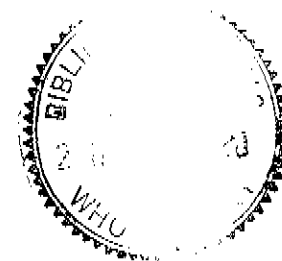


JOINT PROGRAMME COMMITTEE
ONCHOCERCIASIS CONTROL PROGRAMME
IN WEST AFRICA

Ninth session, Dakar, Senegal
29 November - 2 December 1988

REPORT

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1. OPENING OF THE SESSION: Agenda item 1

1.1 The ninth session of the Joint Programme Committee (JPC) of the Onchocerciasis Control Programme in West Africa (OCP) was held at the Teranga Hotel in Dakar, Senegal, from 29 November to 2 December 1988. The following members were represented: the African Development Bank, Belgium, Benin, Burkina Faso, Canada, Commission of European Communities, Côte d'Ivoire, France, Federal Republic of Germany, Ghana, Guinea, Guinea-Bissau, Italy, Japan, Mali, Netherlands, Niger, Norway, Saudi Arabia, Senegal, Sierra Leone, Switzerland, Togo, United Kingdom of Great Britain and Northern Ireland and the United States of America; also represented were the Sponsoring Agencies: the United Nations Development Programme (UNDP), the Food and Agriculture Organization of the United Nations (FAO), the World Bank and the World Health Organization (WHO), which is the executing agency for the Programme. The session was attended by members of the Expert Advisory Committee (EAC) and the Ecological Group (EG), and by a representative of the French Institute of Scientific Research for Development through Cooperation (ORSTOM). Austria, the Republic of Korea and the Mectizan Expert Committee sent observers. The list of participants is attached as Annex II.

1.2 The inaugural ceremony was held in the International Centre for External Commerce of Senegal (CICES), where, after an introductory statement by His Excellency Mr Maurizio Moreno, Ambassador of Italy to Senegal, representing the Chairman of the eighth session of JPC held in Rome in 1987, participants were addressed by His Excellency the President of the Republic of Senegal, Mr Abdou Diouf, in the presence of members of his Government, the diplomatic corps, the National Assembly, the Economic and Social Council and the local population. He paid tribute to the achievements of OCP and the generosity of Donors, and expressed his determination to promote the final objective of the Programme in Senegal and other countries of Africa and in the international community as a whole, urging the Programme's international and national staff to persevere in pursuit of that objective. Noting that the ninth session of JPC would be giving particular attention to "devolution" and the preparation of socioeconomic development projects in countries covered by the Programme, he said that those items should be treated serenely in the interests of finding practical and lasting solutions for the benefit of the affected populations.

1.3 The Director of OCP praised the President for the part he played personally in the development of the Programme, mentioning as an example the writing of letters to some 20 members of the Donor community asking them to continue their support, and for smoothing the way for the activities of OCP in Senegal. The Deputy Director-General of WHO conveyed the greetings of the Director-General to the President and his best wishes for the success of the session, thanking the Government and people of Senegal for their hospitality, and expressing WHO's pride in the Programme. He also noted the commitment of President Diouf to promoting the extension of the Original OCP area and underlined the exemplary collaboration between the Donor community and the Participating Countries as well as the never failing support of the Sponsoring Agencies.

2. ELECTION OF OFFICERS: Agenda item 2

2.1 Her Excellency Madame Thérèse King, Minister of Public Health of Senegal, was elected Chairman and Mr J.M. Corijn, Deputy Director, Multilateral Development Coöperation, Netherlands, Vice-Chairman.

3. ADOPTION OF THE AGENDA: Agenda item 3 (document JPC9.1)

3.1 The agenda was approved without comment (Annex I).

4. ADOPTION OF THE REPORT OF THE EIGHTH SESSION OF THE JOINT PROGRAMME COMMITTEE: Agenda item 4 (document JPC/8)

4.1 The report of the eighth session of the JPC was adopted without comment.

5. REFLECTIONS OF THE COMMITTEE OF SPONSORING AGENCIES: Agenda item 5

5.1 The representative of the United Nations Development Programme, reporting as Chairman of the Committee of Sponsoring Agencies (CSA), said that the half-way point in the third Phase of OCP was an appropriate time to take stock of the situation and reflect on the future direction of the Programme.

5.2 The three problems facing OCP early in 1987, spreading blackfly resistance to temephos, a rapid decline in the value of the US dollar, and uncertainty about the usefulness of ivermectin had now largely been overcome. Carefully monitored rotation of larvicides had brought resistance under control. Strenuous cost-cutting by OCP and a positive response by Donors for additional support had alleviated the financial crisis. The viability of ivermectin for focal treatment on a large scale had been established on the basis of field trials.

5.3 CSA took an optimistic view of OCP's future since the Programme now had most of the tools it needed. These included an efficient and functional management structure, a range of larvicides which could be rotated to keep resistance under control, and a long-acting microfilaricide capable of easing immediate suffering and removing the long-term risk of blindness for those infected.

5.4 In looking to the future, CSA had four main concerns: the funding shortfall, the process of devolution, socioeconomic development in zones where onchocerciasis had been controlled, and the search for a macrofilaricide. CSA hoped that JPC would give due attention to those concerns in order to ensure constructive solutions.

5.5 Securing the funding shortfall of US \$23 million projected for the remainder of Phase III would be a major challenge. The "traditional Donors" had been approached for the bulk of the required additional funding. Moreover, the World Bank was actively soliciting the support of new Donors, as evidenced by the presence at the session of two potential new Donors as observers. OCP was also continuing to explore ways of reducing costs.

5.6 Devolution had been a major agenda item at all recent OCP meetings. Until recently, onchocerciasis control had depended on aerial larviciding - a complex task that had to be implemented in a centralized way with regional coordination, and which had been done for Participating Countries by OCP. Limited focal treatment with ivermectin, based on epidemiological surveillance, was now a reality, and the Participating Countries were assuming more and more responsibility for its implementation. The concept of devolution was now being seen as progressive national participation in onchocerciasis control, with a gradual integration of epidemiological surveillance and ivermectin treatment into national public health systems alongside efforts to control other parasitic diseases.

5.7 CSA had proposed a Long-Term Strategy for socioeconomic development, endorsed by JPC at its seventh session in 1986, which consisted of two preparatory studies: a regional study to identify areas where onchocerciasis had been controlled and which had promising development potential, and a regional study of settlement experiences. The first, the Hunting study, had been completed and the report was available. The second was being launched. The third phase would consist of in-depth analyses at the national level to formulate specific development plans for onchocerciasis-controlled zones. It was important that resulting investment proposals be brought to the attention of government institutions dealing with national development planning, and be submitted, where appropriate, for consideration at future Consultative Groups or Round Table Conferences.

