was to be presented at the IX International Congress of Leprology, London - in a group of over 800 patients, many of them followed for over ten years. The relapse rates were indeed high in those lepromatous cases. However, similar studies should be carried out in other parts of the world to confirm the results.

The delegate of Gabon had asked what was the present position of long-acting sulfonamides in the therapy of leprosy. WHO had given special attention to the subject. However, the results obtained in several centres co-operating with WHO in drug trials were not in agreement; while some claimed to have obtained good results, those had not been confirmed in other centres. Furthermore, the untoward effect of long-acting sulfonamides should also be taken into account; very serious adverse reactions, and even lethal ones, had been observed in a prevention trial of meningitis with long-acting sulfonamides. WHO would not dare to recommend the use of such a drug in mass campaigns. He added that controlled clinical trials in leprosy had only rarely been conducted, which made difficult the appraisal of drugs in comparison with the sulfones. Sometimes, also, leprologists were eager to try several drugs at the same time in a praiseworthy effort to find a more efficient drug for leprosy. However, the fact that the number of patients included in each group was small compromised the value of the study, and the results obtained were not statistically significant.

Section 4.4.8 - Veterinary Public Health

Dr BAHRI (Tunisia) asked if animal mycoses, particularly in domestic animals, were communicable to man.
Professor BABUDIERI (Italy) congratulated the Director-General and his technical staff on the work in recent years against leptospiral infections, which were an increasingly important problem, especially as they affected the breeding of cattle, sheep and pigs. WHO's work had included the establishment of reference laboratories, the preparation of reference sera, the promotion of meetings of study groups to standardize research methods, the testing of new techniques and the elaboration of a generally accepted systematization of that group of microorganisms. It had led to outstanding progress, which might serve as a model for what could be done against other diseases, particularly other zoonoses. He hoped that the good work would continue until complete control of leptospiral infections was achieved, since they caused as much damage in economic terms as brucellosis.

He mentioned the problem of cattle importation, for which testing procedures still varied greatly from country to country and were sometimes based on questionable premises. It was desirable that WHO should develop standard criteria and testing methods, perhaps in collaboration with FAO.

Dr VASSILOPOULOS (Cyprus) said that the problem of hydatidosis in Cyprus was an alarming one from the economic and social as well as from the public health point of view; besides the suffering of human beings, large sums of money were being wasted every year through the destruction of affected animals.

A case of multiple hydatidosis had recently been detected in a lady doctor in Cyprus, who had undergone an operation previously for hydatidosis of the liver and muscle. Surgeons were at a loss to know what to do, because hydatid disease of the bone was so rare. An orthopaedic consultant in England had confirmed the diagnosis, and the patient had been moved to the United Kingdom for operation.

The problem of hydatidosis had been investigated by WHO experts, who had made useful and constructive recommendations on how to tackle the problem. Assistance had also been received from a team of experts from the Faculty of Medicine of the University of Lille, France, who had made a film for use in health education. Following the recommendations of the WHO experts, the Ministry of Health, in co-operation with other ministries, had prepared a scheme which was at present being implemented and which included the following provisions: killing of stray dogs; periodical drug treatment of domestic animals; construction of modern abattoirs; meat inspection; and health education. It was hoped that WHO would give financial support to the scheme.

Dr BLOOD (United States of America) referred to the growing concern in the scientific community at the reduction of the world's primate animals. In his country a society existed to control the use of primates in medical research. It had recently pointed out the serious reduction in numbers of orang-outangs, chimpanzees, gibbons, marmosets and other primates, which were in danger of extinction from their natural habitats. He asked if WHO was giving attention to that problem, and if so, what were its recommendations.

Dr TRAORE (Upper Volta) stressed the problem of rabies in his country, and the difficulty of vaccinating dogs, especially in rural areas. There had been fourteen human cases of the disease in 1967, all fatal. WHO's assistance was required in obtaining vaccine.

Mr BARADETSE (Burundi) said that in his country rabies had been endemic for over two years; many dogs and other animals were carriers of the disease. The veterinary service had made every effort to destroy suspected carriers and vaccinate dogs. But in many cases bites were not reported.

