EXECUTIVE BOARD

Forty-seventh Session

SUMMARY RECORD OF THE EIGHTH MEETING

WHO Headquarters, Geneva
Friday, 22 January 1971, at 2.30 p.m.

CHAIRMAN:  Dr B. JURICIC

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### Eighth Meeting

**Friday, 22 January 1971, at 2.30 p.m.**

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Secretary: Dr M. G. CANDAU  
Director-General
Representatives of Intergovernmental Organizations

United Nations
Mr P. CASSON

United Nations Children's Fund
Sir Herbert BROADLEY

United Nations Relief and Works Agency for Palestine Refugees in the Near East
Dr M. SHARIF

Representatives of Non-governmental Organizations

World Federation of Occupational Therapists
Dr A. Constance OWENS

World Veterinary Association
Dr H. VALLETTE
1. REVIEW OF THE PROPOSED PROGRAMME AND BUDGET ESTIMATES FOR 1972: Item 3.5 of the Agenda (Official Records No. 187) (continued)

Third report of the Standing Committee on Administration and Finance (Document EB47/WP/11 and Corr.1)

Chapter II: Detailed examination and analysis of the proposed programme and budget estimates for 1972 (continued)

Communicable Diseases

The CHAIRMAN invited the Board to continue its consideration of the report of the Standing Committee on Administration and Finance (document EB47/WP/11) with the section on Communicable Diseases beginning at paragraph 75 of Chapter II.

The DEPUTY DIRECTOR-GENERAL, introducing document EB47/WP/8 on "Cholera - present trends and problems", said that the situation with regard to cholera was very fluid and was evolving rapidly. It was some 10 years since cholera had left the areas in which it was traditionally endemic in the Ganges and Brahmaputra deltas and had begun its progress through Asia, and the Director-General had drawn the attention of the Executive Board and the Health Assembly to that fact in 1962. The map appearing as Fig. 2 in document EB47/WP/8 showed the expansion of cholera throughout the world. The map had only recently been prepared and it might not be entirely accurate because of the speed with which the situation was developing, particularly in Africa; and there was the possibility that the figures given in Table 1 on which it had been based had not been complete. Cholera had begun its march towards the west in 1965-1966 and had soon reached the Eastern Mediterranean area and even, in a limited way, some European countries. It had also appeared in July 1970 on the west coast of Africa, an area where it had been unknown for some 90 years.

Whereas previous pandemics had been due to the classical Vibrio cholerae, the new invasion was due to El Tor vibrio. The clinical signs were the same in serious cases but El Tor vibrio appeared to produce more benign and sub-clinical cases and many more clinically non-identifiable cases. There were sometimes more than 100 healthy carriers for one clinical case which had been identified. El Tor vibrio thus had a greater tendency to establish itself in an area and that fact was of importance from the point of view of epidemiology and prevention.

When the Director-General had drawn attention to the problem in 1962, an information campaign had been rapidly promoted in Asia and a number of seminars and training courses had been held, as indicated in Annex 5 of document EB47/WP/8. The Asian countries were thus relatively well prepared, since their health administrations had been advised of the progress of cholera, and essential data concerning epidemiology, prevention and modern treatment had been circulated. The same was true of the Middle East, where a conference had been held in Ankara in 1965. Countries such as Tunisia and Turkey had benefited from those conferences and from seminars and had been able to prevent serious outbreaks of the disease from spreading.

Other countries, unfortunately, had not been so well prepared. For instance, the appearance of cholera on the west coast of Africa had quite naturally found them totally unprepared. The disease had not been immediately identified in the country first stricken, since its appearance had coincided with a period of flooding, when serious enteric infections were common, and it had been thought to be merely one of the seasonal attacks to which that part of Africa was prone. The El Tor vibrio had thus had time to establish itself in the area. While the North African coast and the Middle Eastern countries had been attacked only to a

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1 See Off. Rec. Wld Hlth Org., 190, Appendix 12.
limited extent, conditions on the coast of West Africa had led to the development of the disease to the east and south-east of Guinea and it was now to be found in the Ivory Coast, Togo, Dahomey, Ghana, Mali, Niger, Upper Volta and even Nigeria. It had been transmitted from one fishing village to another along the coast and had also penetrated up the River Niger. Mali had been seriously affected and the disease, spreading also down the river Niger, had now reached the Republic of Niger. Some areas on the coast had been more seriously affected than others. In Ghana, for example, more than 3000 cases had so far been identified in 1971. Whenever it was possible to give treatment rapidly, the fatality rate was low since knowledge of the physiopathology and treatment of cholera had greatly improved and even semimoribund patients could now be rehydrated rapidly. Unfortunately, that did not hold good everywhere and it was still necessary to make great efforts to train medical personnel and provide rehydration fluids and drugs required for treatment.

The countries of West and Central Africa had responded rapidly to the Organization's offer to run training courses and two courses, one for English-speaking and one for French-speaking countries, had been held. The Regional Office for Africa had also distributed supplies for the diagnosis and treatment of the disease and as a result of the unfortunate experience of the first country, which had been taken totally unawares, the majority of the others had been prepared to deal with the disease. Unfortunately the African countries were extensive in area, with sparse populations and inadequate health staff and facilities, and there were thus serious problems to overcome. There were grounds for fearing that cholera might become endemic there. It was not yet known how climatological and human factors would affect the spread of infection due to *El Tor* vibrio, but contact between different ethnic groups played an important part in the transmission of the disease. Experience in such countries as the Philippines, which had a somewhat similar climate, led to fears for the worst. The training of medical and health personnel was therefore extremely important and the Regional Office for Africa had set up three meetings for strategic briefing to pass on information regarding anticholera strategies at governmental level.

Considerable importance was attached in the public mind to vaccination as a preventive measure because of the success of other vaccines against yellow fever, smallpox and poliomyelitis, for instance. Indeed present cholera vaccines gave only limited protection and mass protection of the population by vaccine was not feasible as it was in the case of smallpox. Cholera vaccination provided protection to some 50 to 60 per cent. of the population for some time and reduced the chance of transmission of the disease during an epidemic, but it could not be considered as a panacea or a complete means of preventing the transmission of germs. It was interesting to note, in that connexion, that the United States Public Health Service had recently stopped the requirement of cholera inoculations even for persons arriving from cholera-infected areas. That fact of the limited effect of vaccination had been noted by the Committee on International Surveillance of Communicable Diseases.

One of the greatest difficulties encountered during the seventh pandemic had been due to the application of unnecessarily strict measures by countries which wished to protect themselves from the disease. The economic disadvantages resulting from those measures had led some affected countries to try to conceal the fact that they were cholera infected. Table 1 in document EB47/WP/8 showed cases notified in 1970. It covered only cases reported on in the WHO weekly record. More recent and accurate figures could now be provided by the Secretariat for those interested. In one case, the Director-General had made a notification although the country concerned had not made any declaration since he believed that the Organization's constitutional obligation to give all countries the opportunity of defending themselves against communicable diseases prevailed over the procedural requirements of the International Health Regulations. In that connexion, attention was drawn to Annex 1 of document EB47/WP/8, paragraph (1) of which stated that the Committee on International Surveillance of Communicable Diseases approved of the action taken by the Director-General in notifying all States on the basis of firm epidemiological, clinical and bacteriological information available to him of the existence of cholera in a country even though that country had not notified the Organization of the existence of the disease in its territory. The Committee further considered that the Director-General should take similar action in future, should circumstances warrant it. The Committee also drew attention to the fact that the
existence of short-term and long-term carriers, the abundance of cases with mild clinical manifestations and the limited effectiveness of preventive measures, in particular vaccination, did not allow the institution of quarantine measures which would completely prevent the international spread of cholera. The Committee, therefore, appealing to the spirit of international co-operation, had requested the Director-General to inform Member States of the Committee's recommendations without waiting for the report to be submitted to the Health Assembly, and that had been done forthwith by the Director-General.

An account of the work which could be undertaken by the Organization was given in the publication entitled "Principles and Practice of Cholera Control" (Public Health Papers No. 40, 1970), but whatever efforts might be made to control cholera it remained obvious that even if research succeeded in producing a better vaccine, cholera could never be completely eradicated by medical or immunological means alone. The long-term solution to the problem must be sought in economic and social improvements in the endemic areas of disease, in particular the foci in Asia and the areas in East Africa threatened by the arrival of the El Tor vibrio via the Arabian peninsula.

The only way of eliminating cholera was by raising living standards and providing proper excreta disposal, safe drinking-water and adequate sanitation, and was thus an important part of the general effort toward development.

Dr VASSILOPOULOS said that cholera had been endemic in Asian countries but had recently spread to other continents such as Africa, where the possibility could not be excluded that it might also become endemic. In that connexion, he had been much impressed by the excellent document on the strategy of cholera control (document BD/CHOLERA/71.1). The spread of cholera during the decade just ended was depicted in the map in Fig. 2 in document EB47/WP/8; cholera, which in 1961 had been endemic in the Western Pacific area, in 1962 had moved slightly further westward, to spread in the following year towards Japan and also southward towards India. By 1965-66 it was progressing westward to the Mediterranean area. By mid-1970 the disease had spread to the USSR and to most of the Middle Eastern countries, Turkey and North, West and East Africa. Thus, more than half the world population lived in cholera-affected areas. Document BD/CHOLERA/71.1 also stated:

Cholera was endemic in Asian countries, but has spread to other continents, such as Africa, where it may also become endemic...

More than half the total world population lives in the cholera-affected areas, which contain enormous cities and agglomerations.

With present-day modes of travel, cholera can spread rapidly from the affected areas to any other part of the world, and represents a particular danger for areas where sanitary conditions have not kept pace with developments in the field of international travel.

In terms of the population potentially at risk, therefore, the problem is much greater than it would appear from a world map of the infected areas.

It should also be noted that the affected areas are the least economically developed and that very few of these countries have any prospect of eradicating cholera while the population explosion and the slow pace of development continue to foster poverty, ignorance and poor sanitation, the conditions on which cholera thrives.

The principle of the "cordon sanitaire" is no longer applicable in the present age of fast travel, and the impracticability of such a policy in modern times is obvious.

Measures such as restrictions on the importation of various harmless foods cannot be justified. Sooner or later such measures, aimed at "protecting" the country against cholera, bring about considerable reductions in international traffic and trade, and the countries that suffer from such action are often ready to retaliate. The end result is often a deterioration in international relations and great economic loss, while cholera continues to spread freely. Resources spent on the enforcement of an ineffective "cordon sanitaire" could be more profitably invested in other measures to control and combat cholera.
The rational use of preventive measures, facilities and funds for the control of cholera is impossible if "cordon sanitaire" policies are not abandoned. Rational planning of national and international cholera control programmes should be based on scientifically established facts. Immunization is effective only partially and for a short period, irrespective of the number of doses given to the population in endemic areas. Carriers cannot be detected or treated with certainty. Thus, even repeated examinations for the carrier state are not effective in preventing the spread of cholera through carriers and mild cases. Sanitation (proper excreta disposal, safe water supply, food control) is effective in the control of cholera; a country with good basic health services and high standards of personal and community hygiene can be considered as non-receptive. The treatment of cholera, if well organized and properly carried out is extremely effective and life-saving.

A realistic national or international programme for cholera control should be based on a rational use of available control measures and resources so that the best possible results are obtained for the least expenditure.

From the comprehensive data contained in that document, it appeared that a systematic programme for cholera control should cover the following components:

1. Health
   - Bacteriological laboratory(ies), their development and strengthening.
   - Epidemiological services (for surveillance of diarrhoeal diseases).
   - Health centres with rehydration facilities covering total population.
   - Transportation and communication facilities.
   - Supply of laboratory equipment and means for treatment.

2. Sanitation
   - Excreta disposal, elimination of contact of population with untreated excreta.
   - Construction of sanitary privies to cover entire population.
   - Water supplies: safe, chlorinated running water to be provided to total population in towns.
   - Safe sources of water for populations in rural areas.
   - Food hygiene.

