WORLD HEALTH ORGANIZATION
ORGANISATION MONDIALE DE LA SANTÉ

A22/P&B/SR/2
14 July 1969

TWENTY-SECOND WORLD HEALTH ASSEMBLY

INDEXED

COMMITTEE ON PROGRAMME AND BUDGET

PROVISIONAL SUMMARY RECORD OF THE SECOND MEETING

Sheraton-Boston Hotel, Boston, Massachusetts
Monday, 14 July 1969, at 9.45 a.m.

CHAIRMAN: Professor B. REXED (Sweden)

CONTENTS

Note: Corrections to this summary record should be submitted in writing to the Chief, Records Service, Room 326, within 48 hours of its distribution.

1. COMPOSITION OF THE SUB-COMMITTEE ON INTERNATIONAL QUARANTINE

The CHAIRMAN drew attention to the timetable for the day, which included a meeting of the General Committee at 12 noon, and the first meeting of the Sub-Committee on International Quarantine at 5 p.m.

He read out the names of the delegations that had indicated their desire to participate in the Sub-Committee on International Quarantine, namely: Australia, Belgium, Costa Rica, Czechoslovakia, Denmark, Federal Republic of Germany, France, Ghana, Greece, India, Indonesia, Iraq, Ireland, Italy, Japan, Madagascar, Malta, New Zealand, Nigeria, Philippines, Poland, Portugal, Sudan, Sweden, Switzerland, Thailand, Togo, Turkey, United Arab Republic, United States of America, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, Venezuela, and Central African Republic.

Having requested any further delegation wishing to add its name to the list to raise its card, he read out the following additions: Burundi, Kuwait, Jordan, Nicaragua, Saudi Arabia, Uganda, Upper Volta, Western Samoa and Yugoslavia.

2. RE-EXAMINATION OF THE GLOBAL STRATEGY OF MALARIA ERADICATION: Item 2.4 of the Agenda (Resolutions WHA21.22 and EB43.R20; Document A22/P&B/8)

Dr BERNARD, Assistant Director-General, Secretary, introduced the Director-General's report on the re-examination of the global strategy of malaria eradication (document A22/P&B/8). The Director-General's report on the status of the malaria eradication programme (document A22/P&B/1) would be examined by the Committee in conjunction with the section on malaria eradication in the programme and budget estimates, when the detailed review was made of the latter.

The report under consideration was divided into six sections. Section 6 was the most important as it contained the Director-General's conclusions and recommendations on the future strategy of malaria eradication, but to illustrate how those conclusions had been arrived at, the Director-General had thought it advisable to review a number of facts and factors which had marked or influenced the evolution of the programme since its inception.

Section 1, the introduction, gave a brief account of the steps taken by the Director-General since the Twenty-first World Health Assembly to carry out the review of the strategy. In that connexion the Director-General wished it to be known that he much appreciated the co-operation he had received from all the experts he had consulted, from the teams which had carried out the country surveys, and from the advisory group on whose conclusions his recommendations were based. Their collective efforts had been of invaluable assistance to him.

Section 2 provided a historical background to the various stages of the malaria eradication programme since its inception. Much knowledge and experience had since been gained and a review of these was considered essential for a re-examination of the global strategy to be followed.

Section 3 described the advances made in malaria eradication in general. It would be seen that in a number of countries where malaria eradication programmes had been successful there had been a striking reduction in morbidity and mortality figures, an impetus had been provided to the development of health services in rural areas, and social gains had also derived from the improvement in health conditions. As regards the many economic benefits related to malaria eradication, it was very clear that since quantitative data were difficult to obtain, those benefits (which included the example of increased rice harvest in some countries) were not ascribed solely to the malaria eradication programmes but to other economic factors as well.

Section 4, which listed the setbacks encountered in the global programme, should be considered jointly with section 5, which dealt with factors affecting progress in malaria

eradication, namely: the adequacy of planning; administrative and financial factors; operational requirements; personnel and training; and human, ecological and technical factors. Special attention had been given to the African Region, where malaria remained the most important public health problem. In India and Ceylon, serious setbacks had occurred; the situation in India, however, had substantially improved since the report had been written.

Section 6 (the future strategy of malaria eradication) was of course the crux of the whole matter, and WHO was well aware that the entire future of malaria eradication depended on the discussions about to take place in the present Health Assembly. Special attention should be given to the second paragraph of the section, which read:

> Malaria eradication is global in its conception as a long-range world objective. Its strategy may be viewed as the means of attaining this objective as efficiently, as speedily and as economically as possible, by the rational use of methods, techniques and resources. Both the means and the time necessary for achieving eradication vary, to a lesser or greater extent, from one country - or one area - to another; any strategy, however global in its scope, must adapt itself to these variations.

The third paragraph was equally significant, and read:

> From a fully fledged malaria eradication programme to the mere administration of drugs through the general health services, there exists a wide range of possible courses of action which have to be considered in formulating the strategy for each specific situation, within the broader perspective of a global endeavour.

The section was divided into two parts, the first dealing with basic factors of strategic importance to eradication and the second with the new strategy proposed by the Director-General. In the sub-section dealing with resources, emphasis had been placed on national resources, on which much of the success of a malaria eradication programme depended, but attention had also been given to international resources, since external aid in the form of bilateral and multilateral assistance had just as vital a part to play in the future of malaria eradication as it had had in the past.

The proposals on the future strategy focussed attention on four main groups of countries:

(1) countries with a malaria eradication programme where the prospects of eradication were good under existing conditions;

(2) countries with a malaria eradication programme which were not making adequate progress;

(3) countries with areas in maintenance, where the problem was to sustain the results achieved; and

(4) countries without a malaria eradication programme, where the feasibility of eradication and the justification for such a programme under existing conditions had to be considered on the basis of a realistic appraisal of the social and economic priorities and the resources of the countries concerned.