He also appealed for assistance in obtaining vaccine.
Dr BOUITI (Congo, Brazzaville) said that his country had made considerable efforts to control rabies in the past five years. There were many cattle, and the animal food industry was developing. Bovine rabies was spreading, which was a particular cause for concern. He requested the help of a WHO consultant in establishing a veterinary service.

Dr CHICAL (Central African Republic) said that many areas in his country had had to be declared infested with rabies. The administrative measures introduced in the Central African Republic had come up against great difficulties. It would be too expensive to vaccinate all dogs. He asked whether other countries had discovered an effective method to ensure the killing of stray dogs.

Dr QMAR (Afghanistan) said that Afghanistan was producing rabies vaccine, but not the antirabies serum which had to be used with it. He appealed for assistance in obtaining the necessary supplies.

Dr BURGASOV (Union of Soviet Socialist Republics) said that the immunoprophylaxis of measles had advanced beyond the laboratory stage in the USSR. Schwarz vaccine and a vaccine, L-16, produced in the USSR had been used for a mass vaccination campaign in children which, during the two years of its existence, had proved the effectiveness of the immunizing agents. The campaign would have to be continued in order to prevent measles from becoming a disease of adults, since the immunity conferred by the vaccine did not appear so far to exceed five years.

At present his country was most concerned with the substrate. The occurrence of haemorrhagic fever in laboratory workers in the Federal Republic of Germany had emphasized the need for caution. The production of the vaccine was now being reviewed to ensure the use of only the least harmful and best known tissue cultures. In the absence of WHO recommendations on the use of the tissue cultures in question and the remarks of the delegate of the United States of America regarding the scarcity of the necessary primates, he would welcome the opinion of the WHO experts on the problem.

Dr GOMEZ LINCE (Ecuador) said that rabies was also a growing public health problem in his country, which was making efforts to control the disease to the extent of its capacity. The National Institute of Hygiene had been preparing antirabies vaccines, of which two types were at present being produced - one in calves and the other in guinea-pigs. Production was, however, very expensive.

The disease was fortunately at present confined to the towns and transmitted solely by dogs, but there was a large canine population - approximately 400,000 - and it was difficult and expensive to carry out total immunization with the resources available. It had, therefore, been decided to destroy as many stray dogs as possible and provide low-cost vaccination for domestic dogs to those owners who wished to take advantage of it. It would be a very expensive undertaking for WHO to supply free vaccine to all the countries needing it.

Dr BADDOO (Ghana) said that rabies was a serious problem in his country also. An antirabies campaign had been launched in April 1968, with intensive vaccination of dogs. Its effectiveness depended on total coverage and, as in all campaigns, the problem was not so much that of the immediate results but of maintenance after completion of the campaign. Assistance was needed in that phase, and he appealed for WHO's help in the provision of vaccines.
Dr LAL DAS (Nepal) said that in his country's anti-rabies campaign an attempt had been made in Katmandu to eliminate stray dogs, but they appeared to multiply faster than the human population. There was a shortage of anti-rabies vaccine, in which connexion WHO's assistance would be appreciated.

Dr KAPLAN (Veterinary Public Health) said that to answer the question raised by the delegate of Tunisia on mycotic infections of the scalp in young children attending school, it was necessary to identify the species of fungus involved in order to determine whether the infection was derived from an animal in the home. Mycotic examinations would reveal whether it was a purely human parasite or an infection of animals that had been transmitted to the child. He referred to the second report of the Joint WHO/FAO Expert Committee on Zoonoses, which dealt with that question in more detail.

The delegate of Italy had discussed the work in leptospiroses. A report of a scientific group, which had just appeared in the WHO Technical Report Series, gave an up-to-date account of the entire field. In all that work WHO collaborated with FAO very closely, and in fact FAO/WHO reference centres for leptospirosis had been set up.

The delegate of the United States of America had raised the problem of the dwindling supply of primates for use in medical research. WHO had been concerned with the use of non-human primates in medical research for the past few years, having collaborated in the organization of two meetings on the subject. The first had been held in collaboration with the Nuffield Institute of Comparative Medicine at the London Zoo in 1965, and the second in December 1967 in Lyons, in collaboration with the National Institute of Medical Research of France and the University of Lyon. Both meetings had resulted in publications. WHO planned to explore with UNESCO and other appropriate groups the question of conservation of non-human primates so that medical research would not be at too great a disadvantage in procuring such primates for research in the future.