3. Health education
   - Education of public on personal hygiene.
   - Provision of facilities for personal hygiene.
   - School programmes aiming at health education.

4. Training
   - Special training for medical and paramedical staff, sanitary engineers, etc.

In order to implement such a programme a plan of action was indispensable, the main features of which might be summarized as follows:

1. Programme
   - Specialized advice for the development of technically sound and economically feasible long-term programme and establishment of the plan of action.

2. Action
   - Provision of technical knowledge and supplies for execution of the programme.

3. Evaluation
   - Regular evaluation and amendment of programme (if necessary).

The most suitable area in which to implement such a programme and plan of action would be a small well-controlled territory with relatively well-developed health and education services. Those requirements were fulfilled by Cyprus which, in addition, was situated near the infected areas and was an important communications centre between Middle Eastern and Asian countries.

He believed that in view of the far-reaching adverse consequences of the pandemic of cholera WHO should direct its attention to basic health problems such as hygiene and sanitation, the improvement of which would result in the successful control, not only of
cholera and other enteric diseases, but also of many other diseases prevalent in cholera-infected areas. The Executive Board should provide a lead by taking a firm policy stand on that vital question. Finally, he congratulated the Director-General and his staff on the leadership they had provided in efforts to arrest and contain the cholera pandemic of unprecedented magnitude which had erupted the previous year.

Dr BEDAYA-NGARO congratulated the Deputy Director-General on his excellent presentation of the subject under discussion. If cholera had already been eradicated its recent advent might almost be said to have been welcome since it had enabled WHO to confirm its constitutional role of director and co-ordinator and had made it possible to alert peoples and governments to health problems. As he had stated two years earlier to the Health Assembly, although the basic programme of the Organization was a programme of public health founded in the first place on prevention, the populations of countries still suffering from disease unfortunately gave priority to the curative function. It was thus obvious that people had been highly impressed by the rehydration fluid, vaccines and other materials sent by the Organization. Cholera had also made governments fully aware of the extent of health problems. So far as the African Region at least was concerned, the Regional Office had responded instantly and had taken all necessary steps to contain panic.

The report on cholera (document EB47/WP/8) emphasized the efforts which had been made by the Regional Office for Africa in respect both of information and training. In the Central African Republic, for example, a number of medical staff had received clinical and bacteriological retraining, and frontier posts had been set up for cholera diagnosis. Moreover, the co-ordination which had been so frequently advocated as essential in health matters had been achieved by meetings between the Central African Republic and two neighbouring countries. No country could attempt to solve health problems in isolation and the effect of cholera had been to force countries which had previously disregarded co-ordination to unite their efforts in the common struggle. The result provided a good example of the action which might be taken by the Organization in cases of catastrophe.

The cholera epidemic, like the incidence of yellow fever, had brought home to the health services in his country that vaccination alone was not the answer and that a programme of environmental sanitation was essential. Steps had therefore been taken to clear up the rubbish in the towns and every effort had been made to make the people realize how essential it was to live in sanitary and healthy surroundings.

Finally, he asked how a Board member should reply in one sentence if asked by the Press on his return for the latest news on the cholera problem as discussed by the Executive Board.

Dr EHRLICH said that there was no doubt that the problem of cholera was world-wide and called for co-ordinated efforts. That had been recognized by donor countries, so that at least in one case all assistance was channelled through WHO. He believed that WHO could fulfil a unique function by studying the problem on a world-wide basis and identifying where resources could best be placed to contain it. It had in fact done an excellent job in that respect and the Secretariat was to be congratulated for its efforts.

He wondered what else WHO might be able to do in its unique position. The Deputy Director-General suggested that WHO had provided and would continue to provide equipment and supplies, vaccines where they might be indicated, and education and training programmes.

Dr Vassilopoulos had suggested that WHO should support the development of sanitary facilities in countries so that in the long term cholera's entrance was retarded. He supported those suggestions but thought it should be remembered that while the reaction to the cholera pandemic had been effective, there might equally well be a yellow-fever or smallpox pandemic next year. He would therefore suggest that WHO should consider the ways in which it could effectively mobilize its resources at headquarters and in the regional offices in order to rapidly and effectively provide supplies and equipment, diagnostic services and epidemiological surveillance and help define for countries and regions the nature and extent of communicable and epidemic disease problems, including those of laboratory support. But most important, it should be able to respond very rapidly and effectively, so that countries would have the confidence to turn to WHO for the assistance which only it could provide.
Dr JOSHI said that while cholera occurred in Nepal it did so mainly during the rainy season. That was probably because the sub-soil water rose at that time and the wells and ponds got filled. In the last two or three years they had been disinfecting the water with lime. That had proved to be quite helpful in controlling the cholera epidemic.

Dr AASHY said that the Deputy Director-General had explained the epidemiology of cholera in a manner which gave the members of the Board confidence. In a way he had removed the fear concerning cholera as a disease but at the same time he had emphasized the need for alertness. The emphasis placed by earlier speakers on improved sanitation and the fact that the United States of America had decided not to require vaccination certificates from individuals arriving in the country from areas in which cholera occurred proved the importance of sanitation but it took years for developing countries to improve sanitation and he would like to know what could be done in the meantime.

The Deputy Director-General had said that cholera had spread from Asia to Africa through the Arabian peninsula. It was true that cholera had occurred in the Arabian peninsula last summer but he thought it had occurred in North Africa first.

Dr ARNAUDOV inquired whether WHO had made any attempts to determine the effectiveness of cholera vaccines and what the results had been.

He agreed with everything that the Deputy Director-General had said. It was true that there were a great many carriers and particular attention should be paid to that fact; it was necessary to be extremely cautious in that connexion.

He thought it mistaken to compare cholera and influenza, even if influenza was considered to be more dangerous.

Dr VENEDIKTOV expressed satisfaction at the information contained in the report on cholera.

An outbreak of cholera had occurred in the Soviet Union in a number of cities, including Astrakhan and Odessa. It had spread elsewhere and the situation had been quite serious. Fortunately, it had been possible to cope with the outbreak quickly and effectively. In the course of the work on control, certain conclusions had been reached which might be of interest to the Executive Board and the Secretariat. Firstly, cholera even now was an extremely dangerous disease, much more dangerous than influenza, because the El Tor cholera vibrio was more resistant and spread more quickly. Secondly, control required very quick diagnosis and also the readiness of all public health services and other services. It required concentrated, rapid and effective action in any government. Without co-ordination between different government services it was impossible to control cholera. The action had to be speedy, sufficiently rigid and effective. It had been rightly said that such measures as general improvement of health and hygiene and environmental sanitation took time. Cholera also required concerted action between governments on an international basis and on the part of international organizations. Thirdly, during such outbreaks deaths from cholera were nil but it became quite obvious that vaccination against cholera and in particular vaccination within a focus could not give positive results because it diverted all the forces of the public health services and required a great deal of time. That was why it was much more effective to liquidate cholera rather than to await results of vaccination. But it was absolutely necessary to get new vaccines. That was a field of action for WHO and all scientists throughout the world because the present vaccination was not sufficiently effective. It was also necessary to have effective national and international information services. But at the same time it was necessary to watch for direct importation of cholera. That, however, was not always easy, especially when account was taken of the fact that emotions were involved and that extraordinary measures were necessary. The question of mutual information through WHO required very serious attention.
Quarantine was and would continue to be an effective means for the control of cholera outbreaks, but it should not be of a type which disrupted economic life.

He considered that WHO's action during the seventh pandemic had been laudable and entirely satisfactory. The Director-General had warned delegations at the Health Assembly three years ago that cholera was approaching the frontiers of Europe and that preparatory steps should be taken to deal with it promptly. That warning applied to an even greater extent today. The problem of cholera was an acute one.

Referring to sanitary and health measures in large cities, he said that in view of the growth in the size of cities and migratory movements, he did not think that any large town could be entirely protected against cholera.

The results of the meeting of the Committee on International Surveillance of Communicable Diseases which had been held in Geneva called for serious consideration.

The Soviet Union was giving assistance to many developing countries in the control of cholera.

He wondered what immediate action WHO could take, bearing in mind the fact that the experts considered that the pandemic had run half its course.

In reply to the question of Dr Bédaya-Ngaro he said that newspapermen should be told that the cholera problem was a very serious one but that it should and could be coped with. The Board's session had been hopeful and stimulating on the subject.

Dr BENADOUDA asked for an explanation of the United States attitude towards cholera vaccination. Did it no longer consider that quarantine was necessary?

Mr WOLDE-GERIMA said that his country greatly appreciated the action which WHO had taken to deal promptly with the seventh pandemic, which had affected his country. Not only the headquarters but also the Regional Office for the Eastern Mediterranean had provided constant assistance and encouragement.

The pandemic might prove to be a blessing in disguise. It had taught the countries affected so many things, such as the need for improved sanitation, environmental health, for the development of public health laboratories, for co-ordination of health services, and for collaboration between countries. It was essential not to sit back complacently.

Members of the Board had made very constructive recommendations concerning what should be done in the future. He felt that the efforts that had been made in such a fine spirit, the assertion by WHO of its constitutional rights, its role in providing guidance and assistance, and the constant supply of excellent material for health administrators and the public were pointers to appropriate future action. Co-operation of countries in moving goods and people without hindrance should also be increased.

Lastly, he hoped that WHO headquarters and regional offices would continue to support national programmes designed to improve environmental health and food control, since a failure to do so would contribute to the spread of cholera and other communicable diseases.

Dr EHRLICH said that his personal opinion was that the United States decision with regard to the annulment of the requirement of vaccination for persons entering the country from areas where cholera occurred had been based on the simple premise that adequate sanitary services and the provision of potable water in the United States made the threat of the epidemic spread of cholera almost non-existent. Vaccination offered no additional protection to the population of the country and might only make the individual who had been vaccinated less alert to potential symptoms if he had in fact contracted cholera.
The DEPUTY DIRECTOR-GENERAL, replying to Dr Aashy on the question of the introduction of the disease into Africa through the Arabian peninsula, said that the evidence that cholera was introduced into Ethiopia and the French Territory of the Afars and the Issas from the Arabian peninsula derived from the serotype involved, which was Inaba both in Arabia and Ethiopia, while that in North Africa was Ogawa.

Dr CVJETANOVIC (Bacterial Diseases), replying to the question as to what WHO was doing to improve cholera vaccines, said there were a number of projects, a list of which was given in Annex 6 to document EB47/WP/8. Efforts were being made in several directions. At the present time a field trial was being undertaken of a monovalent vaccine made of Inaba and Ogawa serotypes. An Ogawa monovalent vaccine and an Inaba monovalent vaccine had been tested in one area and the protection of such monovalent vaccines had been observed. It was encouraging to see that the protection was greater than it usually was when a mixed vaccine was used. That was very important practical information but it created further difficulties because it made it essential to know in each case exactly what was the serotype which had invaded a country, in order to apply the appropriate monovalent vaccine. Thus, the gain was counterbalanced by the difficulties. In the first four months of observation the protection provided by those monovalent vaccines was about 70 per cent. The observations would be continued.

The other line of study which was rather more difficult was production of a new type of vaccine based on detoxified cholera toxin. The vaccine was available, but there had been some deaths among the experimental animals that were difficult to explain, and therefore the study would have to be continued very carefully in order to ensure that nobody died as a result of the use of a vaccine which had not been proved thoroughly safe; cholera was a disease from which nowadays nobody need die, because of the excellent treatment available. He thought that by the end of 1971 it would be possible to use that vaccine in a field trial. Therefore, a better vaccine than the present one might be available some time in 1972 if everything went well.

In addition, WHO-assisted laboratories were producing live cholera vaccines for experimental purposes. One of them had been used recently in a field trial but it had been abandoned because it had suddenly become pathogenic and had caused one clinical case of cholera. There were several other strains, one of which was a streptomycin-dependent strain similar to those of Salmonella and Shigella developed in the past. It was being studied in the United States of America on volunteers. Another, which had been obtained through genetic manipulations, was not absolutely ready for human use because it produced some symptoms in the animals which WHO did not consider harmless.