5.8 An effective macrofilaricide would contribute substantially to the long-term success of OCP. Although there was justified enthusiasm for ivermectin, treatment with the microfilaricide had to be repeated annually, and the need for supervised distribution during the initial stages would increase overall expenditure and make extra demands on OCP and national public health systems.

6. PROGRESS REPORT OF THE WORLD HEALTH ORGANIZATION FOR 1988: Agenda item 6 (document JPC9.2)
REPORT OF THE EXPERT ADVISORY COMMITTEE: Agenda item 7 (document JPC9.3)

6.1 The Programme Director expressed appreciation of the special attention of the WHO Director-General who had sent apologies for being unable to attend the session, but was represented by the Deputy Director-General, Dr M. Abdelmoumène, who had always shown great interest in OCP. He was also pleased that Dr G.L. Monekosso, WHO Regional Director for Africa, was present in Dakar as he had been in Rome in 1987. The presence of two such senior officials of WHO was a clear demonstration of its interest.

6.2 He said that 1988, as could be deduced from the statement by the Chairman of CSA, was the Programme's best year thus far, in spite of highest rainfall levels for 50 years being recorded in certain parts of the area, making some rivers flow for the first time in OCP history and necessitating extended larviciding operations. The challenge to vector control operations had been met, experience with the use of temephos, chlorphoxim, Bacillus thuringiensis H-14 (B.t. H-14), permethrin and carbosulfan in rotation to counter resistance in blackfly larvae had proven invaluable and improved accuracy in dosing had resulted in savings for the Programme in the amounts of the compounds used.

Since ivermectin had become available in October 1987 for initial trials in OCP, the Epidemiological Evaluation Unit, which until 1987 had been essentially concerned with monitoring the effects of larviciding, had cooperated with services in the eleven countries for extended distribution of the drug, and the results were encouraging. Progress had also been made in the small Socioeconomic Development Unit, which JPC had decided should come under the direct supervision of CSA; studies had been conducted, coordinated by the World Bank with the assistance of Programme staff.

6.3 There was no intention to give the impression that difficulties did not exist; the Programme, which now covered a total area of more than a million square kilometres with 50 000 km of river, had to monitor progress and provide surveillance over an area comprising a total population of some 25 million, some still suffering from onchocerciasis, some continually at risk, in constantly varying financial, socioeconomic and climatic conditions. For this it had about a thousand personnel of around 30 nationalities and a tight budget. It had been necessary, even with the improved exchange rate situation, to carry on the financial stringency and other economy measures reported in 1987, and there had been cuts in staff. There was a general meeting of all professional OCP staff every year, and smaller groups met more frequently to exchange ideas on, and contribute proposals for, tighter management and economy as well as on technical aspects.

6.4 On a more positive note, and in response to concern about continued availability of ivermectin, a meeting with the senior management of the manufacturer had confirmed that it would make the drug available free of charge to all countries with onchocerciasis programmes (not only OCP) for as long as they needed it.

6.5 Three senior members of OCP staff were leaving the Programme: Mr Marr, Chief of OCP Liaison Office at WHO headquarters, who had spent 18 years in West Africa and knew the Programme and the disease as well as anyone, was to retire; Dr Philippon, who had joined OCP in 1980 but had worked in onchocerciasis control before that in Burkina Faso and at the Onchocerciasis Research Centre at Bouaké, was returning to ORSTOM; Mr Pharand, who had dealt with the difficult question of financial management starting in 1986, keeping a close watch on currency fluctuations and other administrative issues, would also leave the Programme in 1989. He paid tribute to their exemplary efficiency and dedication.

Vector control, resistance, reinvasion and entomological situation

6.6 Vector control: The major event of the year was the inclusion of the Southern Extension area, the Senegal River Basin region in Mali and Northern Guinea in regular larviciding operations, which had been achieved in accordance with the revised (1987) plan of vector control operations (the final version of which was in fact less ambitious). This, together with selective treatment of the "western fringe" area in Guinea, increased by a third the total length of river under treatment. Selective studies had been made in the rest of the Western Extension area. Heavy rainfall had resulted in unscheduled increases in the use of larviciding, in difficulty of entomological evaluation due to inaccessibility of sites and in extensive breeding and activity of the fly. Resistance had persisted in parts of the core area.

6.7 Resistance to temephos had appeared in the Western Extension area on the Senegal river in Mali as from March and then on its main tributaries in Mali and Guinea in August, but appropriate aerial operations and monitoring of insecticide sensitivity had proved effective in coping. Also, the previous experience (1986, 1987) with the "rotation" of the five insecticides in use in OCP had proved invaluable in dealing with the problem. With the teletransmission of hydrological data and regular radio transmission also of other data, treatments could actually be suspended at times without risk and with more economical use of larvicides and aerial operations. Different "scenarios" using alternative larvicides had been elaborated for each river basin and they were constantly readjusted to season, vector species, risk of resistance and other conditions. In sum, it had been possible to fully meet the challenge of resistance in very adverse conditions; although it was "latent" in almost the whole Programme area resistance had not had any epidemiological effect. Nor was resistance to any other insecticide than temephos detected in the savanna S. damnosum species; the resistance to chlorphoxim affected only forest species and no resistance to other compounds was known.

6.8 Reinvasion which was customary in the margins of the Original area, had been particularly heavy and prolonged and accounted for most recrudescences in fly populations. In the core area early reinvasion occurred on the Bou and Marahoué rivers in Côte d'Ivoire and on Burkina Faso's border with Côte d'Ivoire at Leraba. Some areas of the Upper Sassandra basin in Côte d'Ivoire had been reinvaded in May even before the rivers began to flow. Although attenuated by treatment of Upper Niger, reinvasion of the Baoulé and Bagoé valleys in Mali was intense and coincided with that in Upper Guinea, thus tending to confirm the role of sources in Sierra Leone in the reinvasion phenomenon of the western margin of the Original area. Waves of reinvasion occurred exceptionally late (until October) on the Baoulé and Bagoé in Mali. The treatment of the presumed sources of reinvasion in the south of Togo was unexpectedly effective in preventing reinvasion in northern Togo and the north-west of Benin.

6.9 Except in the western reinvaded valleys the intensity of transmission of onchocerciasis in the Original area had not been affected by these phenomena, and vector control operations had been effective even in small areas where failures of treatment occurred for short periods. Larviciding had been deliberately suspended in certain areas for the purpose of ivermectin trials or other studies (Tienfala in Mali, Asubende in Ghana and Pendié in Burkina Faso) with close monitoring of biting flies and resumption of O. volvulus transmission. In particular, treatment had been suspended since January in Farako, Mali, and biting flies had not been recorded until November and then only in very low densities without transmission.

6.10 In the Upper Niger River basin in Guinea in the Western Extension area treatment had been as effective in 1988 as in 1987, with the full control of breeding sites, and some effect had persisted after suspension of larviciding until "flushing" by high river flows. The problems which occurred at the peak of an exceptional rainy season in the small river courses of the mountain areas in the Senegal River basin of Mali where new breeding sites appeared on tributaries had not been epidemiologically serious in spite of high biting rates, as there had been no transmission for more than a decade and the human parasite reservoirs were insignificant apart from some restricted stretches on main rivers.