With reference to the question asked by the delegate of the Congo (Brazzaville) on bovine tuberculosis, reference was made to the second report of the Joint WHO/FAO Expert Committee on Zoonoses, which covered that problem in great detail.

A reply to the delegate of the USSR on his questions concerning measles and the preferred tissue culture substrates to be used in the preparation of vaccines for humans would be given by the Virus unit; he would at the present stage mention only the interesting fact that the measles virus was related to the virus of Rinderpest of cattle and to that of dog distemper.

Several delegates had raised questions on rabies. The first set of questions pertained to the high cost of vaccines, and whether vaccines and serum could be supplied by WHO. WHO had recognized for a long time that it was uneconomical for many small individual laboratories in various countries to produce antirabies biological products, and often such products from those laboratories had very low potency. WHO, therefore, encouraged a regional approach to the problem by trying to encourage large laboratories to produce such stocks and make them available at very low prices for nearby countries. For various reasons, commercial and otherwise, it had not been possible to make much headway so far. It was clear, however, that when antirabies vaccines were produced in large quantity the costs were considerably lowered. For example, it was possible to produce avianized vaccine for dogs for about twenty American cents per dose. Nervous tissue vaccines might be produced even more cheaply. With freeze-drying, rabies vaccines could be stored for a long period of time without losing potency.
The second group of questions concerned control efforts and especially the stray dog problem. Experience has shown that a short but highly intensive dog-vaccination programme, coupled with a rounding up of stray dogs, could bring a rabies epizootic under control very rapidly. If avianized vaccine was used, the duration of immunity was at least three years and would probably last the lifetime of the dog. With nervous tissue vaccine the duration of immunity was somewhat less but perfectly adequate. After the dog population had been covered once by vaccination, it was only necessary to establish a maintenance service where dogs born during the course of the year would be vaccinated, and the stray dogs kept continually at the lowest possible level by dog-catching teams. In some areas of the world religious and social customs forbade the destruction of stray dogs, and under those circumstances conventional methods of control were rendered more difficult. Experimentation was under way, however, that showed some promise of being able to use a "pill" injection that could render bitches sterile for very long periods of time. Perhaps when that method was perfected and rendered feasible for field use under difficult conditions it would be possible to gain some control of the dog population without having to resort to euthanasia.

He hoped that the reply had answered the specific questions raised by the delegates of Nepal, Ghana, Ecuador, the USSR, Afghanistan, the Central African Republic, Burundi and Upper Volta.

The delegates were referred to two fairly recent publications by WHO on rabies which dealt comprehensively with the technical problems of the disease: the fifth report of the WHO Expert Committee on Rabies and the second edition of the WHO Monograph, Laboratory Techniques in Rabies.

Dr VASSILOPOULOS (Cyprus) asked to what extent the prophylactic treatment of domestic dogs was effective in controlling rabies.

Dr KAPLAN (Veterinary Public Health), replying to the delegate of Cyprus, said that the anthelmic used very widely up until recently, namely Arecoline hydrochloride, had not been found to be effective under most conditions prevailing in countries where hydatidosis was prevalent. When Arecoline was given under very carefully controlled conditions every few months, some success might be obtained if other aspects of the transmission cycle were adequately taken care of, such as control of offal in abattoirs by not allowing dogs access to the offal. However, there was much more optimism with respect to a new drug, Bunamidine, which appeared to be much more effective than Arecoline. Experiments had been carried out on Bunamidine in the Pan American Zoonoses Center. The centre has placed hydatidosis high on its list of priorities as a disease for research and control efforts. A special issue of the Bulletin was in press which contained up-to-date information on all aspects of hydatidosis and its control, including the work carried out with Bunamidine.

Dr BURGASOV (Union of Soviet Socialist Republics) asked for a reply to his questions concerning cultures for measles vaccine. Many meetings had been held on the subject, and WHO had collected information which would be of interest.