There were also other future projects. A scientific group on oral immunization by various methods, including alive and dead vaccine and more sophisticated methods, would meet in 1971, but such methods would not be used in the near future.

Sir George GODBER said that Annex 1 to document EB47/WP/8 contained quotations from the report of the Committee on International Surveillance of Communicable Diseases, one of which wholeheartedly endorsed the action taken by the Director-General in reporting the existence of cholera in a country even though that country had not notified the Organization of the existence of the disease in its territory. He felt that the Executive Board should also endorse that action, either in a resolution, if one were adopted on cholera, or otherwise in its report.

Dr VENEDIKTOV said he did not think that would be wise because the Director-General's action had caused a great deal of feeling and the question of national statistics and sovereignty had to be borne in mind. He thought that in future all countries would notify the existence of the disease in their territory under Article 3 of the International Health Regulations, now that they understood that the provision of the information was absolutely necessary.

Professor HALTER said he had been intending to say that he would support either of the proposals made by Sir George Godber. However, in view of the statement made by Dr Venediktov, it seemed to him that it might be better in the record of the Board's work to note that at the time of the discussion of the report on the seventh pandemic the Executive Board felt that the position adopted by the Director-General was the only one which he could possibly have taken under the circumstances. If next year the Director-General were to find himself in similar circumstances, he himself would certainly recommend him to take the same attitude, and perhaps a little earlier.

The DEPUTY DIRECTOR-GENERAL said that the report of the Committee on International Surveillance of Communicable Diseases would be transmitted to the World Health Assembly. He thought that the mention in the report would suffice, since the Assembly would have to deal with it and to approve it or otherwise. The report was now available in two languages; the part of it which was referred to in document EB47/WP/8 had already been circulated to Member States.

The DIRECTOR-GENERAL referred to paragraph 75 of Chapter II of the Standing Committee's report, in which it was indicated that he would give the Board the information requested by a member on the determination of priorities by the Organization in the various communicable diseases fields.

It was obvious that when a comparison was made of two successive budget years a basic budgetary stability of the strictly limited infrastructure at headquarters would probably be observed between individual communicable disease units. The overall budgetary constraint imposed by the Organization's governing bodies had forced him to resist the constant pressure for expansion in all the communicable disease units, whether for the purpose of strengthening their technical advisory functions to the regions or their scientific capacity to cope with a rapidly expanding research programme.

At the beginning of WHO's existence the World Health Assembly had approved a series of priorities which included three communicable diseases: tuberculosis, malaria and venereal diseases. Over the past 10 years there had been some striking changes in priorities and allocation of resources to which he had given effect on the instruction or recommendation of successive sessions of the Executive Board and the Health Assembly. Fifteen years ago the Assembly had approved the malaria eradication programme, thus increasing the priority given to malaria; but in fact malaria eradication had not really got under way until 1958, following the donation by the United States of America in 1957 of $5 million for the Malaria Eradication Special Account. To mention other examples, in 1960, no units had existed for smallpox eradication, bacterial diseases or parasitic diseases. There had, of course, been the Virus unit and the long-disestablished Endemo-epidemic Diseases unit, but the establishment of separate units in recognition of increased responsibilities had had very real budgetary consequences. The Venereal Diseases and Treponematoses unit and the Tuberculosis unit had had an early and aggressive start in the Organization's history, because of the priority given by the First World Health Assembly, with the result that priority emphasis had been reflected more in the programmes outside headquarters than in the spectacular expansion of the infrastructure at headquarters. In the case of the Leprosy and Veterinary Public Health units, the staff had roughly doubled over the past decade because he had felt that the Organization's governing bodies expected him to do more in those areas at headquarters level than could be done with the skeleton staff existing in those units in 1960.

The priorities given by him to particular aspects of individual communicable diseases at the headquarters level were of course also reflected in the inter-regional programme activities. In tuberculosis, for instance, there were already in the 1950's extensive research activities in the field, and the tuberculosis budget for assistance to research had therefore grown only moderately in the last decade; but there was on the other hand a need for the training of managerial physicians in tuberculosis control at the inter-regional level, pending the development of regional training courses. To take another example - virus diseases - a glance at the budgetary provisions for them under Assistance to Research would show an increase by a multiplication factor of nearly ten over the last decade.
Perhaps headquarters technical units in certain well-established communicable disease areas should be abolished: there were certainly a few units where a reduction would take place over the next few years; but such matters were governed by the law of great numbers, in both epidemiological and operational terms. In that connexion he mentioned the recent behaviour of cholera and referred also to the fact that 40 Members had joined the Organization since 1960.

It was important always to look at WHO in its integral entirety, from headquarters through the regional offices to field projects, particularly in connexion with communicable disease activities, where between 80 and 90 per cent. of the funds for those activities were allocated to field projects. At the field level there were also noticeable variations in priority and the allocation of resources to different communicable diseases. For example, between 1960 and 1970 the percentage share of the total budget for programme activities had changed from 8.20 per cent. to 15.71 per cent. for malaria, from 6.23 per cent. to 2.81 per cent. for tuberculosis, from 2.34 per cent. to 0.64 per cent. for venereal diseases and treponematoses, from 1.21 per cent. to 1.43 per cent. for parasitic diseases and from 1.30 per cent. to 7.05 per cent. for smallpox.

That showed the changes that had occurred in the relative priorities in the different fields of communicable diseases. It was necessary to take a long-range view. Over periods of 10 or 20 years variations could be observed which were not apparent from one year to the next in the Organization's budget.

The CHAIRMAN referred to paragraph 79 of the Standing Committee's report, concerning a member's comment on the rising incidence of venereal diseases in recent years and the desirability of a summary of the present situation and recent developments.

Dr GUTHE (Venereal Diseases and Treponematoses) said that the Board had several times noted trends in sexually transmitted diseases, notably syphilis and gonorrhoea, in commenting on the programme and budget proposals, most recently at its forty-fifth session in January 1970. At that time several aspects of the problem had been considered, concerning incidence, epidemiology, the social elements, the research aspects, international co-operation and functions of WHO. A full background had been provided concerning: first, the marked rise of gonococcal infection and the slower increase of syphilis in many countries in the past decade; secondly, the important changes in demographic, social, economic, behavioural and other important environmental aspects which had helped the national and international spread of sexually transmitted disease; thirdly, the predominant importance of the non-medical rather than the medical factors in the etiology of those conditions, despite the continued availability of highly effective drugs; and fourthly, the inherent shortcomings, in health programmes, of epidemiological contact- and case-finding methods as a part of efforts to control those conditions within and between countries.

With regard to the question referred to in paragraph 79 of the Standing Committee's report, information for 1969 had so far been published only by some of the countries which included syphilis and gonorrhoea among infectious diseases notifiable to the health authorities for statistical or epidemiological purposes; and for 1970 an indication for the first two or three quarters, allowing estimates for the whole year, were available in only very few instances.

An example in the European Region was the United Kingdom, where early syphilis was slightly down in 1969 with a similar estimated trend for 1970, in contrast with gonorrhoea and non-gonococcal urethritis where cases were respectively 7 per cent. and 15 per cent. higher in 1969 with similar percentage increases estimated for 1970. In Denmark there had been a downward trend in the incidence of early syphilis in 1969, but data for the first half of 1970 showed an upward trend for the whole country culminating in an estimated increase for metropolitan Copenhagen of 50 per cent. over 1968. In Sweden early syphilis seemed stationary, while the gonorrhoea rate for 1970 had reached 485 per 100 000 population. In Poland the reported early syphilis rate had doubled in the past few years. It exceeded 40 new cases per 100 000 population in 1969 with a slower rise in gonorrhoea.
In the Americas, trends were less clear, notably in Central and South America, but had given rise to concern during the technical discussions on the subject at the recent Pan American Sanitary Conference in Washington. Some countries, such as El Salvador and Venezuela, had reported a slightly upward trend in infectious syphilis, while in other countries, such as Bolivia and Colombia, the gonorrhoea rate had risen considerably. In Jamaica, according to the most recent report, the gonorrhoea rate had exceeded 2000 per 100 000 in 1967. In North America, Canada had reported a downward tendency in infectious syphilis in 1969 and 1970 but a 15 per cent. increase in gonorrhoea cases. In the United States of America, approximately half a million cases of gonorrhoea had been reported in 1969. A survey had been undertaken the previous year, in which 130 000 practising doctors - almost 70 per cent. of doctors in the country - had participated, to find out how much venereal disease was treated but not reported. The result showed a national total for the fiscal year 1970 in the United States of America of at least 1.8 million cases of gonorrhoea, equivalent to an annual incidence rate of about 900 per 100 000 population. The situation was regarded by some as epidemic and gonorrhoea was at present, according to the Public Health Service, a leading cause of morbidity in the civilian population.

Little systematic information was available from other WHO regions. In the Eastern Mediterranean, Israel, Iraq and Iran had reported continued increases in gonorrhoea up to the past two years. In Africa, large numbers of cases of gonorrhoea were reported annually in countries such as the Central African Republic, Madagascar and the United Republic of Tanzania, and of infectious syphilis in Mali, Lesotho and Botswana. In South-East Asia, gonococcal infections were widespread, with high rates reported in 1967 and 1968 by Thailand and India. In the Western Pacific a similar situation existed as reported, for example, in the Philippines, Viet-Nam and New Zealand. The problems in the Western Pacific had been the subject of a regional symposium on venereal diseases convened by WHO in Manila in December 1968.

He also stressed four further points. In the first place, a gradual increase had been observed in many countries over the past few years in the proportion of patients in the younger age-groups, some still at school, and some members of drifting groups. In the United Kingdom for example, the 1969 increase in gonorrhoea over 1968 had been 24 per cent. in the age-group under 20 compared with an overall increase of 13.9 per cent. Secondly, the male/female ratio of reported cases varied from 2:1 to as much as 10:1 or more in different countries and showed the large undiagnosed and untreated female reservoir in that disease. Thirdly, the female reservoir of gonorrhoea had reflected itself in recent years in a more frequent occurrence of complications in the form of salpingitis, arthritis and skin involvement, observed both in developed countries, such as Sweden, and developing countries, such as Uganda. Complications in syphilis in the form of congenital and late manifestations had not shown any upward trend. Lastly, it had become evident that in a large proportion of new cases of syphilis and gonorrhoea those diseases were now acquired away from the patient's own country. Rapid modern transport, tourism, travel and population movements, such as those of migrants and seafarers, greatly facilitated the spread of those diseases. In some countries (for example in Scandinavia) more than half the cases were now reported to have been acquired abroad, which emphasized the international character of the problem.

With regard to developments since the Board's forty-fifth session, he confirmed the previously reported incidence trends for syphilis and gonorrhoea. Some of the so-called minor venereal diseases occasionally gave rise to small epidemics, such as two outbreaks of chancroid in France in 1969 and 1970 and the increasing reports of lymphogranuloma venereum (Nicolas-Favre) and granuloma inguinale (Donovani) from countries notably in the Far East. There were also some diseases which were often transmitted by genital contact, other than those legally defined as "venereal". Those included trichomoniasis, scabies and crab-lice, the two latter having shown substantial increases in some countries, for example in Scandinavia in recent years. In the general review of the incidence situation, however, it was the continued rapid rise of gonococcal infections in recent years that attracted attention. There was little doubt that gonococcal infections were at present out of control.

Dr VENEDIKTOV thanked the head of the Venereal Disease and Treponematoses unit for his lucid account and asked that the text be made available to the Members of the Board. The subject needed very serious attention.
Dr LAYTON also expressed his appreciation of the concise, clear and comprehensive account of the world situation. It was no exaggeration to say that gonorrhoea - and probably early syphilis - were in some areas epidemic. He wondered if it was fair to interpret the sharp rise in gonorrhoea as a precursor to a rise in early syphilis.

Professor AUJALEU, after expressing his appreciation of the report, asked whether the age distribution of gonococcal infections was in any way connected with the "hippie" culture.