6.11 The next stage of the extension to the west was being intensively prepared with the recruitment of 220 national staff and 43 teams for entomological surveillance in Mali and Guinea and the training of national entomological staff in Mali, Guinea and Guinea-Bissau. Two bases of operations had been established in Guinea, and one, ahead of time, in Guinea-Bissau. Negotiations were well advanced for the three bases in Sierra Leone. Hydrological stations were also being established and calibrated. Pre-treatment data was being collected rapidly at 135 capture points, and two networks were working in Guinea in addition to those in Mali and southern Senegal opened in 1987. Mapping of vector sites and evaluation of seasonal variations in abundance and distribution were well advanced in Guinea and in Sierra Leone, and there was mounting evidence that Simulium species in middle Guinea were not transmitting onchocerciasis to man, but that the forest species S. soubrense played a part in the transmission of the savanna form of the disease in Sierra Leone relatively far in the South.

6.12 Excellent results had also been obtained in the Southern Extension area in southern Togo, the Volta region in Ghana, and Benin, where there were large rivers with important breeding sites; control had been more difficult than in 1987 because of the exceptional rainfall, yet treatment had virtually stopped transmission, and reinvasion had been checked in northern Togo, an unprecedented achievement for OCP.

6.13 OCP had done more than was planned in exceptional hydrological conditions, without incurring additional expenditure, by considerably improving the cost/benefit ratio in insecticide use and flying time for aerial operations. In fact, it had been possible to catch up on much of the delay resulting from the financial crisis and the sudden spread in the savanna vector species of resistance to temephos in 1986-87. Instead of an estimated three years, control activities would now be only one year late.

6.14 The search for new insecticides continued. Chlorphoxim would no longer be produced as from 1989, but new formulations particularly of B.t. H-14 were being developed; two of the latter were promising and would be field-tested. Among the pyrethroids, cyphenothrin had been disappointing, too toxic for non-target organisms and not effective enough against Simulium resistant to temephos. Tests with pyrachlofos were hopeful. Larvicide susceptibility tests continued at all stages of operations all over the Programme area. Increased use of treatment modelling was expected to produce further improvements in cost-effectiveness, particularly in larvicide concentrations and aerial operations. Routine aquatic monitoring was pursued by OCP staff and by national teams, especially in foci where less selective insecticides (permethrins and carbosulfan) were used; the national teams also took part in the screening of new products.

6.15 The entomological staff of OCP collaborated in ivermectin trials by studying transmission rates before and after administration, as well as vector population dynamics and vectorial capacity, as a preliminary to the eventual cessation of treatment. Xenodiagnosis was used to determine the potential infectivity of vectors biting persons treated with ivermectin and those who had not been exposed to transmission for a long time but who were still slightly infected.

Epidemiological situation

- 6.16 The ivermectin community trials and the epidemiological mapping of the Western Extension have held the attention of the Epidemiological Evaluation Unit during the past year. To cope with the increased work plan, mainly the ivermectin trials, the unit had increased its output four to five times during the past working year, and had in the first three months of the present working year achieved almost as much, capitalising on the newly acquired know-how.
- 6.17 Little work was conducted in the Original OCP area where a major evaluation effort (90 villages) was planned for January 1989. During the past working year 19 follow-up villages were evaluated in the well-protected central OCP area of which 14 using the detailed protocol. The trend of Community Microfilarial Load (CMFL)s and incidence of infected children born after the start of the Programme presented the same picture as that of last year with regular decrease of the CMFLs and no new foci of relapsed transmission.
- 6.18 A collaborative effort between the ophthalmologist and the Biostatistics and Information Support Unit had resulted in the development of a novel analytical method for describing patterns of ocular onchocerciasis and the intensity of infection in communities of different bioclimatic zones. This analytical method was used in the mapping of the Western Extension area to estimate the number of people blinded by Onchocerca volvulus.
- 6.19 Apart from the advent of ivermectin the most important development was the epidemiological mapping of the Western Extension area, with four major objectives: to describe the distribution and severity of onchocerciasis, to select priority areas for ivermectin treatment, to collect baseline data for the evaluation of the impact of larviciding and ivermectin treatment, and to provide a reliable estimate of the number of people infected and blinded by Onchocerca volvulus. This work was accomplished by national teams. The excellent results of the quality control tests of the Guinea and Mali teams had been reported; the latest comparison of the Senegal teams' performance with the OCP standard was of the same quality. Work was starting in Guinea-Bissau and Sierra Leone.
- 6.20 The Western Extension area had been divided into ecologically and entomologically homogeneous zones; in each zone a number of river stretches was selected according to the size of the human population of the zone; for each selected stretch four villages were evaluated (two front-line and two further from the river); this was completed by the survey of a number of non-representative villages. In all, 338 villages had been studied and would constitute the base-line data for the evaluation of future larviciding and ivermectin distribution activities.
- 6.21 As for the distribution and severity of infection, mapping had distinguished areas at high risk of onchocercal blindness (in the upper Niger basin of Guinea, the Bakoye and Niger rivers of Mali, the Gambia river of Senegal); hypoendemic areas (in the north of the Extension area, the mountain region and the forest areas of Guinea) with few if any lesions due to onchocerciasis; and mesoendemic or less clearly defined zones. It had been estimated that in the area surveyed 700 000 were infected, 100 000 heavily infected (more than 64 mfls per skin-snip) and 10 000 blinded by onchocerciasis. The areas at high risk of onchocercal blindness had been thus selected for mass treatment with ivermectin to interrupt in a very short span of time the process leading to eye lesions and blindness.

6.22 By identifying the high-risk zones in a non-treated area for priority use of ivermectin, OCP was carrying out a task of major public health importance for the pinpointing of onchocerciasis control and concentrating operations for maximum effect. Because the drug did not seem to kill the adult worms it should be given yearly for a minimum of 15 years and for a longer period of time if transmission were not interrupted. This long-term commitment required a careful targeting of the treated population to avoid waste of resources and to ensure adequate coverage over time. For this reason detail mapping of each zone selected for ivermectin treatment had been completed. Without detail mapping of the Milo and Gambia rivers a much larger population would have been treated. In the Niger river area, because of a peculiar distribution of the infections, not only many low infected villages would have been treated, but what was worse a number of highly infected villages would have been missed.

Administration

6.23 With OCP's continued efforts to reduce costs, efficiency and productivity had increased in 1988. A management seminar had again enabled professional staff to contribute to that process (details were given in document JPC9/INF/DOC.1). Fluctuations in the US dollar exchange rates had had a beneficial effect: the budget had been prepared on the basis of 298 CFA francs to the dollar, and a gain of almost US \$100 000 had been made after fluctuations of around 280 to around 310 CFA francs to the dollar. Monitoring continued in order to avoid losses on the various currencies used in OCP.