Dr COCKBURN (Virus Diseases) said that the problem of cell cultures for vaccines was causing great anxiety, particularly with regard to live vaccines, since it was possible that other agents from the cell cultures might be injected with the vaccine strain. Although it was possible to identify a large number of agents, it was probably those that could not be identified that would turn out to be important in the long term from the human pathogenic point of view.
The embryonated egg and the chick embryo tissue culture had been used for long periods. The monkey kidney culture had likewise been used for many years for oral poliomyelitis vaccines. As far as was known, no accidents had occurred with the use of those cultures, though possible ill effects might not be discovered for many years after the vaccine had been used. Most people had been reasonably happy about the live poliovirus vaccine being made on kidney tissue culture because it was fed and not injected. The position had now become more difficult, however, because measles, mumps, rubella and other vaccines had to be inoculated. That was why different tissue culture systems - guineapig, rabbit and dog kidney, or human cells, for example - had been used recently. In theory the human cell was the one about which most was known. A particular line of such cells had been laid down for many years and extensively examined and no extraneous agents had been found. There was nevertheless a reluctance on the part of national control authorities to license the use of such cells for injection because of the fear that if they did contain a noxious agent the long-term results would be extremely serious.

A tissue used over a long period by injection which had not shown to have caused any ill effect was the chick embryo. Given such embryos free from known viruses (e.g. the leucosis group); there would seem to be a great deal in favour of their use if the virus multiplied in them easily. Where this is not the case, however, it is necessary to continue as at present using different cell cultures until an answer was found to the problem. The information was not available to enable WHO to make a definite statement about the use of one cell culture or another. It would be necessary to continue to collect information and make epidemiological observances over long periods until more was known about agents in live tissue culture cells or until some definite evidence was obtained about their safety or otherwise.

**Section 4.4.9 - Epidemiological Surveillance**

Professor BABUDIERI (Italy) recalled that, during the Twentieth World Health Assembly his delegation had called attention to the problem of viral hepatitis and proposed the collection of data and the promotion of research on the subject. He would be grateful for information on research activities following the last meeting of the study group on the subject, particularly with regard to the prophylactic and curative effects of gammaglobulin, and to the transmission of the disease from chimpanzees to man as reported in the United States of America.

**Section 4.4.10 - International Quarantine**

The CHAIRMAN said that the Sub-Committee on International Quarantine would deal with that question.

**Section 4.5 - Environmental Health**

The CHAIRMAN said that section 4.5.4 (Community water supply), which was to be discussed later under agenda item 2.9, would be excluded from the discussion under the present agenda item.

Dr DOUBEK (Czechoslovakia) said that his delegation was somewhat concerned about environmental sanitation in relation to WHO's long-term programme. The wastes produced by man's activity could only be disposed of into the environment, and reliance was placed upon dispersion and dilution, and the stabilizing and self-purifying activities of the air, water and soil, to maintain the balance necessary for supporting life.
The environment must be considered polluted when it was altered in composition or condition as a direct or indirect result of man's activities so that it became less suitable for fulfilling its functions than in its natural state.

It was necessary to determine the degree, condition, concentration, time and space in which potentially polluting wastes could be disposed of into the environment without creating health hazards or other adverse effects, and without interfering with the beneficial uses of air, water and land resources.

The speed of growth of the problem was out-pacing the preventive and control measures available. Projection of present growth-rates of urban population and industrial activities suggested that the investment in pollution prevention and control must be substantially increased even to maintain present levels. The problem was primarily one of public health, and much of the present knowledge of how to control it was the result of public health research and practice. It was also an economic and social problem, with legal, administrative and political implications. Many international organizations were actively engaged upon it, but WHO had a leading part to play because of the many health aspects and because of its achievements in that connexion. His delegation fully supported the work on such problems, which should continue to receive high priority.

Dr TOTTIE (Sweden), referring to section 4.5.3 (Sanitation services and housing), recalled that during the Twentieth World Health Assembly his delegation had raised the question of noise, which had also been the subject of a film shown during that Assembly. No reference appeared to be made to the subject in Official Records No. 163, and he would like to have some information concerning WHO's activities in that connexion.