Dr GUTHE, replying to Dr Layton, said that available evidence suggested that early syphilis tended to show moderate variations or remain stationary in countries where rapid rises in gonorrhoea had been noted. That had been observed in at least three countries where studies had been made over a period of time and where it had been possible to measure the degree of reliability concerning the number of reported cases and the extent of co-operation by practising doctors in their actual forward-reporting for statistical or epidemiological purposes, which was an essential requirement for appraising the situation. There were, however, exceptions.

In reply to Professor Aujaleu, he said that age-specific rates were increasing in the young age-groups in several countries. Rates were high for venereal diseases in "youth clinics" in two countries which had established special health centres for the young belonging to "hippie" or similar groups.

Dr MAHLER, Assistant Director-General, said that document EB47/WP/9, a report by the Director-General on the smallpox eradication programme, showed the evolution of the programme, which seemed truly spectacular. Throughout the Organization's regions there had been a continuous and dramatic decline in the smallpox problem, even in some of the most difficult areas. In Indonesia, for example, where two years earlier over 85 per cent. of the population had lived in endemic areas, the same percentage now lived in smallpox-free areas. The remarkable progress throughout South-East Asia and East and West Africa showed that the emphasis placed by the governing bodies of WHO had been justified.

Dr VENEDIKTOV said that, like many other members of the Board, he had followed the smallpox programme very closely for many years. A few years earlier, when 1976 had been set as the deadline for world eradication of smallpox, it had seemed unrealistic and there had been many doubts. The data now available showed increasingly that the programme might develop even more successfully than the Director-General had hoped. He only wished to ask whether any difficulties were being encountered and what were the prospects for the programme.

Dr HENDERSON (Smallpox Eradication) said that, as indicated in the report, progress was satisfactory in most of the world, although there were some areas, such as Sudan and Ethiopia, where progress was less rapid, and those were causing concern in the rest of Africa where countries were becoming free of smallpox. In Asia the most difficult problem was to develop the concept of reporting and surveillance. A seminar on the problem had been held in Delhi in December 1970 and it was hoped that there would be improvements in 1971. It was very difficult to predict when a goal would be achieved, because of unexpected happenings, such as civil disorders, and because budgets were uncertain. If the present impetus was maintained, it was to be hoped the goal would be reached rapidly.

Dr EHRLICH said that it was clear from the report that progress was faster in some parts of the world than in others. He hoped that the necessary flexibility existed to meet changing problems as the programme developed from year to year.

The DIRECTOR-GENERAL said that the flexibility existed, with certain constraints.

Vector Biology and Control

Dr EHRlich thought that a statement issued by the United States Government, which had come to his attention within the last two days, might be of interest to the members of the Board in relation to vector biology; and since the Director-General had been quoted in the statement he would like to ask him what his feelings were about it and if he had been quoted correctly. The statement, issued by the new Environment Protection Agency, was to the effect that the United States Government was taking action that might end all uses of DDT in American agriculture. It went on to say that only the necessary and infrequent use of DDT to protect the public against the threat of disease-carrying insects, such as spraying to kill malaria mosquitoes, would be retained. DDT would be banned outright as a pesticide to protect crops.

The statement said that the Agency's action did not apply to the manufacture or export of DDT — more than 60 per cent. of the annual production of 40 million pounds, or 18 million kg, in the United States was sent abroad. Continued widespread use of DDT was expected in the developing world, where deaths from disease could be expected to rise dramatically if DDT were no longer used.

The statement quoted the Director-General as saying that the concept of malaria eradication rested completely on continued use of DDT, that DDT was irreplaceable in public health, and that limitation on its use would give rise to grave public health problems in the majority of developing countries.

He would like to ask whether the Director-General had had consultation or received advice during the past year or so that had caused him in any way to alter his present policy.

The DIRECTOR-GENERAL said that the quotation was from a statement he had made to the Twenty-second World Health Assembly. Nothing had occurred to make him change his opinion.

Mr Wright (Vector Biology and Control) said that in 1970 the Organization had completed a study on the place of DDT in operations against malaria and other vector-borne diseases, with the assistance of a number of consultants including senior malariologists, public health administrators, epidemiologists, toxicologists, entomologists and an authority on the effects of pesticides on wildlife. He would outline the results of the study:1

In public health practice insecticides were essential in the control of vector-borne diseases and DDT had been the principal insecticide in the past. Except for malaria and African trypanosomiasis, suitable biodegradable alternatives had now become or were becoming available.

As illustrated in malaria eradication, the use of DDT in health had reached or passed its peak. The 60 000 tons used annually at the height of the global programme had now been reduced to 35 000 tons and the total annual quantity required should steadily diminish as the global malaria eradication programme advanced towards its objective.

The results of an examination of the possible effects on man and wildlife in malaria and other programmes had great significance. It had been confirmed that the safety record of DDT for man was truly remarkable and, in spite of prolonged exposure of the world population and the heavy occupational exposure of a large number of people, the only confirmed cases of injury had been the result of massive accidental or suicidal ingestion. It had been concluded that in the light of that health record there was no reason to believe that the millions of people protected against vector-borne diseases were at any risk from a small exposure to DDT.

As far as wildlife was concerned the situation was different. The presence of DDT in the environment during the past 25 years had produced two very serious effects: the reduction and contamination of fishery products from streams, lakes and offshore areas; and the progressive extermination of certain species of predatory birds. DDT had long been known to kill aquatic crustaceans, at higher concentrations fish, and at relatively high dosages terrestrial vertebrates; moreover, the progressive accumulation of DDT in fish could cause the failure of their embryos to survive. Accumulation of DDT in the food chain had proved more

important than direct kill. Birds near the summit of the food chain, such as those preying on fish and birds, had suffered grievously.

The apparent contradiction of the adverse reaction produced by DDT on some forms of wildlife and its harmlessness to man could not be accounted for by any immunity of man to DDT. It appeared to be partly explained by the fact that human intake of DDT was maintained at much lower levels than those experienced by predatory birds and some animals, and partly by the existence of species differences.

In the light of those facts an assessment had been made of environmental contamination arising from the use of DDT in antimalaria operations and it had been concluded that, provided the insecticide was used indoors - as was the case in antimalaria operations - there seemed to be little possibility of the insecticide contaminating the surrounding local vegetation and water sources and thus endangering wildlife. There was a strong case for the view that the use of DDT in outdoor locations should be reduced to a minimum and that its use should be limited to application of indoor residual spraying against malaria mosquitoes, indoor dusting against plague fleas and individual dusting against body lice. The application of DDT to water surfaces and broadcast aerial application should be avoided. More research was needed to substitute for DDT and dieldrin more biodegradable materials where the vectors Simulium and the tsetse fly were concerned.

An analysis of the alternatives to DDT had shown that effective and safe substitutes for the chlorinated hydrocarbons had now been developed through the WHO programmes for evaluating and testing new insecticides and that two of them were available as replacements for DDT in malaria eradication. They had not been used extensively, chiefly because of increased cost. It was agreed that alternative methods of a non-chemical nature, such as biological and genetical control, while being actively pursued, were still many years from operational use.

One of the most important conclusions of the study concerned the consequences to health that could arise from the non-availability of DDT, particularly in the case of malaria. There was little doubt that its withdrawal would be a major tragedy in public health with vast populations in malarious areas of the world being condemned to suffer the ravages of epidemic and endemic malaria.

Dr STREET drew attention to pilot work on the use of Abate in Jamaica, with specific reference to the report of the study group on the feasibility of cost-benefit studies. He also asked if there had been any developments regarding aircraft disinsection procedures.

Dr VENEDIKTOV asked if he could be given a copy of Mr Wright's statement and the report from which he had quoted.

Dr BERNARD, Assistant Director-General, said that the report, which was the conclusion of the Director-General's study, would be reproduced as a document for members of the Board.

Mr WRIGHT said that since the Twenty-third World Health Assembly considerable research had been done on aircraft disinsection in co-operation with the International Civil Aviation Organization and the United States Public Health Service. A detailed report would be submitted to the Twenty-fourth World Health Assembly. Everything had been cleared but the question of corrosion, which it was hoped would be completed in time for the Assembly.

With regard to Dr Street's comments, he said that Abate was the most satisfactory larvicide yet encountered for situations in which control of Aedes aegypti had to be undertaken - control of larvae of mosquitoes breeding in man-made containers. It had proved to be effective and persistent and had been given safety clearance.
Malaria Eradication

Dr BERNARD, Assistant Director-General, introduced the report on the development of the malaria eradication programme (document EB47/WP/2).¹

The first section gave a breakdown of the population in areas with various types of programmes; the information given was similar to that contained in previous reports on the subject, but for one new important element - figures were given of the population of areas where there was no eradication programme per se, but where various types of antimalaria activities were in progress. That reflected the evolution of the programme, following the revision of the global strategy of malaria eradication, towards a more flexible approach to malaria in different countries, taking into account their epidemiological and socio-economic conditions. Thus, some countries had what might be termed "classical" eradication programmes, limited in time, whereas others were undertaking antimalaria operations of various kinds aimed towards eradication but with no fixed target date for the start of the eradication programme. It would be seen that, compared with 1969, the 1970 figures for population in areas where malaria eradication programmes were in progress showed a decrease. The decrease was due to two factors. First, a certain number of malaria eradication programmes had reached the maintenance phase in 1970 (which explained the increase in the population of areas in that phase). Secondly, following evaluation, the eradication programme in a number of areas had been replaced by malaria control operations, and a sizable proportion of the population which, in 1969, had been shown as living in areas in the attack phase of an eradication programme was now shown under the heading of "population in areas benefiting from malaria control measures". The reason for the shift in that case was that evaluation, made on the spot in co-operation between governments and representatives of WHO and other institutions concerned, had shown that eradication operations were not for the moment feasible and that antimalaria measures should be carried out in order to maintain what had been achieved.

In the last line of the tabulation on the first page of the report were given the population figures for areas with no specific antimalaria measures. It would be seen that the figures were very high. As had already been stated in the Standing Committee on Administration and Finance, WHO considered that it was on those areas, which included a large part of Africa where it had not yet been possible to help governments to develop large-scale programmes, that the greatest efforts should be concentrated, in order to institute, gradually, antimalaria operations in all of them. Table 1, on page 2 of the report, repeated the information for 1970 given in the tabulation on the first page, but gave the breakdown of the population figures according to six WHO regions.

In section 2 of the report were given details of the re-examinations and re-evaluations that had been made of the various programmes. Those had been one of the most important practical results of the Health Assembly's resolution on the revised strategy of malaria eradication. WHO, in collaboration with other institutions such as UNICEF and the United States Agency for International Development, had assisted governments to assess the situation and to adopt the measures best suited to the epidemiological conditions, taking account of their administrative possibilities and their financial and manpower resources, and the state of socio-economic development of the country. Mention should be made, in that connexion, of the Expert Committee on Malaria which had been convened in October 1970 and which, in the light of the re-evaluations made, had considered the conditions under which the revised strategy of malaria eradication could be most effectively implemented. If members so desired, the Director of the Division of Malaria Eradication could give details of the expert committee's conclusions.

The last two sections of the report dealt with training - which was as important now as it had been in the past - and with research, of which the same could be said, and which had been particularly stressed in the Health Assembly's resolution on the revised strategy. With regard to research, mention should be made of a project concerning the transmission of malaria in the savanna areas of Africa, which was being carried out jointly by the Division of Malaria Eradication, the Division of Research in Epidemiology and Communications Science and the Vector

Biology and Control and Immunology units. The objective was, following a detailed epidemiological study, to develop various methods of interrupting malaria transmission in the savanna areas of Africa - a problem not yet solved and which it was essential to solve in order to make progress towards the eradication of malaria from Africa.

The meeting rose at 6 p.m.
PROVISIONAL SUMMARY RECORD OF THE EIGHTH MEETING

WHO Headquarters, Geneva
Friday, 22 January 1971, at 2.30 p.m.

CHAIRMAN: Dr B. JURICIC

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Third report of the Standing Committee on Administration and Finance (continued)

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Note: Corrections to this provisional summary record should be submitted in writing to the Chief, Records Service, Room 3111, within 48 hours of its distribution.
Eighth Meeting

Friday, 22 January 1971, at 2.30 p.m.