As might have been expected, the section stressed the importance of research and the continuing need for such research, since the re-orientation of the global strategy depended to a large extent on the development of new techniques and methods.

Section 7 listed the conclusions of the Director-General. Finally, a summary of the principles and practices of malaria eradication which had been followed to date had been appended to the report for reference purposes.

In conclusion, the report should in no way be regarded as the sign of a breakdown in the WHO malaria eradication programme but as yet another stage based on experience gained and on the adaptation of the programme to the infinite variety of local conditions and economic factors. Neither did the report indicate any reduction in the programme. On the contrary, WHO regarded the programme more than ever as a challenge which it was determined to meet with all the resources at its disposal.

Dr VENEDIKTOV, representative of the Executive Board, called the Committee's attention to resolution EB43.R20, adopted by the Executive Board at its forty-third session.

At the present Health Assembly three aspects of the malaria problem were being considered: the situation of the malaria programme in the world, the plans for the forthcoming year, and the global eradication strategy. The first two aspects had been considered by the Executive Board; the Director-General had dealt with the third aspect, taking into account the views of experts and the discussions in the Board.

It was the view of the Board that in many countries malaria remained one of the principal threats to health, and especially to the health of children, and that the control and finally the eradication of malaria were important tasks of the national health services of many countries, of all doctors and governments, and of WHO.

The main method employed was still large-scale spraying with DDT. Theoretically that method could break the cycle of malaria transmission; however, in practice the results anticipated had not been obtained in many cases. In a number of countries significant successes had been obtained in malaria control and eradication; however, as had been pointed out by the Board in resolution EB43.R20 and in previous resolutions, setbacks and failures were numerous. The fundamental cause of failure was insufficient development of the health services, which could not provide the support needed to maintain the results achieved by mass spraying operations; there had been also many other technical, financial and administrative problems. All that had caused disappointment to a number of countries and to the international organizations, including UNICEF, that were collaborating with WHO in the programme.

It had therefore been considered indispensable to undertake a review of the global strategy of malaria eradication. The Director-General had made such a review on the basis of the findings of special teams, of the advice of groups of experts, and of careful study of the discussions in the Board. The Director-General had made his proposals, and it would be for the Committee to take its decisions on them. It should, however, be remembered that reviewing the global strategy of the programme meant deciding what ought to be done at the international, regional and intercountry level, as had been pointed out in resolution EB43.R20. The objective or objectives for a given period had to be determined, together with the method or methods to be used to attain them, the resources that would be required, and the sources from which they could be obtained; the practical organization of the work had to be studied and the responsibilities for such organization allotted. Finally, provision had to be made for flexible, continuous and objective evaluation of the results, so that new, complementary or corrective decisions could be reached.

He was certain that the Board would continue to give careful attention to the problem in the future.

Dr KIVITS (Belgium) said that those delegations which had followed closely the work of WHO in malaria eradication over the years could not fail to appreciate the way in which the Director-General and his staff had kept them informed of the progress of malaria eradication. The present report commendably focussed attention on the various stages of eradication, the adaptation of methods to changing circumstances, in particular to the growing resistance of the vector mosquito to insecticides used. Thanks were also due to the Expert Committee on Malaria, and to the research workers, in the field and in the laboratory, who were perfecting the methods to be used by the operational teams.

The general situation, fourteen years after the decision taken by the Eighth World Health Assembly, was on the whole very satisfactory considering the wide variety of obstacles which had been encountered. It was gratifying to note the reduction in morbidity rates, and also the social and economic benefits derived from malaria eradication programmes. The ultimate success of those programmes would however depend largely on an improved standard of living for the children spared from death as a result of the eradication programme. And, as the delegate of Ethiopia had pointed out in the technical discussions, it was essential that programmes for social and economic development be carried out simultaneously with health programmes; otherwise, the population increases resulting from improved health would create a host of new problems. Section 5.1 of the document mentioned this point.

It could be seen from Figure 1 in the report that, of the 380 million population not yet covered by operations, 200 million belonged to the African Region and that a further 65 million, while not within that region, nevertheless lived on the African continent. Possibly in that part of the world there were special technical difficulties connected with the behaviour of the anopheles or the plasmodium, and there were also difficulties due to the scattered or nomadic types of collectivity. Those difficulties were, however, minor compared with the economic, administrative and even political problems, and above all, with the lack of financial resources. In that connexion the Director-General had wisely advocated the adoption of certain methods and of a preparatory phase that would be within available resources. His delegation hoped however that such a phase would not be unduly prolonged, and that the countries concerned would - with the help of WHO, other international organizations and bilateral aid programmes - be enabled to set up basic health services in both rural and urban areas. The malaria eradication programme would then provide the additional benefit of improved health services along with the elimination of malaria as a disease.

Dr KRUISINGA (Netherlands) said that his delegation was of the opinion that the whole system of vector control should be reviewed, especially the continued use of pesticides of the persistent type such as DDT.

Apart from being a highly persistent pesticide, DDT, when broken down to DDD or DDE, was toxic to man, other mammals and also to birds and fish. It should not be forgotten that 300 000 tons of DDT were used every year throughout the world. The authorities in his country considered that such an amount of highly potent and persistent insecticide and its by-products was a cause for alarm. To the best of his knowledge, about 15 per cent of that quantity was used on malaria eradication: he would like to know what WHO would forecast as the probable amount of DDT that would be used in years to come if its strategy of malaria eradication by vector control were not entirely revised. Who could hardly adopt a strong attitude on the use of DDT in agriculture when it recommended its use in huge quantities for malaria eradication. The use of DDT was now banned in Sweden; it was also banned in the Netherlands for most applications and a total ban was expected shortly. Although the Netherlands was not registered as completely free of malaria by WHO, it should be noted that the use of DDT would not be allowed in that country for very much longer.