6.24 The Programme had done more than anticipated in the Plan of Action for less than the approved budget of US \$29 466 000, so that an unobligated balance of slightly over US \$700 000 was foreseen for 1988.

6.25 A computerized administration and finance information system compatible with those of WHO headquarters and regional offices had been installed. The budget had been decentralized, making OCP units more accountable. Monthly reviews had improved the control of expenditure and commitments.

6.26 Professional staff reductions had reached 22% and those of General Service personnel 15%, but staff costs had increased by 15.3% over the approved budget provision owing to important salary increases to the General Service staff members, ranging from 9% to 103% in Participating Countries. International General Service salaries were established by the United Nations system and OCP had to comply.

6.27 The OCP vehicle renewal programme delayed in 1987 had resumed and 32 new vehicles had been ordered; those considered no longer economical were offered for sale locally. A total of 4 776 000 km had been covered in the last year. Accidents had decreased by 27% thanks partly to safe-driving programmes organized in 1988.

6.28 Larvicides, drugs and other supplies and equipment had been procured for over US \$9.5 million, of which US \$2 million locally. Reserves of larvicides had been built up to nearly 20% of annual requirements. It had become possible to advance the purchase, scheduled for 1989, of vehicles for national teams.

EAC comments

6.29 The report of EAC was introduced by members of the Committee; recalling OCP's mandate to reduce onchocerciasis to a tolerable level and prevent recrudescence, and noting its excellent achievements, comments could be limited to a few critical points. The use of ivermectin as a second arm for OCP beside vector control was still experimental. It remained to be seen whether it was applicable in the whole Programme area and what its effect on transmission and epidemiology would be i.e., to what extent it might replace vector control. Meanwhile vector control must continue, and the search for other larvicides should not be abandoned. Research for a macrofilaricide must also go on; the company producing CGP 6140, the only compound left "in the pipeline", should be encouraged to speed up investigations, and diversification should be ensured. EAC was to be supplemented by one or two experts in drug manufacture and pharmacology.

6.30 EAC stressed the need to provide Participating Countries with the means to continue operations in the field; to monitor changes in vector conditions and disease patterns due to deforestation in several parts of the Programme area; and to obtain assurance from the WHO Regional Office for Africa about (1) the development of health services to assume the added tasks of onchocerciasis control and (2) the guarantee of services provided on an international regional basis. Finally, fulfilment of the last part of OCP's mandate would depend, beyond OCP and the WHO Regional Office, on more efficient cooperation between all international organizations concerned.

6.31 EAC commended OCP's skill in using insecticides in rotation, which had averted the threat of resistance felt two years earlier. With the cessation of production of chlorphoxim in 1989, screening of other candidate compounds should continue (other formulations of B.t. H-14, new organophosphorus compounds and a new pyrethroid).

6.32 EAC was concerned that difficulties might arise as a result of the handing over of aerial operations to a new contractor; the administration should take all necessary measures to ensure that the take-over was smooth.

6.33 EAC was also concerned about the apparent increase in distribution of savanna species of Simulium in the OCP area due undoubtedly in large part to the destruction of rain forest. In Sierra Leone it could well affect the southern limit of the Extension area. Meanwhile there were indications that the forest species S. soubrense might be a vector of the savanna form of the disease with obvious serious implications for the wider Programme area.

6.34 A member of the Ecological Group of EAC commended OCP on the efficiency and economy of larviciding, which had obviously reduced the pesticide pressure on aquatic environments, and welcomed the efforts of national hydrobiological teams to produce annual reports on their aquatic monitoring and evaluation work. He reported that studies of carbosulfan had shown some toxicity for aquatic invertebrates, but insignificant effects on fish, in field conditions; studies and literature searches would continue, as would research on possible side-effects of carbosulfan, permethrin, and possible replacements for chlorphoxim, as well as comparisons of short and long-term monitoring techniques. It was confirmed that pyrachlofos and cyphenothrin would be studied as replacements for chlorphoxim and permethrin respectively. Testing of insect growth regulators (IGR)s had been discontinued. The Group would henceforth place more emphasis on current vector control and concentrate on some of the more critical monitoring activities, recognizing the need for a move in the direction of more predictive work.

6.35 Attention was drawn to an article on ten years of monitoring of fish populations in OCP published in the British journal Chemosphere, noting the absence of evidence of any significant environmental impact of OCP insecticides.

Discussion

6.36 The WHO Regional Director for Africa expressed satisfaction with the work of OCP under the Director's able leadership, and praised the efficiency and economy of operations. The use of ivermectin and its promise for "devolution" and economic development were noted with great satisfaction. Coordination with such programmes as the Expanded Programme on Immunization and malaria control, conducted within the framework of district health services and with the support of the WHO intercountry team in Bamako, should be considered. The Regional Office would become more closely involved in socioeconomic development.

6.37 He confirmed that instructions had been given that the Regional Office's contribution would be paid as soon as possible.

6.38 Representatives of Participating Countries and Donors congratulated the Director of OCP and his staff on managing a Programme of increased scope and complexity with perseverance and efficiency, praised the clarity of documentation for the session, and welcomed the evidence that ivermectin was an important new resource for OCP. The events of 1988, and particularly the combating of resistance and of reinvasion were noted as was the success of the ivermectin trials. The interest of the WHO Regional Director for Africa and the promise of support were welcomed.

Safety of larvicides and fly-trapping

6.39 The representative of a Participating Country was concerned about safety and efficacy, as regards larviciding. Assurance was requested that the "biodegradability" of larvicides was such as to avoid adverse effects of accumulation in mud and sand in the lower reaches of rivers.

6.40 The Programme Director recalled the statement by the chairman of the Ecological Group, in Niamey in 1984, that OCP was the best-monitored ecological international programme in the world. The phenomenon of "dilution" of larvicides as rivers ran to the sea was known, but there was no substantial evidence of an increase in the risk of resistance. The insecticides used in OCP had all won recognition in other programmes and by the WHO pesticide evaluation scheme for their lack of toxicity for humans and mammals, and they had been subjected to further trials in OCP for non-toxicity for fish and invertebrates and other non-target organisms.

6.41 The representative of the Ecological Group stated that analyses of concentrations in mud and sand of rivers revealed above all the presence of agricultural pesticides; the compounds used in OCP were not persistent residual insecticides. The impact was noted on application and temporary disruption of the ecosystem was to be expected but rapid recolonization was the rule. In the OCP area, where the main concern was for fish, no mass mortality even at that acute stage had ever been reported in spite of close surveillance. The levels fatal for invertebrates were considerably lower than for man.