Present

Dr B. JURICIC, Chairman
Dr B. D. B. LAYTON, Vice-Chairman
Dr J. ANOUTI, Vice-Chairman
Dr V. P. VASSILOPOULOS, Rapporteur
Dr S. DÉDAYA-NGARO, Rapporteur
Dr J. AASHY (alternate to Dr H. Abdul-Ghaffar)
Dr D. ARNAUDOV
Professor E. J. AUJALEU
Dr O. AVILÉS
Dr F. A. BAUHOFER
Dr A. BENADOUDA
Dr G. DIAWARA (alternate to Dr A. Barraud)
Dr S. P. EHRLICH, jr
Mr Y. WOLDE-GERIMA
Sir George GODBER
Professor S. HALTER
Dr Y. R. JOSHI
Dr Z. ONYANGO
Dr O. SOUVANNAVONG
Dr S. P. W. STREET
Dr G. TUVAN
Dr D. D. VENEDIKTOV
Professor K. YANAGISAWA

Designating Country

Chile
Canada
Lebanon
Cyprus
Central African Republic
Saudi Arabia
Bulgaria
France
Nicaragua
Austria
Algeria
Upper Volta
United States of America
Ethiopia
United Kingdom of Great Britain and Northern Ireland
Belgium
Nepal
Kenya
Laos
Jamaica
Mongolia
Union of Soviet Socialist Republics
Japan

Secretary: Dr M. G. CANDAU
Director-General
Representatives of Intergovernmental Organizations

United Nations Mr P. CASSON
United Nations Children's Fund Sir Herbert BROADLEY
United Nations Relief and Works Agency for Palestine Refugees in the Near East Dr M. SHARIF

Representatives of Non-governmental Organizations

World Federation of Occupational Therapists Dr A. C. OWENS
World Veterinary Association Dr H. VALLETTE
The CHAIRMAN invited the Board to continue its consideration of the report of the Standing Committee on Administration and Finance (document EB47/WP/11) with the section on Communicable Diseases beginning at paragraph 75 of Chapter II.

The DEPUTY DIRECTOR-GENERAL, introducing document EB47/WP/8 on "Cholera: present trends and problems", said that the situation with regard to cholera was very fluid and was evolving rapidly. It was some 10 years since cholera had left the areas in which it was traditionally endemic in the Ganges and Brahmaputra deltas and had begun its progress through Asia, and the Director-General had drawn the attention of the Executive Board and the Health Assembly to that fact in 1962. The map appearing as Fig. 2 in document EB47/WP/8 showed the expansion of cholera throughout the world. The map had only recently been prepared and it might not be entirely accurate because of the speed with which the situation was developing, particularly in Africa; and there was the possibility that the figures given in Table 1 on which it had been based had not been complete. Cholera had begun its march towards the west in 1965-1966 and had soon reached the Eastern Mediterranean area and even, in a limited way, some European countries. It had also appeared in July 1970 on the west coast of Africa, an area where it had been unknown for some 90 years.

Whereas previous pandemics had been due to the classical Vibrio cholerae, the new invasion was due to El Tor vibrio. The clinical signs were the same in serious cases but El Tor vibrio appeared to produce more benign and sub-clinical cases and many more clinically non-identifiable cases. There were sometimes more than 100 healthy carriers for one clinical case which had been identified. El Tor vibrio thus had a greater tendency to establish itself in an area and that fact was of importance from the point of view of epidemiology and prevention.

When the Director-General had drawn attention to the problem in 1962 an information campaign had been rapidly promoted in Asia and a number of seminars and training courses had been held, as indicated in Annex 5 of document EB47/WP/8. The Asian countries were thus relatively well prepared, since their health administrations had been advised of the progress of cholera and essential data concerning epidemiology, prevention and modern treatment had been circulated. The same was true of the Middle East, where a conference had been held in Ankara in 1965. Countries such as Tunis and Turkey benefited from those conferences and from seminars and had been able to prevent serious outbreaks of the disease from spreading.

Other countries, unfortunately, had not been so well prepared. For instance, the appearance of cholera on the west coast of Africa had quite naturally found them totally unprepared. The disease had not been immediately identified in the country first stricken, since its appearance had coincided with a period of flooding, when serious enteric infections were common, and it had been thought to be merely one of the seasonal attacks to which that part of Africa was prone. The El Tor vibrio had thus had time to establish itself in the area. While the North African coast and the Middle Eastern countries had been attacked only to a
limited extent, conditions on the coast of West Africa had led to the development of the disease to the east and south-east of Guinea and it was now to be found in the Ivory Coast, Togo, Dahomey, Ghana, Mali, Niger, Upper Volta and even Nigeria. It had been transmitted from one fishing village to another along the coast and had also penetrated up the River Niger. Mali had been seriously affected and the disease spreading also down the river Niger, had now reached the Republic of Niger. Some areas on the coast had been more seriously affected than others. In Ghana, for example, more than 3000 cases had currently been identified in one week. Whenever it was possible to give treatment rapidly, the fatality rate was low since knowledge of the physio-pathology and treatment of cholera had greatly improved and even semimoribund patients could now be rehydrated rapidly. Unfortunately, that did not hold good everywhere and it was still necessary to make great efforts to train medical personnel and provide rehydration fluids and drugs required for treatment.

The countries of West and Central Africa had responded rapidly to the Organization's offer to run training courses and two courses, one for English-speaking and one for French-speaking countries, had been held. The Regional Office for Africa had also distributed supplies for the diagnosis and treatment of the disease and as a result of the unfortunate experience of the first country, which had been taken totally unawares, the majority of the others had been prepared to deal with the disease. Unfortunately the African countries were extensive in area, with sparse populations and inadequate health staff and facilities, and there were thus serious problems to overcome. There were grounds for fearing that cholera might become endemic there. It was not yet known how climatological and human factors would affect the spread of infection due to El Tor vibrio, but contact between different ethnic groups played an important part in the transmission of the disease. Experience in such countries as the Philippines, which had a somewhat similar climate, led to fears for the worst. The training of medical and health personnel was therefore extremely important and the Regional Office for Africa had set up three meetings for strategic briefing to pass on information regarding anti-cholera strategies at governmental level.

Considerable importance was attached in the public mind to vaccination as a preventive measure because of the success of other vaccines against yellow fever, smallpox and poliomyelitis, for instance. Indeed present cholera vaccines gave only limited protection and mass protection of the population by vaccine was not feasible as it was in the case of smallpox. Cholera vaccination provided protection to some 50 to 60 per cent. of the population for some time and reduced the chance of transmission of the disease during an epidemic, but it could not be considered as a panacea or a complete means of preventing the transmission of germs. It was interesting to note, in that connexion, that the United States Public Health Services had recently stopped the requirement of cholera inoculations even for persons arriving from cholera-infected areas. That fact of the limited effect of vaccination had been noted by the Committee on International Surveillance of Communicable Diseases.

One of the greatest difficulties encountered during the seventh pandemic had been due to the application of unnecessarily strict measures by countries which wished to protect themselves from the disease. The economic disadvantages resulting from those measures had led some affected countries to try to conceal the fact that they were cholera infected. Table 1 in document EB47/WP/8 showed cases notified in 1970. It covered only cases reported on in the WHO weekly record. More recent and accurate figures could now be provided by the Secretariat for those interested. In one case, the Director-General had made a notification although the country concerned had not made any declaration since he believed that the Organization's constitutional obligation to give all countries the opportunity of defending themselves against communicable diseases prevailed over the procedural requirements of the International Health Regulations. In that connexion, attention was drawn to Annex 1 of document EB47/WP/8 and paragraph (i) to the effect that the Committee on International Surveillance of Communicable Diseases approved of the action taken by the Director-General in notifying all states on the basis of firm epidemiological, clinical and bacteriological information available to him of the existence of cholera in a country even though that country had not notified the Organization of the existence of the disease in its territory. The Committee further considered that the Director-General should take similar action in future, should circumstances warrant it. The Committee also drew attention to the fact that the
existence of short-term and long-term carriers, the abundance of cases with mild clinical manifestations and the limited effectiveness of preventive measures, in particular vaccination, did not allow the institution of quarantine measures which would completely prevent the international spread of cholera. The Committee, therefore, appealing to the spirit of international co-operation, had requested the Director-General to inform Member States of the committee's recommendations without waiting for the report to be submitted to the Health Assembly, and that had been done forthwith by the Director-General.

An account of the work which could be undertaken by the Organization was given in the booklet entitled "Principles and Practice of Cholera Control" (Public Health Papers No. 40, 1970), but whatever efforts might be made to control cholera it remained obvious that even if research succeeded in producing a better vaccine cholera could never be completely eradicated by medical or immunological means alone. The long-term solution to the disease must be sought in economic and social improvements in the endemic areas of disease. The only way of eliminating cholera was by raising living standards and providing proper excreta disposal, safe drinking water and adequate sanitation, and was thus an important part of the general effort toward development.

Dr VASSILOPOULOS said that cholera had been endemic in Asian countries but had recently spread to other continents such as Africa, where the possibility could not be excluded that it might also become endemic. In that connexion, he had been much impressed by the excellent document on the strategy of cholera control (document BD/CHOLERA/71.1). The spread of cholera during the decade just ended was depicted in the map in document EB47/WP/8, which showed that cholera, which in 1961 had been endemic in the Western Pacific area, in 1962 had moved slightly further westward, to spread in the following year towards Japan and also southward towards India. By 1965-66 it was progressing westward to the Mediterranean area. By mid-1970 the disease had spread to the USSR and to most of the Middle Eastern countries, Turkey and North, West and East Africa. Thus, more than half the world population lived in cholera-affected areas. As stated in document BD/CHOLERA/71.1:

Cholera was endemic in Asian countries, but has spread to other continents, such as Africa, where it may also become endemic (Fig. 1).

More than half the total world population lives in the cholera-affected areas, which contain enormous cities and agglomerations.

With present-day modes of travel, cholera can spread rapidly from the affected areas to any other part of the world, and represents a particular danger for areas where sanitary conditions have not kept pace with developments in the field of international travel.

In terms of the population potentially at risk, therefore, the problem is much greater than it would appear from a world map of the infected areas.

It should also be noted that the affected areas are the least economically developed and that very few of these countries have any prospect of eradicating cholera while the population explosion and the slow pace of development continue to foster poverty, ignorance and poor sanitation, the conditions on which cholera thrives.

The principle of the "cordon sanitaire" is no longer applicable in the present age of fast travel, and the impracticability of such a policy in modern times is obvious.

Measures such as restrictions on the importation of various harmless foods cannot be justified. Sooner or later such measures, aimed at "protecting" the country against cholera, bring about considerable reductions in international traffic and trade, and the countries that suffer from such action are often ready to retaliate. The end result is often a deterioration in international relations and great economic loss, while cholera continues to spread freely. Resources spent on the enforcement of an ineffective "cordon sanitaire" could be more profitably invested in other measures to control and combat cholera.
The rational use of preventive measures, facilities and funds for the control of cholera is impossible if "cordon sanitaire" policies are not abandoned. Rational planning of national and international cholera control programmes should be based on scientifically established facts. Immunization is effective only partially and for a short period, irrespective of the number of doses given to the population in endemic areas. Carriers cannot be detected or treated with certainty. Thus, even repeated examinations for the carrier state are not effective in preventing the spread of cholera through carriers and mild cases. Sanitation (proper excreta disposal, safe water supply, food control) is effective in the control of cholera; a country with good basic health services and high standards of personal and community hygiene can be considered as non-receptive. The treatment of cholera, if well organized and properly carried out is extremely effective and life-saving.

A realistic national or international programme for cholera control should be based on a rational use of available control measures and resources so that the best possible results are obtained for the least expenditure.

From the comprehensive data contained in that document, it appeared that a systematic programme for cholera control should cover the following components:

1. **Health**
   - Bacteriological laboratory(ies) their development and strengthening.
   - Epidemiological services (for surveillance of diarrhoeal diseases).
   - Health centres with rehydration facilities covering total population.
   - Transportation and communication facilities.
   - Supply of laboratory equipment and means for treatment.