Professor PACCAGNELLA (Italy) said that a law had recently been passed in his country for the control of air pollution, and another was under discussion for the control of pollution of surface and coastal waters. Recent regulations had also been passed to control the manufacture and use of certain pesticides, and a further one was under consideration concerning the sale, use and application of pesticides in agriculture.

For the enforcement of such laws, the setting-up of environmental standards was needed, and further studies were to be made regarding the effects of certain substances on human health and other ecological systems. Such problems were of immediate concern to the developed countries and to those in the process of developing food and agricultural production, industry and urban expansion.

The activities of the Division of Environmental Health deserved the greatest support. He suggested that consideration should be given to the elaboration of quality standards in other fields of environmental pollution similar to those drawn up for drinking water, and based on epidemiological and ecological evidence, for which purpose co-ordinated studies would be required. Perhaps the Director-General could prepare a report on the subject for the next Health Assembly.

He also suggested that activities be developed on the problem of noise.

Dr CHICAL (Central African Republic) said that in his country, as in others, environmental health was a central problem. He thanked the Organization and the Regional Director for having sent a short-term consultant in environmental sanitation to his country.

In 1966, 90 per cent. of the population of Bangui had received treatment for intestinal parasitoses and malaria, and in 1967 an even greater proportion had been affected. The work of a cotton mill recently established in Bangui had been brought almost to a standstill by an epidemic of infectious hepatitis affecting 35 per cent. of the workers.
An environmental sanitation and drainage programme had been in existence for some time in Bangui under the control of the Minister of Development, and the health services had played an important part in influencing the decision of the United Nations Development Programme to set up an environmental sanitation pilot area in Bangui, so that in that instance the health services had come to the help of the economy. His Government had requested assistance in information and health education, since it considered it impossible to begin environmental sanitation work without the participation of the public.

Dr KENNEDY (New Zealand) said that his Government had for some years supported the concept of an engineer-directed environmental health programme, which had been taken for granted in some areas but regarded with scepticism in others. Since the appointment of public health engineers in the Department of Health, the country's public health activities had been revitalized.

Dr ADEMOLA (Nigeria) said that it would be useful if the Organization would concern itself with the growing problem of disposal of wastes from the factories being established in the developing countries and the resultant problem of water pollution.

There was a shortage of skilled manpower to deal with the problem, and perhaps the possibility could be explored of developing an existing institution, such as a public health or engineering faculty of a university, for use as a regional training centre for sanitary engineers and other staff to deal with such problems as water pollution and sewage disposal.

Professor OMAR (Afghanistan) said that the problem of environmental health was a subject without frontiers, affecting almost all countries. There was a growing problem of water pollution in his country because of the lack of proper sewage disposal in the towns. While thanking WHO for its assistance in that connexion, he said that if the various areas of assistance could be brought together successful results could be achieved more speedily.

Dr QUAMINA (Trinidad and Tobago) said that her country had just completed a forty million dollar sewage disposal scheme in three urban centres. Connexion to individual houses was proceeding very slowly, however, and she emphasized the need of health education in that regard.

Dr IZMEROV, Assistant Director-General, referring to the remark made by the delegate of Nigeria concerning the growing problem of environmental health in developing countries, said that the Organization was giving an increasingly important place to the problems of water and air pollution, waste disposal and the protection of the population from the effects of radiation. Activities were directed primarily to working out criteria for the protection of health. He recalled the expert committee meetings which had dealt with the maximum permissible concentrations of harmful substances in the air and in standards for drinking-water.

The activities of the Division of Environmental Health included the determination of the research work needed, stimulation of such research, dissemination of its results, and training of personnel.

At the end of 1967, an international reference centre for air pollution had been established, and consideration was being given to setting up during 1968 centres for waste disposal, community water supply, etc.

Efforts were being made to increase the number of sanitary engineering graduates, and a centre was being set up to train personnel in environmental health for French-speaking countries. It was proposed to give the matter even greater attention in the future.
The problem of noise was being considered in two aspects: industrial noise and urban noise. The first aspect was considered as constituting mainly an occupational health problem to be dealt with by the Occupational Health unit, in collaboration with ILO. With regard to urban noise, it would be seen under section 4.5.3 (Sanitation services and housing) that one of the functions of the unit was to advise on the public health aspects of housing, town and country planning, and urbanization programmes, which would include the problem of noise.