6.42 Since pollution studies had started in the early 1970s, it had been recognized that "dilution was the solution for pollution", and the more potent chemical insecticides were only used in OCP when rivers were in full flow; B.t. H-14 was used in the dry season and in low rivers. Many studies of photosynthesis and biodegradability of pyrethroids and hydrolysis of organophosphorus compounds had given satisfactory conclusions on safety. Carbosulfan had been the subject of most concern, but it had given good results in studies as mentioned in the EAC report. The accumulation of chemicals in the food chain was watched most carefully. The molecules could, in theory, accumulate in fish and did so in static conditions (e.g. in the laboratory), but in rivers they were metabolized and excreted.

6.43 Temephos and B.t. H-14 were among the few products that were so safe that they had been approved for use in water destined for human consumption - for example to prevent infestation of jars of drinking-water in parts of Asia and in connection with the control of Aedes aegypti.

6.44 The same representative asked further about the techniques applied in the study of biodegradability of pesticide residues, and inquired why other methods such as chromatography were not used in OCP to give a good estimate of their conveyance in air and water. OCP might wish to involve national institutes in Africa in such studies, e.g. one situated in Sierra Leone. The member of the Ecological Group replied that in the case of the OCP larvicides none of the studies performed had shown appreciable persistence of residues. That was particularly the case with temephos. The pyrethroids had been thoroughly analyzed before use in OCP. So far, the Programme had relied on studies already carried out in the USA, but the offer of collaboration with the institute in Sierra Leone was appreciated. A physical model to determine how long it took an insecticide to kill target organisms had been developed; the results would be a further tool for OCP, which had also, since its inception, carried out chemical dosage studies (including chromatography at an institute of toxicology in the Netherlands). The Centers for Disease Control of the United States National Institutes of Health, in Atlanta, Georgia, USA, had been involved in animal studies for the Programme. Dispersion studies had also been refined for the purposes of OCP.

6.45 The question of safety and efficacy was also raised in relation to fly control; why was more priority not given to resting sites of Simulium, why were the modern marking techniques not used to trace vector movement, and, in that context, why are humans used for fly-catching rather than the aluminium traps? It was explained that as the Simulium species responsible for human blinding onchocerciasis could travel anything from a few metres to 600 km before resting, tracking represented a phenomenal challenge. Marking with modern devices (isotopes) or dyes would be impracticable with such small vectors, the best hope would be the identification of less than one in 1000 marked flies. Thus in present conditions larviciding of source rivers gave better indications. Although adult fly control was possible it was very costly in terms of insecticide use and aircraft flying time, and studies had shown its effect to be very temporary if noticed at all. On the question of the morality of the "human fly-trap" the Programme Director explained that the time taken by a fly to rest before biting was sufficient to catch the fly before it bit; the fly-catchers were in any case under continuing medical monitoring as other staff of OCP and ran no extra risk. It was essential to distinguish man-biting blackflies from those biting cattle. The mechanical aluminium trap was not selective and caught all species indiscriminately with the aid of an adhesive substance which killed and damaged the flies, and made them difficult to dissect. However, OCP kept the matter under constant review.

Forest onchocerciasis

6.46 Representatives of Participating Countries, noting the comment of EAC on the dangers of deforestation in terms of behaviour of savanna and forest species of Simulium, speculated on the effects of survival of forest species in the savanna and vice versa, and their interaction. Although forest onchocerciasis caused less blindness than the savanna form, it gave rise to some 2%-3% of cases as reported by Côte d'Ivoire, and was increasingly recognized as a cause of serious debility. Also the flies were so numerous as to be a nuisance. While recognizing that the control of forest onchocerciasis continued to be excluded from the terms of reference of OCP, the nuisance element was very important as a hindrance to development, affecting thousands of acres of palm and other plantations. There was still too little evidence of what happened when savanna species moved to forest areas. The USAID/Côte d'Ivoire report, completed since the eighth session of JPC, confirmed the epidemiological situation and would further substantiate claims for more serious consideration of forest onchocerciasis within OCP. Ivermectin could be used to treat those affected but would not reduce the fly population.

6.47 A member of EAC warned of the danger of confusion: what OCP had to reckon with was the situation developing in formerly forested areas after deforestation. He acknowledged that forest species were a considerable nuisance. Bed nets and other measures were used by populations for protection against insects generally, with often incidental reductions in malaria cases. OCP staff had informed populations in forest areas that bites and discomfort did not necessarily mean onset of onchocerciasis. In the era before OCP, desertion of villages had occurred because of blindness; fly-bites had been and were still an everyday inconvenience in many parts of the OCP area. The Director of OCP recalled that JPC had constantly reminded OCP to keep the question under review, and it did so, noting that the boundaries between forest and savanna areas were constantly changing.

6.48 In reply to a question by the representative of a Donor Country, it was stated that in areas in which treatment had been suspended as a result of interrupted transmission, in Mali and Niger, biting had resumed, but without danger of infection. The discomfort had been accepted by the local people without causing a fresh exodus.

Diagnosis

6.49 In reply to a question from a Donor representative about immunodiagnostic tests, it was confirmed that while OCP was following with interest the development of new techniques, microscopic examination of skin-snips was still essential as any new case was important. The representative urged that developments in diagnosis should be given high priority.

Administration

6.50 Noting that the aerial operations contract was due for renewal, and referring to the relevant section of the EAC report, representatives of Donors and Participating Countries stressed the need to ensure that a possible take-over was prepared sufficiently early, was smooth and did not delay the Programme as a result of lack of the new contractors operational experience in the OCP area. Assurance was sought that WHO regulations on the matter were sufficiently flexible to ensure this. The Director of OCP and the WHO Legal Counsel assured the participants that the expressions of concern by EAC and JPC at its eighth session had been taken seriously. The Director-General of WHO had given the

matter his personal attention. OCP had naturally been consulted about the drafting of the tender document, and would be consulted further at all stages of bidding; bids would be considered on technical and administrative as well as financial grounds and a decision would be taken in June 1989 after due consultation.

6.51 Representatives of Donor Countries remarked on the increase in salaries for staff of OCP, particularly General Service staff. Noting that national staff in countries had received the "mobility allowance", one representative commented that subsidies should not be applied "across the board" but as a bonus according to an incentive scheme. It was unfortunate that when efforts were made to mobilize financial support for the Programme so much went on salary increases that were beyond its control.

Role of National Onchocerciasis Committees, and collaboration with non-governmental and other international organizations

6.52 In reply to a question from the representative of a Participating Country the Programme Director recalled that since 1982, when collaboration had started with national authorities in the preparation of "devolution", national committees had been formed which were now responsible for much of the work. OCP was a programme for the nationals in the sense that it relied on such committees for its contacts without burdening governmental coordinating mechanisms.

6.53 In reply to the same representative, who described the positive experience of his country in its relations with non-governmental organizations, it was explained that in OCP's tripartite structure such collaboration would have to be coordinated in countries with the agreement, and on the initiative, of national authorities. OCP would be pleased to hold meetings with such organizations on areas for cooperation once such agreement had been reached.