The results of recent tests on the toxicity of DDT when used over long periods were somewhat disquieting. In that connexion he would welcome information from the Bulgarian delegation on the carcinogenic effects on the fourth and fifth generations of animals which had been fed DDT. Similarly he would be grateful to the Director-General for an account of the activities of the International Agency for Research on Cancer in chemical carcinogenesis. He wondered whether WHO had any information on the amount of DDT already absorbed in the fat of the human body in the different regions of the world: was it true, for instance, that in New Delhi that amount had reached 20 ppm and that salmon caught in Lake Michigan showed DDT concentrations ranging between 3.5 and 12.5 ppm? He would also like to know whether studies had been made of the dynamics of DDT and of its transfer from one organism to another. Could not WHO undertake or promote research on that subject?

In view of such statistics, other pesticides less potent than DDT, e.g. HCH, Malathion or OMS-33, should be considered for malaria eradication. Admittedly, the cost would be higher, and more frequent and concentrated spraying would be required, but it would be justified in the interests of health and might halt the poisoning of the environment to which the Governor of Massachusetts had referred at the first plenary meeting. The vector resistance which had ocurred in Indonesia, Iran and Central America showed the need to investigate other less potent insecticides (in that connexion the decision of the previous Health Assembly to select certain areas as control areas was a wise one). His delegation was convinced that research on the use of other insecticides would eventually pay dividends. In the WHO regular budget $ 12 000 000 was earmarked for malaria eradication, but the sum intended for research in the same field was relatively modest, probably in the region of $ 10 000. The Netherlands delegation was deeply disturbed that the Executive Board should have recommended a further reduction of that figure; it believed that an expenditure on research of 10 per cent. of the total would not be an extravagance.

One possibility for research in malaria eradication was the adaptation of viruses or fungi for the purpose of mosquito control, or the production of a virus which could attack Plasmodium falciparum, since manipulation of the genetic composition of viruses was now a possibility. Another approach was genetic control and the hybrid-male technique, on which research was currently being carried out in the Netherlands. Many approaches to the problem had not so far gone beyond the laboratory stage owing to lack of funds, even though their discovery had been given wide publicity. A bold and imaginative approach towards their possible application to malaria eradication was called for, and his delegation would appreciate it if the Director-General could submit a report on the subject to the next Health Assembly after consultation with the expert committees. Such a report should include a long-term plan for research along several different lines. The Director-General might also consider holding consultations with the Director of the Food and Agriculture Organization on the use of persistent pesticides for purposes other than malaria eradication, with a view to reducing the poisoning of the environment to a minimum.

Dr GJEBIN (Israel) congratulated the Director-General on his very comprehensive report: periodical assessment of the malaria eradication programme was essential if it was to succeed, however remote that possibility might appear at present.

The problems that had arisen related to climatic, ecological and geographical conditions, to human migration, to organization of health services, and of course to lack of funds; but it was only by studying the problems experienced by certain countries mentioned in the report that solutions could be found. Experience showed that prompt detection, elimination of foci and the provision of adequate supplies to health services were of tremendous importance in preventing the re-establishment of transmission in areas that had reached the maintenance phase. Increased travel between continents had aggravated the risk of case importation, and suitable preventive measures should be taken especially in areas where the presence of anopheline vectors was sufficiently concentrated to facilitate transmission of the disease.

Israel had been free from malaria since 1964 but its health authorities had at no time relaxed their efforts to ensure the early detection and radical treatment of all cases reported, intensive epidemiological and entomological investigation, and adequate remedial measures. Constant vigilance on the part of medical personnel could not be stressed too much.

In conclusion, he emphasized that his delegation strongly believed that little progress could be made in malaria eradication without intensive research, and considered it essential that more funds be provided for that purpose.

Professor MORARU (Romania) said the report presented by the Director-General had again stressed the results obtained in the worldwide eradication campaign. Former reports had already mentioned the success of such programmes in a number of countries with malaria problems, as well as the fact that some countries were now at the eradication stage. He noted, however, that the eradication programme had taken longer than originally expected, and that in some countries it had been necessary to go back to the initial stages of the programme. That fact had prompted the resolution of the Twentieth World Health Assembly, recommending a revision of the global strategy in malaria eradication.

The report and its appendix contained information gathered by WHO teams in malarious areas of the world. The analysis made of the malaria eradication programmes of nine countries, with various endemo-epidemic conditions, and at different stages of socio-economic development, meant that many specific features had been considered, and that recommendations could be made that would help to re-start programmes at present immobilized or to initiate programmes adapted to local conditions.

Twenty years ago Romania had been an intensely malarious country. Now eradication was total, and no case of malaria caused by local transmission had been recorded during the past eight years. Romanian malariologists had often stressed that the epidemiology of malaria varied according to local and regional factors, the type of anopheles, the virulence of strains of parasites, and various aspects of human ecology.

His delegation considered that the following factors were essential if eradication programmes were to be successful:

(1) basic health services on which the special malaria services could be based;

(2) studies to ascertain the efficacy of different methods under local epidemiological conditions;

(3) local staff, qualified in technical eradication problems, and who would be used until eradication was complete;

(4) material resources, to be ensured either by the Government alone, or with the assistance of international organizations.

He emphasized that local and regional action should group countries with similar epidemiological and economic conditions, which could benefit from simultaneous and co-ordinated programmes as on the Maghreb model. The problem of malaria eradication was particularly acute in the developing countries: in addition to providing assistance, therefore, WHO must act as a catalyst to ensure help by other international organizations.