2. **Sanitation**
   - Excreta disposal, elimination of contact of population with untreated excreta.
   - Construction of sanitary privies to cover entire population.
   - Water supplies: safe, chlorinated running water to be provided to total population in towns.
   - Safe sources of water for populations in rural areas.
   - Food hygiene.

3. **Health education**
   - Education of public on personal hygiene.
   - Provision of facilities for personal hygiene.
   - School programmes aiming at health education.

4. **Training**
   - Special training for medical and paramedical staff, sanitary engineers, etc.

In order to implement such a programme a plan of action was indispensable, the main features of which might be summarized as follows:

1. **Programme**
   - Specialized advice for the development of technically sound and economically feasible long-term programme and establishment of the plan of action.

2. **Action**
   - Provision of technical knowledge and supplies for execution of the programme.

3. **Evaluation**
   - Regular evaluation and amendment of programme (if necessary).

The most suitable area in which to implement such a programme and plan of action would be a small well-controlled territory with relatively well-developed health and education services. Those requirements were fulfilled by Cyprus which, in addition, was situated near the infected areas and was an important communications centre between Middle Eastern and Asian countries.

He believed that in view of the far-reaching adverse consequences of the pandemic of cholera WHO should direct its attention to basic health problems such as hygiene and sanitation, the improvement of which would result in the successful control, not only of
cholera and other enteric diseases, but also of many other diseases prevalent in cholera-infected areas. The Executive Board should provide a lead by taking a firm policy stand on that vital question. Finally, he congratulated the Director-General and his staff on the leadership they had provided in efforts to arrest and contain the cholera pandemic of unprecedented magnitude which had erupted the previous year.

Dr BÉDAJA-NGARO congratulated the Deputy Director-General on his excellent presentation of the subject under discussion. If cholera had already been eradicated its advent might almost have been welcome since it had enabled WHO to confirm its constitutional role of director and co-ordinator and had made it possible to alert peoples and governments to health problems. As he had stated two years previously to the Health Assembly, although the basic programme of the Organization was a programme of public health founded in the first place on prevention, the populations of countries still suffering from disease unfortunately gave priority to the curative function. It was thus obvious that people had been highly impressed by the rehydration fluid, vaccines and other materials sent by the Organization. Cholera had also made governments fully aware of the extent of health problems. So far as the African Region at least was concerned, the Regional Office had responded instantly and had taken all necessary steps to contain panic.

The report on cholera (document EB47/WP/8) emphasized the efforts which had been made by the Regional Office for Africa in respect both of information and training. In the Central African Republic, for example, a number of medical staff had received clinical and bacteriological retraining and frontier posts had been set up for cholera diagnosis. Moreover, the co-ordination which had been so frequently advocated as essential in health matters, had been achieved by meetings between the Central African Republic and two neighbouring countries. No country could attempt to solve health problems in isolation and the effect of cholera had been to force countries which had previously disregarded co-ordination to unite their efforts in the common struggle. The result provided a good example of the action which might be taken by the Organization in cases of catastrophe.

The cholera epidemic, like the incidence of yellow fever, had brought home to the health services in his country that vaccination alone was not the answer and that a programme of environmental sanitation was essential. Steps had therefore been taken to clear up the rubbish in the towns and every effort had been made to make the people realize how essential it was to live in sanitary and healthy surroundings.

Finally, he asked how a Board member should reply in one sentence if asked by the press on his return for the latest news on the cholera problem as discussed by the Executive Board.

Dr EHRLICH said that there was no doubt that the problem of cholera was world-wide and called for co-ordinated efforts. That had been recognized by donor countries so that at least in one case all assistance was channelled through WHO. He believed that WHO could fulfil a unique function by studying the problem on a world-wide basis and identifying where resources could best be placed to contain it. It had in fact done an excellent job in that respect and the Secretariat was to be congratulated for its efforts.

He wondered what else WHO might be able to do in its unique position. The Deputy Director-General suggested that WHO had been and would continue to provide equipment and supplies, to provide vaccines where they might be indicated, and education and training programmes. Dr Vassilopoulos had suggested that WHO should support the development of sanitary facilities in countries so that in the long-term cholera's entrance was retarded. He supported those suggestions but thought it should be remembered that while the reaction to the cholera pandemic had been effective, there might equally well be a yellow fever or smallpox pandemic next year. He would therefore suggest that WHO should consider the ways in which it could effectively mobilize its resources at headquarters and in the regional offices so that rapidly and effectively it could provide supplies and equipment, diagnostic services, epidemiological surveillance and help define for countries and regions the nature and extent of communicable and epidemic disease problems, including laboratory support. But most importantly it should have the ability to be able to respond very rapidly and effectively so that countries would have the confidence to turn to WHO in those situations where it was in a position to provide the unique type of assistance which only it could provide.
Dr. JOSHI said that while cholera occurred in Nepal it did so mainly during the rainy season. That was probably because the sub-soil water rose at that time and the wells and ponds got filled. In the last two or three years they had been disinfecting the water with lime. That had proved to be quite helpful in controlling the cholera epidemic.

Dr. AASHY said that the Deputy Director-General had explained the epidemiology of cholera in a manner which gave the members of the Board confidence. In a way he had removed the fear concerning cholera as a disease but at the same time he had emphasized the need for alertness. The emphasis placed by earlier speakers on improved sanitation and the fact that the United States had decided not to require vaccination certificates from individuals arriving in the country from areas in which cholera existed proved the importance of sanitation but it took years for developing countries to improve sanitation and he would like to know what could be done in the meantime.

The Deputy Director-General had said that cholera had spread from Asia to Africa through the Arabian peninsula. It was true that cholera had occurred in the Arabian peninsula last summer but he thought it had occurred in North Africa first.

Dr. ARNAUDOV inquired whether WHO had made any attempts to determine the effectiveness of cholera vaccines and what the results had been.

He agreed with everything that the Deputy Director-General had said. It was true that a great many carriers existed and particular attention should be paid to that fact; it was necessary to be extremely cautious in that connexion.

He thought it mistaken to compare cholera and influenza, even if influenza was considered to be more dangerous.

Dr. VENEDIKTOV expressed satisfaction at the information contained in the report on cholera.

An outbreak of cholera had occurred in the Soviet Union in a number of cities, including Astrakhan and Odessa. It had spread elsewhere and the situation had been quite serious. Fortunately, it had been possible to cope with the outbreak quickly and effectively. In the course of the work on control, certain conclusions had been reached which might be of interest to the Executive Board and the Secretariat. Firstly, cholera even now was an extremely dangerous disease, much more dangerous than influenza, because the El Tor cholera vibrio was more resistant and spread more quickly. Secondly, control required very quick diagnosis and also the readiness of all public health services and other services. It required concentrated, rapid and effective action in any government. Without co-ordination between different government services it was impossible to control cholera. That action had to be speedy, sufficiently rigid and effective. It had been rightly said that such measures as general improvement of health and hygiene and environmental sanitation took time. Cholera also required concerted action between governments on an international basis and on the part of international organizations. Thirdly, during such outbreaks the cases of death from cholera were nil but it became quite obvious that vaccination against cholera and in particular vaccination within a focus could not give positive results because it diverted all the forces of the public health services and required a great deal of time. That was why it was much more effective to liquidate cholera rather than to await results of vaccination. But it was absolutely necessary to get new vaccines. That was a field of action for WHO and all scientists throughout the world because the present vaccination was not sufficiently effective. It was also necessary to have effective national and international information services. But at the same time it was necessary to watch for direct importation of cholera. That, however, was not always easy, especially when account was taken of the fact that emotions were involved and that extraordinary measures were necessary. The question of mutual information through WHO required very serious attention,
Quarantine was and would continue to be an effective means for the control of cholera outbreaks, but it should not be of a type which disrupted economic life.

He considered that WHO's action during the seventh pandemic had been laudable and entirely satisfactory. The Director-General had warned delegations at the Health Assembly three years ago that cholera was approaching the frontiers of Europe and that preparatory steps should be taken to deal with it promptly. That warning applied to an even greater extent today. The problem of cholera was an acute one.

Referring to sanitary and health measures in large cities, he said that in view of the growth in the size of cities and migratory movements, he did not think that any large town could be entirely protected against cholera.

The results of the meeting of the Committee on Surveillance of Communicable Diseases which had been held in Geneva called for serious consideration.

The Soviet Union was giving assistance to many developing countries in the control of cholera.

He wondered what immediate action WHO could take, bearing in mind the fact that the experts considered that the pandemic had half run its course.

In reply to the question of Dr Ngaro he said that newspaper men should be told that the cholera problem was a very serious one but that it should and could be coped with. The Board's session had been hopeful and stimulating on the subject.

Dr BENADOUUDA asked for an explanation of the United States attitude towards cholera vaccination. Did it no longer consider that quarantine was necessary?

Mr WOLDE-GERIMA said that his country greatly appreciated the action which WHO had taken to deal promptly with the seventh pandemic, which had affected his country. Not only the headquarters but also the Regional Office for Africa had provided constant assistance and encouragement.

The pandemic might prove to be a blessing in disguise. It had taught the countries affected so many things, such as the need for improved sanitation, environmental health, for the development of public health laboratories, for co-ordination of health services, and for collaboration between countries. It was essential not to sit back complacently. Members of the Board had made very constructive recommendations concerning what should be done in the future. He felt that the efforts that had been made in such a fine spirit, the assertion by WHO of its constitutional rights, its role in providing guidance and assistance, the constant supply of excellent material for health administrators and the public were pointers to appropriate future action. Co-operation of countries in moving goods and people without hindrance should also be increased.

Lastly, he hoped that WHO headquarters and regional offices would continue to support national programmes designed to improve environmental health and food control, since a failure to do so would contribute to the spread of cholera and other communicable diseases.

Dr EHRLICH said that his personal opinion was that the United States decision with regard to the annulation of the requirement of vaccination for persons entering the country from areas where cholera occurred had been based on the simple premise that adequate sanitary services and the provision of potable water in the United States made the threat of the epidemic spread of cholera almost non-existent. Vaccination offered no additional protection to the population of the country and might only make the individual who had been vaccinated less alert to potential symptoms if he had in fact contracted cholera.
The DEPUTY DIRECTOR-GENERAL, replying to Dr Aashy's statement concerning the introduction of the disease into Africa through the Arabian peninsula, said that the evidence that cholera was introduced into Ethiopia and the territory of the Afars and the Issas from the Arabian peninsula derived from the serotype involved, which was Inaba both in Arabia and Ethiopia, while that in North Africa was Ogawa.

Dr CVJETANOVIC, Chief, Bacterial Diseases, replying to the question as to what WHO was doing to improve cholera vaccines, said there were a number of projects, a list of which was given in Annex 6 to document EB47/ WP/8. Efforts were being made in several directions. At the present time a field trial was being undertaken of a monovalent vaccine made of Inaba and Ogawa serotypes. An Ogawa monovalent vaccine and an Inaba monovalent vaccine had been tested in an area and the protection of such monovalent vaccines had been observed. It was encouraging to see that the protection was greater than it usually was when a mixed vaccine was used. That was very important practical information but it created further difficulties because it made it essential to know in each case exactly what was the serotype which had invaded a country, in order to apply the appropriate monovalent vaccine. Thus, the gain was counterbalanced by the difficulties. In the first four months of observation the protection provided by those monovalent vaccines was about 70 per cent. The observations would be continued.

The other line of study which was rather more difficult was production of a new type of vaccine which would be based on cholera toxin. The toxin would be detoxified, as had been done and the vaccine was available, but there had been some deaths among the experimental animals which were difficult to explain and therefore the study would have to be continued very carefully in order to ensure that nobody died as a result of the use of a vaccine which had not been proved thoroughly safe, as cholera was a disease from which nowadays nobody need die, because of the excellent treatment available. He thought that by the end of 1971 it would be possible to use that vaccine in a field trial. Therefore, a better vaccine than the present one might be available some time in 1972 if everything went well.