6.54 On the question of collaboration with individual organizations represented in the CSA, the Director of OCP replied to the representative of a Donor Country that each organization, in addition to its normal liaison arrangements with WHO, had appointed a staff member specifically concerned with OCP matters. There were CSA meetings four or five times a year. Coordination was therefore fully satisfactory.

6.55 Noting the pertinence of the questions asked, the Director thanked JPC for its confidence and encouragement.

7. RESULTS OF IVERMECTIN TRIALS: Agenda item 8

7.1 Distribution of ivermectin had started during 1987 and was being extended as planned during 1988.

7.2 The objectives of ivermectin trials were threefold: to assess the risk of serious adverse reactions; to determine the potential for control of onchocerciasis transmission; and to develop and test an appropriate delivery system.

7.3 Coverage. Trials had been undertaken in eight areas distributed throughout the Participating Countries. The first round of treatment came to an end in May 1988. A second round of treatment had been completed in four areas and was under way in a fifth.

7.4 During the first round of treatment, nearly 50 000 people had been treated, a coverage of 60% of the census population. Non-treated persons included children below the age of five years, currently excluded from treatment, and absentees. During the second round of treatment coverage had remained the same or been improved in three areas while it was reduced in one area, and there had been an increase in coverage in the most infected villages in each trial area. The combined coverage of two rounds of treatment was 77%; discounting those under five, this coverage increased to 92%. In most villages children under five were infected only lightly or not at all.

7.5 Adverse reactions. During the first round of treatment in villages with resident monitoring 9.0% of those treated showed some type of adverse reaction, but only 0.24% had severe adverse reactions which rendered them incapable of executing normal activities. The most frequent serious reaction was severe symptomatic postural hypotension, the most dangerous, dyspnoea.

7.6 The severest reactions occurred at the beginning of the first trial in villages where prevalence and level of infection were high. There was a good correlation between number of microfilariae per skin snip and incidence of reported adverse reactions. Preliminary data indicated a considerable decrease in incidence of reactions following the second round of treatment, which appeared to be the result of a real decrease in microfilarial load, although the ready acceptance of the drug and the population no longer reporting reactions they had learned to expect after ivermectin treatment, might also play a role.

7.7 Of the 75 000 persons treated so far one person had died within 72 hours of ivermectin treatment. This was an epileptic child whose condition had been hidden from the treatment team and who had suffered a fit 15 hours after treatment. In the period 4-14 days after treatment there were two deaths, one due to chronic anaemia and the other to complicated pneumococcal meningitis. None appeared to be directly related to ivermectin treatment and all details had been sent to the pharmaceutical company as required.

7.8 On the basis of the community trials, it was concluded that ivermectin was safe for use in large-scale treatment of onchocerciasis provided that an adequate level of monitoring of severe adverse reactions could be assured for a period of three days following treatment.

7.9 Effect on microfilarial loads. Ivermectin was a very effective microfilaricide. In two trial areas there was a reduction of microfilarial loads in the skin of 96-99% two months after treatment, although there were a few patients who did not respond. Patients had reported feeling much better and had requested further treatment.

7.10 In one of the trials, skin microfilarial loads had increased to 46% of the pretreatment level after one year, a significantly faster increase than was reported from the clinical trials. If that was confirmed by results from other trials, which would be available early in 1989, consideration might have to be given to reducing the interval between treatments with ivermectin.

7.11 There was a major reduction in ocular microfilarial loads, but because the process was relatively slow it provoked no local reaction in the eye.

7.12 Transmission. Studies were continuing in four of the trial areas. The transmission component had been dropped from the other trials when entomological data had demonstrated the presence of large numbers of animal *Onchocerca* larvae in the vector and major changes in the composition of the vector population.

7.13 Preliminary analysis of the results from three transmission trials indicated that large-scale treatment with ivermectin could result in a major reduction in transmission which would also benefit the non-treated population in the area. A second treatment appeared to result in an additional reduction in transmission, but that required confirmation.

7.14 A number of studies were under way to investigate the probable long-term impact of ivermectin treatment, for example, to determine whether it could replace vector control as a means of onchocerciasis control and whether it would be possible to eliminate progressively the parasite reservoir. An epidemiological model was currently being tested for use in predicting future developments. The results would be presented to EAC at its next session.

7.15 Delivery system. Since ivermectin was a microfilaricide, a minimum of 15 years treatment with ivermectin alone or in association with other methods might be needed, and efforts would have to be made to ensure that treatment was sufficiently prolonged in target populations.

7.16 National teams were becoming increasingly involved in ivermectin distribution and were now taking the major responsibility for delivery and monitoring in the Western Extension area. That trend would continue in the future.

Discussion

7.17 JPC welcomed the encouraging results of the ivermectin trials which had demonstrated that the drug was reasonably safe and well accepted, and had a marked influence on the transmission of onchocerciasis.

7.18 Representatives of Participating Countries and Donors asked about the procedure followed in OCP trials in respect to arrangements for distribution and administration of the drug and the need for continued vigilance. The Director of OCP replied that only after intensive research at the development stage and various clinical trials had shown ivermectin to be non-toxic had it been approved for large-scale administration in 1987 by the French authorities. Field trials had followed, and with the positive results confirmed by those tests in over 50 000 people, the drug had now emerged from the experimental stage. Vector control would continue as further studies determined minimum effective ivermectin dosage and while national teams were trained in its distribution and administration.

7.19 Regarding the cost of distribution of ivermectin, the Director stated that, on average, the cost of a drug accounted for 15% of the total, the remaining 85% covering staff costs, transport and administration. It was expected that the service costs would eventually be met in total by the existing basic health services in countries probably through financial assistance from Donors on a bilateral basis.

7.20 The generous offer of a pharmaceutical company to supply the required quantities of ivermectin free of charge for as long as was needed was greatly appreciated. It was noted that the agreement between the company and WHO had been negotiated in accordance with the rules of procedure for all such agreements between WHO and industry.