In conclusion, he thought that any revision of the global strategy of malaria eradication should take into account the need to correlate the programme with the socio-economic level in a given country.

Dr CHA (Republic of Korea) expressed his delegation's appreciation of the Director-General's report, and of the work of the global strategy of eradication carried out by WHO during the last decade.

Although in the early stages of a campaign the operational responsibility for malaria eradication had to be kept separate from the general health services, he believed that in the later stages of the programme it was essential to ensure integration of the two services.

Malaria in his own country was due mainly to Plasmodium vivax; it was of the unstable type, and was hypo-endemic. The transmission season was from June to September, and the degree of immunity of the population was low.

The Government and WHO had agreed to carry out a pilot study, based on the epidemiology of malaria in Korea, the administrative facilities available, and the development of basic health services, and with the following objectives:

(1) to study the feasibility of interrupting malaria transmission by means of surveillance methods;

(2) to study the status and functions of the basic health services, and their possible participation in future malaria eradication programmes;

(3) to continue the training of national malaria service personnel.

Once it had been established that surveillance operations would significantly reduce malaria incidence, a programme based on such procedures would be implemented throughout the country, combined where necessary with focal spraying to interrupt the transmission of malaria.

Professor CORRADETTI (Italy) said that the Director-General's report was the best Assembly report on malaria eradication yet to appear. It faced the problem realistically and scientifically, taking all factors into account without prejudging the conclusions. His delegation noted with satisfaction that the points emphasized by the Italian delegation at previous Assemblies had been included in the report. The Italian delegation had, at the Twelfth and subsequent Assemblies, stressed the need to separate areas on the basis of the feasibility or not of malaria eradication, stressing both the need for a well-organized national malaria service and for fundamental research. In 1964, at the Seventeenth World Health Assembly, his delegation had emphasized the need to modify WHO's malaria eradication policy drastically. It had suggested that the theoretical philosophy of global malaria eradication should be temporarily abandoned, that those areas where eradication was feasible should be delineated, and concentrated efforts be made to free them from disease, while those areas where malaria eradication was not feasible should be helped by WHO to organize adequate health services; it had also stated its belief that an expansion of basic research would provide new weapons against malaria.

In 1968, at the Twentieth World Health Assembly, the Italian delegation had proposed that a new strategy be developed on the basis of a correlation of malaria eradication and the general socio-economic development plans of the countries concerned. His delegation was proud to see that the new strategy was based mainly on the above points.

Commenting on the report, he noted that the Director-General stated (page 24) that global malaria eradication should remain the long-term goal. His delegation entirely agreed, because, as the Director-General had stated at the third plenary meeting: "Malaria is still the world's greatest single cause of disablement and, though it has never been possible to compute fully the toll it takes both economically and socially, it is without doubt one of mankind's most costly diseases."

The fact that malaria programmes were to become an integral part of the health sector of the national socio-economic development plans would be welcomed by all. The saving in life, health and work resulting from antimalaria activities were in themselves a socio-economic benefit and often a pre-requisite for all socio-economic development. The report suggested that the Organization should continue to study the socio-economic effects of

malaria so as to provide economic and health justification for the allocation of sufficient funds for malaria programmes. He thought it essential that the role of malaria work in the general socio-economic plan should not be underestimated since owing to the dynamics of malaria transmission, insufficient resources might lead to heavy setbacks, or even failure of the overall plan.

The new strategy listed three types of situation: (1) programmes where the prospects of eradication were good; (2) less satisfactory programmes, (3) countries where there was no eradication programme.

In the first case, the governments concerned should intensify efforts to complete eradication and synchronize the progress in health services with that of malaria eradication programmes so as to meet maintenance requirements. The socio-economic planners should recognize that malaria eradication must be given high priority until complete eradication had been achieved, failing which there would be disastrous setbacks.

In the second case, the areas where eradication was feasible should be delineated, and efforts to complete eradication intensified. Where eradication was at present impracticable, malaria control activities should be undertaken.

In the third case, where malaria constituted a major health problem and where eradication was not as yet feasible, malaria control should be considered a necessary health measure for economic development: there could hardly be socio-economic development where people died from malaria or were disabled by malarial fevers.

The correlation of malaria eradication with the health plan, as part of the socio-economic development of a country, was the proper scientific approach and its success would depend on the action taken. His delegation wished to emphasize the need for first-class malariologists to collaborate in determining priorities within the plan for socio-economic development since such evaluation could not be left to people who were not familiar with the peculiar dynamics of malaria transmission.

His delegation also wished to stress that the new strategy implied recognition of the fact that malaria was both a health and a socio-economic problem. In too many countries the disease had prevented a socio-economic plan from getting off the ground and its eradication of reduction was consequently of extreme importance to other agencies.

The United States delegate at the sixth plenary meeting had cited the co-operative work carried out on environmental pollution as an example of co-ordination involving UNESCO, UNDP, WHO and others. His delegation agreed with the United States delegate that co-ordinated planning for all activities should be encouraged and suggested that malaria eradication was a suitable field for such co-operation.

The task of WHO's Division of Malaria Eradication was much harder than it had been during the years of global malaria eradication, when it was only a question of applying to operations a few fixed canons. With the new strategy it was necessary to provide advice and help - not only to countries where eradication was feasible but also to countries where only control was possible. A new methodology needed to be worked out, permitting the inclusion of malaria control measures in socio-economic development plans: the long-term work could only be successful if evaluated and rectified at every step. WHO malariologists both at headquarters and in the regions must widen their field of activity, and adjust the requirements for malaria eradication and control to conditions in the national health service, and the stage of the socio-economic plan that had been reached. To avoid errors

that might be fatal to the socio-economic plan as a whole, first-class malariologists were essential. His delegation considered that all the plans prepared at regional level should be examined at headquarters with the collaboration of highly qualified consultants, if necessary before any agreement was signed. Periodic revision of the plans should be made in the same way.