He thanked delegates for the interest they had shown in the questions under discussion.

**Section 4.6.1 - Public Health Administration**

There were no comments.

**Section 4.6.2 - Health Laboratory Services**

Dr DURAI SWAMI (India) said that although his country possessed some excellent laboratories of a specialized nature, the laboratory services had not been fully developed at all levels. The lack of a chain of laboratories from the primary health centres at the periphery to the state headquarters would be remedied by a scheme for strengthening and co-ordinating the laboratory services, which had been drawn up for inclusion in India's fourth five-year plan, to start in April 1969.

It had been decided that under the new scheme there would be one regional public health laboratory to serve a population of five million, and that each existing district public health laboratory would be upgraded in order to perform certain functions of a regional public health laboratory - diagnostic services, public health services, referral services, and the training of laboratory technicians.

**Section 4.6.3 - National Health Planning**

Dr SOUPIKIAN (Iran) recalled that although the authorities of many countries had recognized the importance of national health plans as an integral part of plans for economic and social development, more adequate scientific bases as well as clearer criteria for comparing the effects of health programmes with those of other sectors, such as industry and production, would be required to bring about an increase in the proportion of national resources at present devoted to health.

The importance of the health sector had been successfully justified within Iran's recently adopted fourth national economic and social development plan, which earmarked a reasonable share of national income for the development of health services. A further effort to be foreseen, once the contribution of health programmes to economic objectives had been acknowledged, would be an emphasis upon health amongst the social criteria for the establishment of priorities in the distribution of national resources between the economic and social segments of development plans.

The Iranian delegation supported the recommendations of the WHO Expert Committee on National Health Planning for further research in that field, and was prepared to take an active part on international research teams as they were set up.

**Section 4.6.4 - Organization of Medical Care**

Dr BAHRI (Tunisia) suggested that in view of the increasing incidence of road accidents, special centres of traumatology should be set up both for research and for the prevention and treatment of accident cases.
Section 4.6.5 - Nursing

There were no comments.

Section 4.6.6 - Health Education

Dr CHICAL (Central African Republic) said that health education, despite the interest and discussion which it aroused, remained the poor relation of public health. One reason was that the results tended to be of a long-term rather than more immediate and spectacular character, and therefore it had less appeal than some other types of investment.

The public health authorities of the Central African Republic had launched a campaign to stimulate the population's self-protective reflexes and active participation in public health through the use of positive, popular methods. One example of that approach was a broadcast in which the children received awards for correct answers to questions concerning health.

Dr ELOM (Cameroon) said that several countries in Africa south of the Sahara were organizing health education services within the framework of their general health services, but unfortunately they still lacked essential personnel for other priority activities. Additional courses in health education should be included amongst those offered at important centres such as Lomé and Lagos for the training of auxiliary health personnel.

Dr ADEMOI (Nigeria) commended the activities of WHO in health education in Africa. The serious shortage of manpower in health education resulted in part from the lack of African training centres for specialists in that field. WHO might consider assisting one or two French-speaking and English-speaking universities, so that they might train local health officers.

Dr BLOOD (United States of America) said he had noted with interest the functions listed under Health Education in Official Records No. 163 (page 35). With reference to the fourth item, he asked what activities were carried on by UNESCO, both independently and jointly with WHO.

The CHAIRMAN invited the representative of the International Union for Health Education to speak.

Dr AUJOUAT (International Union for Health Education) expressed the good wishes and the gratitude of the Union to WHO and its Director-General on the occasion of the Organization's twentieth anniversary.

The Union had benefited from the contributions of WHO delegates at its meetings throughout its sixteen years of existence, and had in turn endeavoured to orient its work along lines similar to those followed by WHO in the annual programmes adopted by the World Health Assembly. It had never implemented a regional or international activity without prior consultation with the Organization. The Union's Review, so capably edited by Mme Le Meitir-Kaplan, also endeavoured to reflect the activities of the Organization's experts as well as its programmes.