In addition, WHO was producing live cholera vaccines. One of them had been used recently in a field trial but it had been abandoned because it had suddenly become pathogenic and had caused one clinical case of cholera. There were several other strains, one of which was a streptomycin-dependent strain similar to those of Salmonella and Shigella developed in the past. It was being studied in the United States on volunteers and there was another strain which had been obtained through genetic manipulations which was not absolutely ready for human use because it gave some symptoms in the animals which WHO did not consider harmless.

There were also other future projects. A scientific group on oral immunization by various methods, alive and dead vaccine and more sophisticated methods would meet in 1971, but such methods would not be used in the near future.

Sir George GODBER said that Annex 1 to document EB47/ WP/8 contained quotations from the report of the Committee on International Surveillance of Communicable Diseases, one of which wholeheartedly endorsed the action taken by the Director-General in reporting the existence of cholera in a country even though that country had not notified the Organization of the existence of the disease in its territory. He felt that the Executive Board should also endorse that action, either in a resolution, if one were adopted on cholera, or otherwise in its report.

Dr VENEDIKTOV said he did not think that would be wise because the Director-General's action had caused a great deal of feeling and the question of national statistics and sovereignty had to be borne in mind. He thought that in future all countries would notify the existence of the disease in their territory under Article 3 of the International Sanitary Regulations, now that they understood that the provision of the information was absolutely necessary.
Professor HALTER said he had been intending to say that he would support either of the proposals made by Sir George Godber. However, in view of the statement made by Dr Venediktov, it seemed to him that it might be better in the record of the Board's work to note that at the time of the discussion of the report on the seventh pandemic the Executive Board felt that the position adopted by the Director-General was the only one which he could possibly have taken under the circumstances. If next year the Director-General were to find himself in similar circumstances, he himself would certainly recommend him to reassume the same attitude, and perhaps a little earlier.

The DEPUTY DIRECTOR-GENERAL said that the report of the Committee on International Surveillance of Communicable Diseases would be transmitted to the World Health Assembly. He thought that the mention in the report would suffice, since the Assembly would have to deal with it and to approve it or otherwise. The report was now available in two languages; the part of it which was referred to in document EB47/WP/8 had already been circulated to Member States.

The DIRECTOR-GENERAL referred to paragraph 75 of Chapter II of the Standing Committee's report, in which it was indicated that he would give the Board the information requested by a member on the determination of priorities by the Organization in the various communicable diseases fields.

It was obvious that when a comparison was made of two successive budget years a basic budgetary stability of the strictly limited infrastructure at headquarters would probably be observed between individual communicable disease units. The overall budgetary constraint imposed by the Organization's governing bodies had forced him to resist the constant pressure for expansion in all the communicable disease units, whether for the purpose of strengthening their technical advisory functions to the regions or their scientific capacity to cope with a rapidly expanding research programme.

At the beginning of WHO's existence the World Health Assembly had approved a series of priorities which included three communicable diseases: tuberculosis, malaria and venereal diseases. Over the past 10 years there had been some striking changes in priorities and allocation of resources to which he had given effect on the instruction or recommendation of successive sessions of the Executive Board and the Health Assembly. Fifteen years ago the Assembly had approved the malaria eradication programme, thus increasing the priority given to malaria; but in fact malaria eradication had not really got under way until 1958, following the donation by the United States of America in 1957 of $5 million for the Malaria Eradication Special Account. To mention other examples, in 1960, no units had existed for smallpox eradication, bacterial diseases or parasitic diseases. There had, of course, been the Virus and the long-disestablished Endo-epidemic Diseases unit, but the establishment of separate units in recognition of increased responsibilities had had very real budgetary consequences. The Venereal Diseases and Treponematoses unit and the Tuberculosis unit had had an early and aggressive start in the Organization's history, because of the priority given by the first World Health Assembly, with the result that priority emphasis had been reflected more in the programmes outside headquarters than in the spectacular expansion of the infrastructure at headquarters. In the case of the Leprosy and Veterinary Public Health units, the staff had roughly doubled over the past decade because he had felt that the Organization's governing bodies expected him to do more in those areas at headquarters level than could be done with the skeleton staff existing in those units in 1960.

The priorities given by him to particular aspects of individual communicable diseases at the headquarters level were of course also reflected in the inter-regional programme activities. In tuberculosis, for instance, there were already in the 1950's extensive research activities in the field, and the tuberculosis budget for assistance to research had therefore grown only moderately in the last decade; but there was on the other hand a need for the training of managerial physicians in tuberculosis control at the inter-regional level, pending the development of regional training courses. To take another example - virus diseases - a glance at the budgetary provisions for them under assistance to research would show an increase by a multiplication factor of nearly ten over the last decade.
Perhaps headquarters technical units in certain well-established communicable disease areas should be abolished: there were certainly a few units where a reduction would take place over the next few years; but such matters were governed by the law of great numbers, in both epidemiological and operational terms. In that connexion he mentioned the recent behaviour of cholera and referred also to the fact that 40 Members had joined the Organization since 1960.

It was important always to look at WHO in its integral entirety from headquarters through the regional offices to field projects, particularly in connexion with communicable disease activities, where between 80 and 90 per cent. of the funds for those activities were allocated to field projects. At the field level there were also noticeable variations in priority and the allocation of resources to different communicable diseases. For example, between 1960 and 1970 the percentage share of the total budget for programme activities had changed from 8.20 per cent. to 15.71 per cent. for malaria, from 6.23 per cent. to 2.81 per cent. for tuberculosis, from 2.34 per cent. to 0.64 per cent. for venereal diseases and treponematoses, from 1.21 per cent. to 1.43 per cent. for parasitic diseases and from 1.30 per cent. to 7.05 per cent. for smallpox.

That showed the changes that had occurred in the relative priorities in the different fields of communicable diseases. It was necessary to take a long-range view. Over periods of 10 or 20 years variations could be observed which were not apparent from one year to the next in the Organization's budget.

The CHAIRMAN referred to paragraph 79 of the Standing Committee's report, concerning a member's comment on the rising incidence of venereal diseases in recent years and the desirability of a summary of the present situation and recent developments.

Dr GUTHE, Chief, Venereal Diseases and Treponematoses, said that the Board had several times noted trends in sexually transmitted diseases, notably syphilis and gonorrhoea, in commenting on the programme and budget proposals, most recently at its forty-fifth session in January 1970. At that time several aspects of the problem had been considered, concerning incidence, epidemiology, the social elements, the research aspects, international co-operation and functions of WHO. A full background had been provided concerning: first, the marked rise of gonococcal infection and the slower increase of syphilis in many countries in the past decade; secondly, the important changes in demographic, social, economic, behavioural and other important environmental aspects which had helped the national and international spread of sexually transmitted disease; thirdly, the predominant importance of the non-medical rather than the medical factors in the ecology of those conditions, despite the continued availability of highly effective drugs; and fourthly, the inherent shortcomings in health programmes of epidemiological contact and casefinding methods in efforts to control those conditions within and between countries.

With regard to the question referred to in paragraph 79 of the Standing Committee's report, information for 1969 had so far been published only by some of the countries which included syphilis and gonorrhoea among infectious diseases notifiable to the health authorities for statistical or epidemiological purposes; and for 1970 an indication for the first two or three quarters, allowing estimates for the whole year, were available in only very few instances.

An example in the European region was the United Kingdom, where early syphilis was slightly down in 1969 with a similar estimated trend for 1970, in contrast with gonorrhoea and non-gonococcal urethritis where cases were respectively seven per cent. and 15 per cent. up in 1969 with similar percentage increases estimated for 1970. In Denmark there had been a downward trend in the incidence of early syphilis in 1969, but data for the first half of 1970 showed an upward trend for the whole country culminating in an estimated increase for metropolitan Copenhagen of 50 per cent. over 1969. In Sweden early syphilis seemed stationary, while the gonorrhoea rate for 1970 had reached 485 per 100 000 population. In Poland the reported early syphilis rate had doubled in the past few years and was nearing 50 new cases per 100 000 population in 1969 with a slower rise in gonorrhoea.
In the Americas, trends were less clear, notably in Central and South America, but had given rise to concern during the technical discussions on the subject at the recent Pan American Sanitary Conference in Washington. Some countries, such as El Salvador and Venezuela, had reported a slightly upward trend in infectious syphilis, while in other countries, such as Bolivia and Colombia, the gonorrhoea rate had risen considerably. In Jamaica, according to the most recent report, the gonorrhoea rate had exceeded 2000 per 100,000 in 1967. In North America, Canada had reported a downward tendency in infectious syphilis in 1969 and 1970 but a 15 per cent increase in gonorrhoea cases. In the United States of America, approximately half a million cases of gonorrhoea had been reported in 1969. A survey had been undertaken the previous year, in which 130,000 practising doctors - almost 70 per cent. of doctors in the country - had participated, to find out how much venereal disease was treated but not reported. The result showed a national total for the fiscal year 1970 in the United States of America of at least 1.8 million cases of gonorrhoea, equivalent to an annual incidence rate of about 900 per 100,000 population. The situation was regarded by some as epidemic and gonorrhoea was at present, according to the Public Health Service, a leading cause of morbidity in the civilian population.

Little systematic information was available from other WHO regions. In the Eastern Mediterranean, Israel, Iraq and Iran had reported continued increases in gonorrhoea up to the past two years. In Africa, large numbers of cases of gonorrhoea were reported annually in countries such as the Central African Republic, the Malagasy Republic and Tanzania, and of infectious syphilis in Mali, Lesotho and Botswana. In South-East Asia, gonococcal infections were widespread, with high rates reported in 1967 and 1968 by Thailand and India. In the Western Pacific a similar situation existed as reported, for example, in the Philippines, Viet-Nam and New Zealand. The problems in the Western Pacific had been the subject of a regional symposium on venereal diseases convened by WHO in Manila in December 1968.

He also stressed four further points. In the first place, a gradual increase had been observed in many countries over the past few years in the proportion of patients in the younger age-groups, some still at school and some members of drifting groups. In the United Kingdom for example, the 1969 increase in gonorrhoea over 1968 had been 24 per cent. in the age-group under 20 compared with an overall increase of 13.9 per cent. Secondly, the male/female ratio of reported cases varied from 2:1 to as much as 10:1 or more in different countries and showed the large undiagnosed and untreated female reservoir in that disease. Thirdly, the female reservoir of gonorrhoea had reflected itself in recent years in a more frequent occurrence of complications in the form of salpingitis, arthritis and skin involvement, observed both in developed countries, such as Sweden, and developing countries, such as Uganda. Complications in syphilis in the form of congenital and late manifestations had not shown any upwards trend. Lastly, it had become evident that a large proportion of fresh syphilis and gonorrhoea were now acquired away from the patient's own country. Rapid modern transport, tourism, travel and itinerant populations, such as immigrants and seafarers, greatly facilitated the spread. In some countries (for example in Scandinavia) more than half the cases were now reported to have been acquired abroad which emphasized the international character of the problem.

With regard to developments since the Board's forty-fifth session, he confirmed the previously reported incidence trends for syphilis and gonorrhoea. Some of the so-called minor venereal diseases occasionally gave rise to small epidemics, such as two outbreaks of chancre in France in 1969 and 1970 and the increasing reports of Lymphogranuloma Venereum (Nicolas Favre) and Granuloma Inguinale (Donovani) from countries notably in the Far East. There were also some diseases which were often transmitted by genital contact, other than those legally defined as "venereal". Those included trichomoniasis, scabies and crab-lice, the two latter having shown substantial increases in some countries, for example in Scandinavia in recent years. In the general review of the incidence situation, however, it was the continued rapid rise of gonococcal infections in recent years that attracted attention. There was little doubt that gonococcal infections were at present out of control.

Dr VENEDIKTOV thanked the head of the Venereal Disease and Treponematoses unit for his lucid account and asked that the text be made available to the Members of the Board. The subject needed very serious attention.
Dr LAYTON also expressed his appreciation of the concise, clear and comprehensive account of the world situation. It was no exaggeration to say that gonorrhoea - and probably early syphilis - were in some areas epidemic. He wondered if it was a fair index to interpret the sharp rise in gonorrhoea as a precursor to a rise in early syphilis.