The reaffirmation that global malaria eradication was WHO's ultimate goal, involving as it did new duties and increased activity, might mean that the Division of Malaria Eradication must be reinforced in the near future. It must also be remembered that, as the Director-General had told the Assembly, malaria was the enemy No. 1 - an enemy whose strength was unsuspected even by many experienced malariologists; money spent on combatting it was always an investment.

He concluded by recalling that many scientists throughout the world were at present engaged in improving antimalaria measures. It must not be forgotten that the difficulties in initiating and carrying through eradication in most areas of Africa, and in the tropical areas of other continents, were not only financial but also strictly malariological. Only by intensifying basic research could the gap be bridged between the areas where malaria eradication was feasible and those where it was as yet not feasible.

Dr TATOČENKO (Union of Soviet Socialist Republics) said that his delegation had taken note with great satisfaction of the Director-General's report on the re-examination of the global strategy of malaria eradication (document A22/P&B/8). For a number of years his delegation had been emphasizing the need for such re-examination and it was to be regretted that it had not been made earlier, thus avoiding considerable expenditure from national, international and bilateral sources.

The concept of global eradication of malaria was based on a theoretical plan which, however, did not take sufficient account of a number of factors hampering its realization. His delegation, and delegations of other Member States, had drawn attention to that fact. Those factors were clearly set forth in the Director-General's report and it could be seen that they were largely socio-economic, financial and administrative; the technical difficulties, of which the initiators of the campaign had been most afraid, had been encountered only in 1 per cent. of the territory at present covered by the campaign.

Basically, the difficulties encountered in the malaria eradication campaign were socio-economic in nature. His delegation considered that the aims of the eradication programme should be revised, and that eradication should be considered from the point of view of reducing mass morbidity to sporadic cases, bearing in mind the conditions prevailing in each country. That brought to the fore the problem of maintenance and vigilance operations to secure the results attained, which was, in effect, the problem of organizing the general health services in a more rational manner to enable them to carry out those functions. In that connexion WHO was in a position to take advantage of the experience of countries, such as his own, that had eradicated malaria and successfully prevented its re-establishment.

The classification of countries given in section 6.2 of the Director-General's report might be made more precise. In the first category (countries with a malaria eradication programme where the prospects of eradication are good under existing conditions) should be included those countries where the general health services were not sufficiently well developed to support the campaign. That would make it possible to increase the attention given by governments and international organizations to the need for further developing those services. The fourth category (countries without a malaria eradication programme where the feasibility of eradication and the justification for such a programme under existing conditions have to be considered on the basis of a realistic appraisal of the social and economic priorities and aspirations of countries concerned) should be divided into three sub-categories:

(1) countries where the government was willing and able to undertake an eradication programme;

(2) countries desirous of starting or continuing a malaria control programme;

(3) countries unwilling or unable to undertake antimalaria activities.

Such sub-grouping would obviate confusion - dangerous from the tactical point of view - among countries with different views on antimalaria operations.

His delegation supported the proposals made at the present meeting, for research carried out under the auspices of WHO. It was hoped, however, that research connected with the revision of the global strategy of the programme would also be intensified, particularly research on the role of the general health services. From the Director-General's report it would seem that the integration of antimalaria measures into the work of the general health services had been unsuccessful in many cases. That matter deserved most serious consideration, and WHO was better placed than any other organization to deal with it.

The work of modifying the global strategy of malaria eradication, as set forth in the Director-General's report, was only beginning. Further efforts were needed to classify malarious countries and territories in accordance with their ability to undertake antimalaria activities, as proposed by his delegation and taking into account the observations on that subject made at the present meeting. It would be useful if the Director-General would provide the Twenty-third World Health Assembly with a list of countries and territories, grouped under the various categories; that would help the Assembly to a clear understanding of the malaria situation in the world and a more useful appreciation of the success of the Organization's work. With reference to the remarks of the delegate of Italy, his delegation would also ask the Director-General to convene a co-ordination meeting or to get in touch with other organizations interested in antimalaria work, so as to avoid misunderstandings between organizations while the malaria eradication strategy was changing. Naturally, in that connexion it was necessary for the forms and nature of WHO's contribution to the work to be clearly defined.

He hoped that speedy attention could be given to the points he had mentioned and that they would be considered at the next Health Assembly.

Dr SULIANTI SAROSO (Indonesia) congratulated the Director on the comprehensive report presented in document A22/P&B/8 and said her delegation was particularly happy to note the emphasis on the need for a large measure of adaptability to local conditions.

Indonesia had been criticized for changing over from malaria eradication to malaria control. True, in Java and Bali the eradication programme had been very successful: within four years, the number of malaria cases had dropped from twenty million to two thousand a year, and there had been a great improvement in the general health of the population. However, it had not proved possible to continue the eradication programme without external aid.

The Director-General's report mentioned changes in the priorities of assistance from international and bilateral agencies: Indonesia had experienced that change last year when trying to obtain assistance. If WHO was aiming at global malaria eradication, international and bilateral agencies must be urged - as must governments - to give high priority to malaria eradication. Studies undertaken on the cost/benefit analysis of malaria programmes, as mentioned in the Director-General's report, would facilitate that.

She repeated the statement made in that connexion by the Indonesian delegation to the Twenty-first World Health Assembly, namely that such studies should be carried out in Indonesia as soon as possible.