An international conference on health education, one example of that co-operation, would be held at Buenos Aires from 6 to 13 September 1969 on the role of communication in changing behaviour patterns as related to the promotion of health. Special attention would be given at the conference to the active participation of the people in the protection and promotion of health. It was hoped that the WHO Regional Office for the Americas would lend its support and technical co-operation for the conference.

Dr KAREFA-SMART, Assistant Director-General, assured the Committee that the Organization fully shared the views expressed by speakers on the importance of health education, which lay at the heart of all work performed at headquarters. Advice from headquarters was constantly requested by regional offices and Member governments.
The proposed programme before the Committee was evidence that present work in health education should be continued.

In reply to the remarks of the delegates of Nigeria and Cameroon concerning assistance at the local level through existing centres, he said that the matter was also of concern to headquarters staff and would be borne in mind for future planning.

In answer to the question of the delegate of the United States of America, he recalled that UNESCO was the major United Nations agency with which WHO co-operated in the field of health education. The two bodies had together issued a resource book entitled "Planning for Health Education in Schools". It had been presented at the International Conference on Public Education held in 1967 under the joint sponsorship of UNESCO and the International Bureau of Education, and had been widely distributed subsequently.

He expressed appreciation of the co-operation of the International Union for Health Education.

Section 4.6.7 - Maternal and child health

Dr Narain (India) said that the Ministry of Health of his country considered that a family planning programme must be an integral part of maternal and child care. Many problems faced mothers of large families in developing countries, among them insufficient time and energy to devote either to their children's health, nutrition and education, or to their own health as mothers.

Indian health authorities had set up for every ten thousand people in rural areas a sub-centre dealing with particular health problems such as disease, where the nurse - midwife attending to pre-natal and post-natal care was in close enough touch with mothers to present, once accepted amongst them, appropriate health measures, including family planning. Once a mother had indicated her interest, she could go to a family planning centre for help.

Professor Omar (Afghanistan), in speaking of the importance accorded by his country to maternal and child health, said that maternal and child care centres had been set up in the large cities for treatment and prevention, as well as for the health education of mothers and children. However, the poorer people who had been attracted to those centres by the free milk and vitamins distributed there had been losing interest over the past two years since UNICEF's withdrawal of that form of aid. He asked whether the Organization could find a solution to the centres' popularity and resultant loss of effectiveness.

Dr HSU (China) said that the public health service in his country operated at the lowest level of health organization, and analysis of staffing patterns and utilization was essential to the improvement of the health programme. A study on local health services had been conducted with help from UNICEF and WHO in 1967, and had led to useful and important conclusions.

Dr Karefa-Smart, Assistant Director-General, said that it had been gratifying to hear from the delegate of India that his Government was beginning to implement the policy of integrating family planning services with general maternal and child health. That had in fact been the policy adopted by the Organization, in recognition of the fact that maternal and child health services could not function effectively unless they dealt with all problems of mothers' and children's health. It was also true that none of those services could be properly operated if isolated from general public health services. Therefore the maternal and child health unit at headquarters had been designated the focal point of the Organization's advisory services in family planning.
He referred to the Organization's co-operation on population matters with the United Nations, in evaluation missions requested by Member governments. One study had been completed in Pakistan, and another was being implemented in India.

He suggested that the answer to the question raised by the delegate of Afghanistan was up to the government concerned. However, in the case of centres which atrophied because of a lack of staff, the Organization was prepared to help, on request, with the training of workers needed to staff the centres.

Section 4.7 - Health Protection and Promotion

Professor PENSO (Italy) said that the Italian Public Health Board had expressed the wish that the Organization place the problem of the effect of tobacco on human health on its agenda for the Assembly. The abusive use of tobacco was increasing, with probable harmful influence on lung cancer etiology and cardiovascular diseases. Noting that no mention had been made of that vital problem, he requested the Director-General to include it in future programmes relevant to health protection and promotion.

Dr KAREFA-SMART, Assistant Director-General, assured the delegate of Italy that the public health aspects of smoking had not been forgotten and that the Director-General had recently nominated a staff member to participate in an international conference on smoking and health.

Section 4.7.1 - Dental Health

There were no comments.

Section 4.7.2 - Occupational Health

Dr KAREFA-SMART, Assistant Director-General, referred to previous comments on noise and drew attention to Public Health Papers No. 30, entitled "Noise: An Occupational Hazard and Public Nuisance", which was available on request.