Professor AUJALEU, after expressing his appreciation of the report, asked whether the age distribution of gonococcal infections was in any way connected with hippiculture.

Dr GUTHE, replying to Dr Layton, said that available evidence suggested that early syphilis tended to show moderate variations or remain stationary in countries where rapid rises in gonorrhoea had been noted. That had been observed in at least three countries where studies had been made over a period of time and where it had been possible to measure the degree of reliability concerning the number of reported cases and the extent of co-operation by practising doctors in their actual forward-reporting for statistical or epidemiological purposes, which was an essential requirement for appraising the situation. There were, however, exceptions.

In reply to Professor Aujaleu, he said that age-specific rates were increasing in the young age-groups in several countries. Rates were high for venereal diseases in "youth clinics" in two countries which had established special health centres for the young belonging to hippicultural or similar groups.

Dr MAHLER, Assistant Director-General, said that document EB47/85P/9, a report by the Director-General on the smallpox eradication programme, showed the evolution of the programme which seemed truly spectacular. Throughout the Organization's regions there had been a continuous and dramatic decline in the smallpox problem, even in some of the most difficult areas. In Indonesia, for example, where two years earlier over 85 per cent. of the population had lived in endemic areas, the same percentage now lived in smallpox free areas. The remarkable progress throughout South-East Asia and East and West Africa showed that the emphasis placed by the governing bodies of WHO had been justified.

Dr VENEDIKTOV said that, like many other members of the Board, he had followed the smallpox programme very closely for many years. A few years earlier, when 1976 had been set as the deadline for world eradication of smallpox, it had seemed unrealistic and there had been many doubts. The data now available showed increasingly that the programme might develop even more successfully than the Director-General had hoped. He only wished to ask whether any difficulties were being encountered and what were the prospects for the programme.

Dr HENDERSON, Chief, Smallpox Eradication, said that, as indicated in the report, progress was satisfactory in most of the world, although there were some areas, such as Sudan and Ethiopia, where progress was less rapid and which were causing concern in the rest of Africa where countries were becoming free of smallpox. In Asia the most difficult problem was to develop the concept of reporting and surveillance. A seminar on the problem had been held in Delhi in December 1970 and it was hoped that there would be improvements in 1971. It was very difficult to predict when a goal would be achieved, because of unexpected happenings, such as civil disorders, and because budgets were uncertain. If the present impetus was maintained, he hoped the goal would be reached as fast as possible.

Dr EHRLICH said that it was clear from the report that progress was faster in some parts of the world than in others. He hoped that the necessary flexibility existed to meet changing problems as the programme developed from year to year.

The DIRECTOR-GENERAL said that the flexibility existed, with certain constraints.
Dr EHRlich thought that a statement issued by the Government of the United States, which had come to his attention within the last two days, might be of interest to the members of the Board in relation to vector biology; and since the Director-General had been quoted in the statement he would like to ask him what his feelings were about it and if he had been quoted correctly. The statement, issued by the new Environment Protection Agency, was to the effect that the United States Government was taking action that might end all uses of DDT in American agriculture. It went on to say only the necessary and infrequent use of DDT to protect the public against the threat of disease-carrying insects, such as spraying to kill malaria mosquitoes, would be retained. DDT would be banned outright as a pesticide to protect crops.

The statement said that the Agency's action did not apply to the manufacture or export of DDT - more than 60 per cent. of the annual US production of 40 million pounds, or 18 million kilograms, was sent abroad. Continued widespread use of DDT was expected in the developing world, where deaths from disease could be expected to rise dramatically if DDT were no longer used.

The statement quoted the Director-General as saying that the concept of malaria eradication rested completely on continued use of DDT, and that DDT was irreplaceable in public health and limitation on its use would give rise to grave public health problems in the majority of developing countries.

He would like to ask whether the Director-General had had consultation or other advice during the past year or so that had caused him in any way to alter his present policy.

The DIRECTOR-GENERAL said that the quotation was from a statement he had made to the Twenty-second World Health Assembly. Nothing had occurred to make him change his opinion.

Mr Wright, Chief, Vector Biology and Control, said that in 1970 the Organization had completed a study on the place of DDT in operations against malaria and other vector-borne diseases, with the assistance of a number of consultants including senior malarialogists, public health administrators, epidemiologists, toxicologists, entomologists and an authority on the effects of pesticides on wild life. He would outline the results of the study.

In public health practice insecticides were essential in the control of vector-borne diseases and DDT had been the principal insecticide in the past. Except for malaria and African trypanosomiasis, suitable biogradable alternatives had now become or were becoming available.

As illustrated in malaria eradication, the use of DDT in health had reached or passed its peak. The 60,000 tons used annually at the height of the global programme had now been reduced to 35,000 tons and the total annual quantity required should steadily diminish as the global malaria eradication programme advanced towards its objective.

The results of an examination of the possible effects on man and wild life in malaria and other programmes had great significance. It had been confirmed that the safety record of DDT for man was truly remarkable and in spite of prolonged exposure of the world population and the heavily occupational exposure of a large number of people, the only confirmed cases of injury had been the result of massive accidental or suicidal ingestion. It had been concluded that in the light of that health record there was no reason to believe that the millions of people protected against vector-borne diseases were at any risk from a small exposure to DDT.

As far as wild life was concerned the situation was different. The presence of DDT in the environment during the past twenty-five years had produced two very serious effects: the reduction and contamination of fishery products from streams, lakes and offshore areas; and the progressive extermination of certain species of predatory birds. DDT had long been known to kill aquatic crustaceans, fish at higher concentrations and terrestrial vertebrates at relatively high dosages; moreover, the progressive accumulation of DDT in fish could cause the failure of their embryos to survive. Accumulation of DDT in the food chain had proved more
important than direct kill. Birds near the summit of the food chain, such as those preying on fish and birds, had suffered grievously.

The apparent contradiction of the adverse reaction produced by DDT on some forms of wild life and its harmlessness to man could not be accounted for by any immunity of man to DDT. It appeared to be partly explained by the fact that human intake of DDT was maintained at much lower levels than those experienced by predatory birds and some animals and partly by the existence of species differences.

In the light of those facts an assessment had been made of environmental contamination arising from the use of DDT in antimalaria operations and it had been concluded that, provided the insecticide was used indoors - as was the case in antimalaria operations - there seemed to be little possibility of the insecticide contaminating the surrounding local vegetation and water sources and thus endangering wild life. There was a strong case for the view that the use of DDT in outdoor locations should be reduced to a minimum and that its use should be limited to application of indoor residual spraying against malaria mosquitoes, indoor dusting against plague fleas and individual dusting against body lice. The application of DDT to water surfaces and broadcast aerial application should be avoided. The vectors for which more research was needed to substitute DDT and dieldrin for more biodegradable materials were Simulium and the tsetse fly.

An analysis of the alternatives to DDT had shown that effective and safe substitutes for the chlorinated hydrocarbons had now been developed through the WHO programmes for evaluating and testing new insecticides and that two of them were available as replacements for DDT in malaria eradication. They had not been used extensively, chiefly because of increased cost and other factors. It was agreed that alternative methods of a non-chemical nature, such as biological and genetical control, while being actively pursued, were still many years from operational use.

One of the most important conclusions of the study concerned the consequences to health that could arise from the non-availability of DDT, particularly in the case of malaria. There was little doubt that its withdrawal would be a major tragedy in public health with vast populations in malarious areas of the world being condemned to the ravages of epidemic and endemic malaria.

Dr STREET drew attention to pilot work on the use of abate in Jamaica, with specific reference to the report of the study group on the feasibility of cost-benefit studies. He also asked if there had been any developments regarding aircraft disinsection procedures.

Dr VENEDIKTOV asked if he could be given a copy of Mr. Wright's statement and the report from which he had quoted.

Dr BERNARD, Assistant Director-General, said that the report, which was the conclusion of the Director-General's study, would be reproduced as a document for members of the Board.

Mr WRIGHT said that since the Twenty-third World Health Assembly considerable research had been done on aircraft disinsection in co-operation with the International Civil Aviation Organization and the United States Public Health Service. A detailed report would be submitted to the Twenty-fourth World Health Assembly. Everything had been cleared but the question of corrosion, which it was hoped would be completed in time for the Assembly.

With regard to Dr Street's comments, he said that abate was the most satisfactory larvicide yet encountered for situations in which control of Aedes aegypti had to be undertaken - control of larvae of mosquitoes breeding in manmade containers. It had proved to be effective and persistent and had been given safety clearance.
Malaria Eradication

Dr. BERNARD, Assistant Director-General, introduced the report on the development of the malaria eradication programme (document EB47/ WP/2).

The first section gave a breakdown of the population in areas with various types of programmes; the information given was similar to that contained in previous reports on the subject, but for one new important element - figures were given of the population of areas where there was no eradication programme per se, but where various types of antimalaria activities were in progress. That reflected the evolution of the programme, following the revision of the global strategy of malaria eradication, towards a more flexible approach to malaria in different countries, taking into account their epidemiological and socio-economic conditions. Thus, some countries had what might be termed "classical" eradication programmes, limited in time, whereas others were undertaking antimalaria operations of various kinds aimed towards eradication but with no fixed target date for the start of the eradication programme. It would be seen that, compared with 1969, the 1970 figures for population in areas where malaria eradication programmes were in progress showed a decrease. The decrease was due to two factors. First, a certain number of malaria eradication programmes had reached the maintenance phase in 1970 (which explained the increase in the population of areas in that phase). Secondly, since following evaluation, the eradication programme in a number of areas had been replaced by malaria control operations, a sizeable proportion of the population which, in 1969, had been shown as living in areas in the attack phase of an eradication programme was now shown under the heading of "population in areas benefiting from malaria control measures". The reason for the shift in that case was that evaluation, made on the spot in co-operation between governments and representatives of WHO and other institutions concerned, had shown that eradication operations were not for the moment feasible and that antimalaria measures should be carried out in order to maintain what had been achieved.

In the last line of the tabulation on the first page of the report were given the population figures for areas with no specific antimalaria measures. It would be seen that the figures were very high. As had already been stated in the Standing Committee on Administration and Finance, WHO considered that it was on those areas, which included a large part of Africa where it had not yet been possible to help governments to develop large-scale programmes, that the greatest efforts should be concentrated, in order to institute, gradually, antimalaria operations in all of them. Table 1, on page 2 of the report, repeated the information given in the tabulation on the first page, but gave the breakdown of the population figures according to the six WHO regions.

In section 2 of the report were given details of the re-examinations and re-evaluations that had been made of the various programmes. Those had been one of the most important practical results of the Health Assembly's resolution on the revised strategy of malaria eradication. WHO, in collaboration with other institutions such as UNICEF and the United States Agency for International Development, had assisted governments to assess the situation and to adopt the measures best suited to the epidemiological conditions, taking account of their administrative possibilities and their financial and manpower resources, and the state of socio-economic development of the country. Mention should be made, in that connexion, of the Expert Committee on Malaria which had been convened in October 1970 and which, in the light of the re-evaluations made, had considered the conditions under which the revised strategy of malaria eradication could be most effectively implemented. If members so desired, the Director of the Division of Malaria Eradication could give details of the expert committee's conclusions.

The last two sections of the report dealt with training - which was as important now as it had been in the past - and with research, of which the same could be said, and which had been particularly stressed in the Health Assembly's resolution on the revised strategy. With regard to research, mention should be made of a project concerning the transmission of malaria in the savanna areas of Africa, which was being carried out jointly by the Division of Malaria Eradication, the Division of Research on Epidemiology and Communications and the Vector
Biology and Control and Immunology units. The objective was, following a detailed epidemiological study, to develop various methods of interrupting malaria transmission in the savanna areas of Africa - a problem not yet solved and which it was essential to solve in order to make progress towards the eradication of malaria from Africa.

The meeting rose at 6 p.m.