Her Government realized that development projects on the islands alongside Java and Bali were greatly hampered by the high prevalence of malaria and was therefore most anxious to implement antimalaria programmes. The 1969 budget for malaria control - including the cost of DDT - was greater than the appropriation for the control of all other communicable diseases put together. The establishment of health centres throughout Indonesia had also been given priority.

Indonesia was in the category of countries with eradication programmes that were not making adequate progress, and the reasons for that had been manifold: financial, administrative and epidemiological. Indonesia was thus a suitable country for the implementation of operational and epidemiological studies. WHO would not have to provide additional funds for such studies, as a malaria team of nine had already been planned for Indonesia for 1969 and 1970 (only one malariologist had so far been recruited for 1969). The Indonesian delegation requested that the composition of the malaria team should be changed to include (in addition to a malariologist, an epidemiologist, an entomologist and a sanitary engineer) an expert in systems analysis, a statistician, a public health administrator and an economist conversant with health planning. The results of the studies could be used to mobilize resources from development funds, local as well as external.

In connexion with the use of DDT in malaria eradication or control, her delegation agreed with the Netherlands delegation that there must be more research into its effects. However, while waiting for another equally cheap and effective insecticide, whose effects were fully known, to become available, it might still be considered better in malarious countries to die of cancer in old age than of malaria in childhood. A distinction should moreover be made between the use of DDT in agriculture - where it entered the soil or the water and affected fish and other wild life - and in malaria control, where it was used in enclosed spaces.

Indonesia was preparing a longitudinal survey of health workers engaged in malarial spraying with DDT and of those in other fields, and hoped that financial assistance would be forthcoming from WHO.

Dr DURAISWAMI (India) paid a tribute to the Director-General and his associates for the excellent report before the meeting (document A22/P&B/8). As stated in document A22/P&B/1, the Indian national malaria eradication programme, which covered a population of over 500 million, had suffered setbacks in 1967 and 1968. Naturally, such a huge programme must have problems, and the most important were lack of adequate supplies of insecticides, and inadequacy of health service coverage to prevent the re-establishment of transmission in maintenance areas. Consequently, some states in central and northern India had had to reintroduce spraying to deal with focal outbreaks and to prevent further outbreaks in areas where the annual parasite incidence had risen above the level which could be dealt with by surveillance. It was important to remember that notwithstanding those setbacks, morbidity due to malaria had been reduced by 99.7 per cent. In 1953 with a population of approximately 350 million, there had been 75 million cases of malaria and 750 000 deaths in India; in 1968, with a population of approximately 525 million, only 217 625 cases of malaria had been reported.

The Indian Government was fully aware of the factors responsible for the setbacks and, as mentioned by the Secretary, had already taken steps to conclude the eradication programme successfully by 1976, providing everything went according to the revised plan. It had been decided that the Central Government would give full assistance to all the states in order to ensure a uniform pattern of implementation of the national malaria eradication programme throughout the country. It had also been decided that the Central Government would assist all states in the provision of adequate basic health service coverage to prevent the re-establishment of transmission in areas entering the maintenance phase. By June 1968 all necessary steps had been taken to ensure adequate supplies of insecticides for 1969-70. In the few pockets where Anopheles culifacies had developed resistance to DDT and HCH, Malathion was being successfully used. No reports of drug resistance had been received in the case of malarial parasites.

In accordance with the present strict criteria, spraying operations were being carried out over 28 per cent. of the country; investigations were being undertaken in those areas to establish the factors responsible for the persistence of transmission in spite of spraying and surveillance operations.

Annual conferences - attended by representatives of WHO, the United States Agency for International Development and others - were being held to co-ordinate antimalaria activities along international borders, at which common problems were discussed with neighbouring countries.

The Netherlands delegate had referred to the toxicity and possible carcinogenicity of DDT, and had suggested the use of Malathion, which was unfortunately more expensive. Developing countries such as India could not afford such insecticides, which also had to be more frequently applied than DDT. He therefore hoped that WHO and other agencies would undertake urgent research to discover alternative insecticides which were cheap, non-toxic and effective.

Dr MARDAN ALI (Iraq) said that the malaria eradication programme in Iraq had begun in 1957 with simultaneous coverage of the entire country. By 1961, almost the entire country had been in the consolidation phase, but by 1962 administrative difficulties had hampered the programme. In 1963 there had been a severe malaria epidemic in the southern part of Iraq and with that added setback it had been impossible to keep any area free of malaria, because of the extensive population movements. In 1964/65, the entire country was back in the attack phase, during which DDT residual spraying was the main weapon used.

Propsects for eradication appeared to be good. It was proving possible to interrupt transmission in the north and south by the use of OMS-33 and Malathion. The Ministry of Health had expanded health services throughout the country in order to maintain eradication.

In the light of the epidemiological assessment and of problems facing the programme, a five-year plan of action had been proposed and discussed by the Malaria Board and WHO advisers, to cover 1970-1975, with a budget of 2 896 000 Iraqi dollars, equal to more than 8 000 000 US dollars. The Government of Iraq would continue to give all possible support to the eradication programme, and priority to the development of basic health services. It hoped that the international agencies would intensify their efforts to improve the technical aspects of the programme, and accelerate the operation to ensure that the aim could be achieved as soon as possible.

UNICEF was trying to phase out gradually from the malaria programme, but his delegation hoped that it would continue its assistance in view of the critical condition of that programme.

Malaria eradication in the Eastern Mediterranean Region called for substantial efforts over a number of years. Eradication could only be achieved if the Government and WHO continued their support for the programme.

Dr DAS (Nepal) thanked the Director-General for his excellent report and was gratified to note that an increasingly large population was entering the maintenance phase. Table 1 of document A22/P&B/8 showed, however, that only 21.9 per cent. of the total population at risk had been covered. It was disquieting to note that more than 78 per cent. of the population in malarious areas was not receiving attention. If large areas remained unaffected by the malaria programme, cases might be imported into those already in the maintenance phase.