Section 4.7.3 - Mental Health

Professor PESONEN (Finland) noted with satisfaction that an expert committee was planned to discuss the different categories of physically handicapped and make recommendations concerning rehabilitation services (Official Records No. 163, page 35, section 4.6.4). It would also be fitting to study the rehabilitation of another group: those suffering from mental disorders, especially chronic psychiatric diseases.

Dr QUAMINA (Trinidad and Tobago) drew attention to the plan for studies to improve the collection, compilation and analysis of statistics on suicide (Official Records No. 163, page 38, section 4.7.3, item (c)), with a view to preventive measures. She mentioned that in Trinidad two separate studies had been made on the incidence of suicide: one by a medical social worker and a psychologist and another by the Clark Institute of Canada.

Those studying the relationship of race to the incidence of suicide might profit from the experience of Trinidad, where several racial groups lived in a single environment.
Section 4.7.4 - Nutrition

Professor PENSO (Italy) said that the importance of protein-rich foods had led researchers to attempt to produce proteins from micro-organisms. The problem had now been solved and positive results had been obtained. Proteins could be prepared in large quantities for human consumption, starting from micro-organisms cultivated on petroleum residues or in other synthetic environments. WHO might usefully consider the question of what controls were necessary for such products. Industry had achieved such progress in the production of synthetic food proteins that the time had come to begin to establish minimum requirements for them, as had been done for food affected by radiation.

Dr SODA (Japan) said that the growth of Japanese children had accelerated every year since the end of the war, owing chiefly to improved nutrition. That had not led however to increased stature in the male population, nor had it been accompanied by a commensurate development of physical strength or mental capacity. The latter could provide a goal for research in nutrition by international groups devoted to the promotion of health in its most complete and dynamic sense.

Dr KAREFA-SMART, Assistant Director-General, said that the question raised by the delegate of Italy was being actively pursued by the Organization. The Protein Advisory Group of experts from FAO, UNICEF and WHO studied all aspects of the production and use of proteins, including those artificially produced, and presented recommendations based upon their findings. The approval of the Organization for the public distribution of any new foodstuffs in internationally supported programmes was not given until they had been submitted to extensive trials and had been proven to be of acceptable quality and non-detrimental to health.

In reply to the question of the delegate of Japan, he said that research grants had been given for the development of projects for refining the research tools used to study growth. It was felt that universal research could contribute to the solution of local problems.

Professor PENSO (Italy) said that his question had not concerned the Protein Advisory Group of whose existence he was aware. Rather he had based it upon the nature and number of requests for artificial proteins which Italy had received from other countries. Governments should be advised by the Organization, in co-operation with FAO, about controls which should be operated on the national level, as had been done with regard to the distribution of food which had been affected by radiation.

Dr KAREFA-SMART, Assistant Director-General, said that the question of artificially produced proteins, including those synthesized from petroleum by micro-organisms, was under study by the Protein Advisory Group. When in doubt about any food produced commercially, a government could forward it for study to the Protein Advisory Group, through the usual channels.

Professor PENSO (Italy) said he had not had in mind the question of whether WHO should be consulted concerning one or another individual product. Rather, as large commercial enterprises were producing proteins, WHO should recommend to countries tests to be applied on the national level. The matter was one that should be borne in mind for the Organization's future programmes.

Dr BURGASOV (Union of Soviet Socialist Republics) stressed the importance of the point raised by the delegate of Italy. The matter was receiving detailed study in the Soviet Union with the object of adding protein concentrates to animal fodder, but the use of proteins from micro-organisms for human consumption had not been envisaged. It was considered that there were not yet sufficient data concerning the metabolism of certain acids contained in protein derived from petroleum products and their effect on human health.
Dr DEMAKEYE (Nutrition) said that the question of petroleum products had already been referred to the Protein Advisory Group. With regard to human nutrition, WHO had produced a document defining the methodology of tests to be applied before such proteins could be distributed for human consumption.

The meeting rose at 12.45 p.m.
Page 9, fourth paragraph, second line

delete: rabies.

insert: hydatidosis.