- 7.21 JPC recognized that appropriate delivery of ivermectin would be crucial and would have considerable implications for devolution. OCP was urged to test and develop a number of delivery options, paying due attention to costs, and to continue to encourage the increasing participation of national distribution teams. A manual on the techniques used during distribution was already available. OCP should continue to explore the possibility of collaboration with non-governmental organization for the purpose of distribution, but with the full involvement of national authorities.
- 7.22 Although ivermectin treatment might have to be continued for the life-span of adult worms, careful epidemiological mapping would enable treatment to be focussed where it was needed, and once treatment strategies had been formulated, and the first round of treatment completed, costs of subsequent treatment rounds would fall.
- 7.23 In connection with the potential effect of ivermectin on transmission, it was recalled that the long-term objective of OCP was to reduce onchocerciasis to a level where it ceased to be a problem for public health or socioeconomic development, not to eradicate the disease.
- 7.24 OCP would continue to monitor levels of compliance for succeeding rounds of treatment, while continuing to publicize the benefits of the treatment.
- 7.25 In answer to a question from the representative of a Participating Country, the Project Manager of OCT said that the only reported effect of ivermectin on nematode worms was paralysis, which resulted from blocking of nerve and muscle function. A single dose did not kill adult *Onchocerca* worms but did temporarily stop microfilaria production by the female. Several explanations had been put forward for the apparent "macrofilaroplegic" effect. (1) The presence of paralysed microfilariae in the uterus of female worms might stop further production. (2) Paralysis of the uterine muscles of the female might lead to a similar build-up of microfilariae and stop further production. (3) As production of microfilariae only occurred after fertilization, production would cease if paralysed male worms were unable to fertilize females. (4) The drug might, as it did in some insects, inhibit release of a hormone which controlled egg production in the female. None of those hypotheses had been proven.
- 7.26 JPC recognized that further research was needed to answer a number of questions concerning the long-term impact of ivermectin treatment on humans and on the transmission of onchocerciasis and to determine the appropriate balance for onchocerciasis control between ivermectin treatment and larviciding.
- 7.27 The Director of the WHO Parasitic Diseases Programme (PDP), in answer to the representative of a Donor Country, said that there was no information on the possibility of resistance to ivermectin in humans. There were two reports in the literature of resistance in cows following repeated ivermectin treatment. The report that some persons treated with ivermectin had not responded would need further study.
- 7.28 No serious secondary effects had been recorded in animals following widespread veterinary use over a number of years. OCP would monitor for such effects in humans.
- 7.29 Ivermectin did not produce such a rapid kill of microfilariae in the eye as did diethylcarbamazine, so that there was no increase in opacity following treatment - in fact eyesight improved, although the exact reasons for that were not yet known.

7.30 In answer to questions of the representatives of two Donor Countries, it was explained that the effect after treatment with ivermectin was similar to that seen with diethylcarbamazine. The drug reduced the total reservoir of microfilariae in the human population available to biting flies, thereby reducing ingestion and hence transmission. Transmission did not cease since there was a residual microfilarial load in treated persons and a continuing high microfilarial load in non-treated persons. There were also many changes in vector populations which could affect transmission. S.dannosum was a complex of species and the identity and age of species present at any one time in an area could affect infectivity and susceptibility to insecticides. Such changes were also related to climatic factors, in particular to rainfall levels.

8. DEVOLUTION: Agenda item 9 (documents JPC9.9(A) and JPC9.9(B))

8.1 JPC noted that the term "devolution" had itself evolved since first used in 1981 by the Independent Commission to describe the transfer to the Participating Countries of the activities that remained after cessation of OCP operations, a process then expected to commence in 1992. It had now come to be seen as "progressive national participation". To the basic tasks of epidemiological surveillance to be taken over by countries had been added the distribution of ivermectin which had filled the gap in technology for maintenance of onchocerciasis control.

8.2 In early 1988 after the World Bank had been requested at the eighth session of the JPC, to take the lead in mobilizing financial support for devolution, a consultant had visited Burkina Faso and Mali to determine the tasks required for the prevention of recrudescence of onchocerciasis. He confirmed that the availability of ivermectin had rendered entomological surveillance unnecessary and that national maintenance activities should be limited to epidemiological surveillance and ivermectin treatment, the former to detect infection, the latter to control any recrudescence. The consultant had also confirmed that such surveillance and maintenance should be organized within national health systems and integrated with activities to control other diseases.

8.3 The World Bank had started a series of sub-sector reviews to assist the Participating Countries in defining organizational, financial and, together with OCP, technical requirements for such integration. The first such review had been completed in Burkina Faso, where a programme linking onchocerciasis and trypanosomiasis surveillance had been developed which was feasible, effective and economical. A national devolution committee had been formed there, and national teams trained. It was estimated that the devolution scheme in Burkina Faso would cost some US \$1.98 million over five years. Insofar as current investments in public health activities in West Africa were limited and disease control measures were often inadequate, there was a strong need to support the preventive services of public health systems responsible for collective activities such as immunization and endemic disease surveillance. CSA would encourage investment to support programmes on the Burkina Faso model.

8.4 Similar studies were under way in Mali and Niger, the other two countries which had already prepared devolution plans for the eighth session of JPC.

8.5 OCP had produced technical documents to guide countries in surveillance procedures in the form of manuals for simple epidemiological surveys and ivermectin distribution including the monitoring of adverse reactions. OCP would continue to train staff and revise the manuals as necessary and would cooperate with national teams in epidemiological mapping and distribution of ivermectin. It would also cooperate with Mali and Niger, and eventually other Participating Countries, in developing appropriate devolution plans.

Discussion

8.6 Representatives of Donor Countries congratulated Burkina Faso and the World Bank on the model plan and noted that with progressive national participation, the success of the OCP-conducted special control programme would eventually be maintained by national health systems. In some countries the infrastructure was in place, in others its development would take time. Early consideration of the plans of some countries reflected a relatively advanced stage of control and surveillance. While 1992 was the date originally set for devolution in three countries, the gradual process had already started in all countries in the area. OCP's role would be to provide and coordinate technical and material support, including relevant training as each country's plans developed.

8.7 In expressing their support to national programmes for devolution several Donor Country representatives noted with satisfaction the model plan approach. They said that support would depend on the progress made by OCP in the various parts of the Programme area coupled with the priorities determined by the governments together with their bilateral partners. It was hoped that ministries of planning and finance would provide national support. The existence within public health services of an adequate infrastructure and the requisite number of trained national staff for the integrated tasks of devolution would play a decisive role in this connection. However, one representative warned against premature reduction of health inputs in OCP before valid alternatives were assured, recommending possible coordination with other WHO-supported programmes of a similar nature. At the same time it was noted that imbalances in staff, and particularly the lack of epidemiologists, presented a sound argument for a "multi-disease" approach.

8.8 It was further stressed that there would be a need for coordination with such organizations as UNICEF and UNFPA, for timely negotiations with interested non-governmental organizations for their support, and for coordination with socioeconomic development mechanisms. The need for leadership was emphasized.

8.9 The importance of continuing commitment of health services to the necessary tasks of surveillance and ivermectin distribution, after the good start in Burkina Faso, Mali and Niger, was underlined as was the importance of independent financing. Confidence was expressed in the ability of the Participating Countries to maintain the Programme objective together with resources being deployed in a well coordinated manner, and in OCP's mission to see that process through. It was noted that the idea of "sustainability" had been added to the concept of "devolution".

8.10 Representatives of Participating Countries emphasized that the takeover of surveillance and other duties by the National Onchocerciasis Committees was an earnest expression of their will to plan and implement "devolution". At the same time the countries had shown considerable patience while "devolution" was being defined within wider and wider contexts of general development and studies carried out to determine their state of readiness. JPC was now urged to adopt a final definition of "devolution".