He stressed the need for an adequate infrastructure to take over surveillance work when the malaria eradication programme entered the maintenance phase. Nearly half the health development budget in Nepal was being used up by the malaria eradication programme, and he suggested that the provision of an adequate infrastructure be considered part of the programme, as otherwise setbacks were bound to occur.

Dr EL KADI (United Arab Republic) congratulated the Director-General on his excellent and comprehensive report, and noted that malaria was still one of the main health and economic problems in many countries.

Regarding the future prospects of malaria eradication in his own country, he said that the number of microscopically diagnosed cases reported had dropped from 83 201 in 1960 to 27 812 in 1963 and to only 1500 cases in 1968, with a ratio of about 1:20 000 of the total population, or, if the number of slides examined was considered, of 2 cases to 1000 slides.

Future plans included the establishment of more malaria stations and the continuation of training and research activities, in addition to the provision of supplementary equipment and transportation, so that the national control programme could become an eradication programme.

As there had been a substantial reduction in the number of malaria cases and in transmission, a reduction of insecticidal operations and their restriction to localities in urgent need was being considered. There would be a considerable expansion of early case detection and radical treatment in order to minimize transmission to a degree that would justify the minimal use of insecticides.

Dr VASSILOPOULOS (Cyprus) congratulated the Director-General and his staff on the extremely realistic report submitted to the Assembly.

Between 1945 and 1950 Cyprus had succeeded in eradicating malaria completely. Since then, intensive surveillance measures had been carried out to prevent any re-establishment of the disease. In 1967 a team of malariologists from the Eastern Mediterranean Region had recommended, after careful study, that Cyprus be placed on the list of countries considered as free from malaria. Last month a malariologist from the Regional Office had visited Cyprus and, after considering the existing situation and the surveillance programme, had expressed himself fully satisfied.

Dr SENCER (United States of America) commended the Director-General on his report, which was both thorough and candid and provided a constructive and realistic approach to the needed revision of the strategy of malaria eradication.

There had been a remarkable reduction in malaria prevalence in countries which had achieved or were achieving comprehensive antimalaria operations in malarious areas, and the reduction in disease had been accompanied by greatly increased economic development, particularly in agriculture.

However, in areas where reduction, though not eradication, had been achieved, eradication operations limited in time, which were successful in temperate zones, frequently proved less practicable in the tropics. The reduction in malaria prevalence had uncovered certain problem areas concerned with resistance in vectors, parasites, and people, and such problems would not be solved expeditiously. To discontinue or lessen operations would be to ignore the considerable economic and health gains achieved by reducing malaria to a level where it no longer constituted the prime community health problem. Agriculture communities had as a result become more settled and stable - but at the risk of introducing epidemic malaria with all the economic dislocation arising from the community sickness it entailed; that point had been mentioned by the Secretary in introducing the agenda item.

Where malaria eradication programmes were progressing satisfactorily, all requisite support should be continued until eradication was achieved, although the possible need for adjusting target dates from time to time should be recognized.

While the proposal to group countries into four categories was a progressive step, diseases were not controlled by frontiers, and attention and emphasis must be given to the regional approach, so that population movements did not reintroduce malaria into areas freed of the disease. That approach had been recognised by the Organization, and had also proved successful in the smallpox eradication programme.

Nothing could be truer than the statement on page twelve of document A22/P&B/8: "Administrative and financial difficulties continue to be major obstacles to the progress of malaria eradication". While technical difficulties often hindered progress in eradication efforts, more frequently it was administrative and financial difficulties that did so. He urged the Organization in allocating its resources to give serious consideration to the latter factor - the provision by governments of the administrative and financial resources needed to complete the job.

Under the heading "Research", the report stated that: "in order to reduce the cost and ensure the maximum efficiency of operations, organizational studies using modern techniques of management should be undertaken". Concern for vector, parasite and human resistance factors should not cause that important aspect of research to be overlooked.

The Indian delegate had called for additional research to find alternative methods of breaking the malaria transmission cycle. He supported that appeal and was pleased to see that the Organization was undertaking long-term studies in genetic methods of vector control. It was to be hoped that other operational studies would be undertaken on ways of reducing the amount of chemicals needed to achieve eradication.

His country continued to be interested in providing assistance with research, operations and commodity procurement to countries that were already carrying out malaria eradication programmes and those which had to sustain operations for their own protection.

In the light of the report, a comprehensive and detailed review of all on-going malaria eradication programmes supported by WHO must be made, to ensure that all available techniques in malaria operations were being effectively employed. Such a review should encourage flexibility in the phasing of attack, consolidation and maintenance operations.

He concluded by complimenting the Director-General and his associates once again on the realism with which the report had been compiled, and urged that it be accepted without reservation.

Dr SILVA LANDAETA (Venezuela) congratulated the Director-General on the excellent report before the Committee.

It should be borne in mind that every country had its own particular characteristics. In Venezuela, which covered an area of 912 050 square kilometres, 66 per cent. of the population of 9 500 000 had been in malarious areas; that had now been reduced to 15 per cent. but, despite the efforts made, it had not been possible to reduce the percentage further. The new strategy for the malaria eradication programme could be very useful in

Venezuela, where the malarious areas were divided into two categories - those where malaria could be eradicated, and those where it was "non-eradicable", the latter category, in its turn, being divided into "refractory" and "inaccessible" areas. To obtain more positive results, it was necessary to study and plan carefully the ways of obtaining the required budgetary resources, in order that all the campaigns that had been started might be successfully completed.

Another aspect that called for consideration was the effectiveness of insecticides. The new products might be effective for certain areas, but for the time being DDT was still the ideal insecticide, from the point of view of price as well as potency. For that reason, great care should be taken when criticizing its effects. Of the three uses of DDT - agricultural, domestic and health - the last-named was probably that which involved the least risk of contaminating the environment. The use of new insecticides should therefore be studied very carefully.

He gave data on the eradication campaign in Venezuela, indicating that the strategy of the programme in that country was based on the following elements: the campaign against malaria was carried out by the Rural Health Division, which formed part of the Department of Malariology and Environmental Sanitation, together with the divisions of sanitary engineering, rural housing, rural water supplies, and ancylostomiasis, and the school of malariology and environmental sanitation.

The budget of the Rural Health Division was included in that of the national plan, since the antimalaria campaign was not planned to cover a specific period.

The attack methods used in the eradication programme were determined by epidemiological evaluation, the receptivity and vulnerability of the areas, and the steps necessary to overcome existing difficulties. In accordance with these criteria, the following methods were used: spraying at three- or four-monthly intervals in attack and consolidation areas, using one gram of DDT per square metre; six-monthly spraying in areas that were vulnerable or receptive, and in areas in the maintenance phase, using two grams of DDT per square metre. In some areas in the attack phase a combination of DDT and HCH was used in adequate doses to control other insects.

In communities where the vector rested outdoors, spraying was carried out around the homes, using DDT (7 per cent.) dissolved in kerosene. In limited areas in the advanced attack phase, antilarval campaigns had been carried out; and there had been large-scale administration of antimalarial drugs to control the malaria parasite and end transmission. The "firefighting" technique was used where necessary, i.e., spraying and large-scale collection of blood-slides within an area of ten kilometres around a place where a case of malaria had appeared.

At present the 4-aminoquinolines were used for presumptive treatment; these were combined with primaquine for curative doses; and for cases where it was suspected that Plasmodium falciparum was reacting abnormally to chloroquine, long-acting sulfonamides were added.

From the epidemiological point of view, the following measures were taken: home visits and the taking of blood-slides at regular intervals amongst the inhabitants of areas in the attack and consolidation phases; active case-detection in vulnerable and receptive areas; passive case-detection in all phases, increasing in areas in the consolidation and maintenance phases; and permanent contact with all the country's health agencies in order to obtain the necessary information.

Dr HAPPI (Cameroon) thanked the Director-General for his report on the malaria eradication programme. As far as the African Region was concerned, however, the report, like similar reports to previous Health Assemblies, seemed to state in substance that the area was a dangerous one in which nothing could be done for the time being. The situation appeared serious and might indeed be worsening.

Cameroon had started malaria control operations in 1954, when a pilot area had been set up. Some five years afterwards it had been declared a failure, and all the money put into it had been wasted, which was a disaster for a country with limited resources.

Later, WHO had advised a pre-eradication programme. In that connexion he would merely recall that the Health Assembly itself had recognized that the word "pre-eradication" had no meaning. During that pre-eradication period Cameroon had endeavoured to develop its basic health services and to integrate antimalaria activities into their work. Geographical reconnaissance had been carried out, a case-finding and treatment system had been set up in one area, microscopists had been trained, and facilities for microscopic examination of blood-slides and for distribution of antimalarial drugs had been instituted. Some sixteen per cent. of the population had been covered by case-finding activities. Chemoprophylaxis had been given in schools and in maternal and child health centres. Some 150 000 people had been protected by DDT spraying in three towns, including 127 000 in the capital, Yaoundé, and larviciding operations had been undertaken.

in 1968, the malaria eradication services had been developed to prepare them for their future role, and epidemiological surveys had been carried out in schools in Boquito and Victoria as well as polyvalent surveys in two departments, primarily for detection of trypanosomiasis.

Evaluation of chemoprophylaxis in schools had been undertaken, along with special studies on Plasmodium falciparum strains resistant to chloroquine, carried out with the assistance of WHO. Results had shown that so far chloroquine resistance was not present. Trials of new drugs had been made in schools in Victoria and the results had been communicated to the laboratories that had supplied the drugs.

The various antimalaria measures had been backed up by health education to convince the public that it was necessary and possible to protect themselves against malaria with the means at their disposal.

As regards the training of personnel, in 1968 heads of health centres in the first and second health areas had been trained, as well as microscopists and sanitarians.

Studies had been made of vector resistance to DDT and had shown that, in northern Cameroon, where resistance had been reported, a dose of four per cent. DDT was sufficient to overcome it.

In all, some four and a half million population had been examined. Some 665 000 cases had been found, of which 250 had been fatal. Thus, the incidence had been found to be about eighteen per cent. - which was very high. He asked, therefore, whether WHO could not help his country to purchase, cheaply, sufficient antimalarial drugs to protect its child population - which was the most susceptible - until Cameroon was in a position to undertake a malaria eradication programme.

One of the most positive aspects of the Director-General's report was that it recognized that the malaria problem was different in different areas. Even in a single country, there were areas in which the anopheles could not be attacked by insecticides that had proved their worth in other areas. Thus, in Cameroon, DDT was effective in much smaller doses in the south than in the north. Since it had been proved that in the African Region malaria eradication programmes could not be undertaken for the time being, his country would like a special programme to be instituted for studying the methods and strategy for that region, including a study of the various insecticides that could be used. Such a programme might be carried out at the level of the Regional Office for Africa.

As regards basic health services, they had to be developed in order to deal effectively with any disease; once they were sufficiently strong, the malaria eradication programme would benefit from them, as would the programmes against other diseases.

The CHAIRMAN thanked those who had spoken for keeping within the time-limit suggested by the Executive Board and said that the discussion would be resumed at the afternoon meeting.

The meeting rose at 12 noon