8.11 Countries were ready to play their part and were grateful for the indications that the Donor community was moving towards a commitment of support. They could not relinquish the support of OCP before they were assured of bilateral or other cooperation. If insufficient resources were available they would do what they could with respect and dignity, simply "cutting their coats according to their cloth". They had come of age in OCP and would do their duty for their own populations. International solidarity in West Africa was essential since all might suffer from any recrudescence of onchocerciasis in one country or area. The Donor community could rest assured that the countries had competent staff, and that training should be such as to ensure continuity.

8.12 The Programme Director said that OCP's role in devolution was one of "helping countries to help themselves" so that activities in surveillance and distribution of ivermectin would progressively be assumed by national services which would combine onchocerciasis surveillance with that of other diseases; integration thus became a logical consequence. OCP would continue to help prepare devolution plans according to the particular conditions and state of readiness of each country; agencies such as WHO and the World Bank would help to assemble all the elements for such planning and assist in costing and preparation of funding proposals. OCP would give all the technical support necessary, particularly in the training of nationals.

8.13 It was noted that OCP would continue to assist national teams in epidemiological surveillance and data processing and analysis in support of the decision-making process.

8.14 OCT would continue to play its part in the search for a macrofilaricide, the potential role of which in connection with devolution would be considerable.

8.15 In answer to a question from a Donor representative further details were given of the Burkina Faso plan for integrated surveillance and control of onchocerciasis and trypanosomiasis. The two teams currently responsible for surveillance would be increased to five and it was estimated that, with 10 to 15 members per team, training requirements would be modest but essential. Such a programme could be maintained within the regular ministerial budget, but it would be preferable if bilateral assistance were forthcoming.

8.16 The representative of a Donor agency, while expressing support for the approach outlined, was concerned that basic health services, which were already stretched to the limit, would not be able to bear the extra burden with the best will in the world, although some representatives of Participating Countries had indicated they were confident it could be done. Contacts with other agencies and non-governmental organization must be increased to ensure additional resources.

8.17 The Director of OCP expressed satisfaction with the practical turn matters had taken, noting the support of potential bilateral partners and funding agencies as well as the World Bank's willingness to continue with the costing of plans and mobilization of resources to complement OCP's technical and advisory role.

9. PROGRESS REPORT OF THE ONCHOCERCIASIS CHEMOTHERAPY PROJECT:
Agenda item 10 (documents JPC9.6(A) and JPC9.6(B))

9.1 The representative of the World Bank, reporting as a member of CSA, said that, in accordance with the request made by JPC at its eighth session, CSA had undertaken a review of the mandate and management structure of the Onchocerciasis Chemotherapy Project (OCT), its annual funding, and alternative sources of funding. A meeting had been held in January 1988 in which members of EAC and representatives from the Donor Countries Belgium, France and Switzerland had participated.

9.2 It was reaffirmed that, with appropriate changes, OCT remained the optimum mechanism for drug development for OCP.

9.3 OCT's sole objective in the future should be the development of a safe and effective macrofilaricide. Continued collaboration with the pharmaceutical industry was recommended, and it was hoped that a greater number of companies would become involved.

9.4 After reviewing OCT's original mandate, it was recommended that new collaborative agreements for accelerated drug development should be concluded with pharmaceutical companies. A firm commitment to develop any macrofilaricide identified in such collaboration should be sought from the company concerned. Support for clinical trials in endemic areas and drug screening centres should be encouraged.

9.5 As regards overall management, it was recommended that more responsibility should be given to the OCT secretariat for greater flexibility in managing OCT. A steering committee for overseeing OCT activities should be retained but its composition should be changed to reflect changes in emphasis; in particular, efforts should be made to involve an internationally recognized expert on drug development as chairman. It was proposed that the Director of the WHO/Special Programme for Research and Training in Tropical Diseases (TDR) should continue to manage technical aspects of OCT; the Director-General of WHO had subsequently confirmed that proposal. The technical review of OCT activities should in future be the responsibility of EAC.

9.6 The Manager of OCT, introducing his report, said that 1988 had proved an important year for the project. The CSA review had been completed and its recommendations, which had necessitated major structural and operational changes, had been implemented with the minimum of delay. Progress had been made towards development of a macrofilaricide within the time-frame proposed by the review groups. OCT had had the pleasure of seeing its early involvement in the development of ivermectin bearing fruit, as the drug had now become a means of control within the Programme.

9.7 A summary of the financial aspects of OCT operations and details of the research contracts currently being funded, updating the position since the preparation of the progress report, were available.

9.8 In line with CSA recommendations, OCT's activities had been reviewed in June 1988 by EAC, and a representative of EAC had attended the two meetings of the OCT Steering Committee held during the year.

9.9 The Director of TDR was continuing as technical administrator of OCT and there was continuing collaboration with Director, PDP, and Chief, Filarial Infections Unit, particularly with regard to collaboration with the pharmaceutical industry and ongoing clinical trials with macrofilaricides.

9.10 The OCT Steering Committee had been reconstituted, and a new chairman was being sought in line with the CSA recommendation.

9.11 Changes in the legal agreements between OCT and industry had been negotiated to give greater commitment to continuing development of compounds identified as candidates for clinical trials.

9.12 A preclinical drug development team (PDDT) had been set up in collaboration and on a cost-sharing basis with TDR-Filariasis to accelerate the progress of test compounds through the antifilarial screening system and ensure their rapid development where appropriate. The team met regularly to evaluate screening data and plan further development of suitable compounds. It was hoped to recruit a part-time consultant to help coordinate that activity, and to maintain computerized data bases on compounds tested.

9.13 At its first meeting, PDDT together with outside advisers, had reviewed the screening systems being used in order to reduce them to a minimum and to optimize their efficiency. The drug screening systems had been fully coordinated with those operating under the TDR-Filariasis programme.

9.14 During 1988, PDDT had reviewed the world patent and scientific literature and had drawn up a list of companies with compounds of interest. Visits to these companies were being arranged. PDDT had also prepared lists of targets for chemotherapy in filarial worms and also of chemical structures known to show antifilarial activity, for use during such visits.

9.15 At the eighth session of JPC, the representative of the World Bank had indicated that a sum of US \$7 million, or US \$2.3 million per year, would be recommended for OCT operations over the period 1989-1991. Further, following the independent review of OCT operations in 1987 and the CSA review in 1988, it had been recommended that OCT should concentrate on the development of suitable drugs that would be ready for clinical trials not later than 1991. OCT was therefore focusing its research support on clinical centres and drug screening laboratories and support for research in academic institutions had been reduced. Total costs for research contracts in the 1988 budget were US \$1.7 million, compared to US \$2.1 million in 1987 and US \$2.9 million in 1986. The proportion spent in support of basic research had been cut to 6%, compared to 18% in 1987 and 15% in 1986.

9.16 During 1988, the clinical trial centres in Hohoe, Ghana and Bamako, Mali had tested different dosing schedules of the macrofilaricide, CGP 6140. Trials had also been undertaken in Guatemala by the pharmaceutical company concerned. During the year, it had been discovered that the drug was absorbed much better after intake of food, and protocols had been revised to take that into account.

9.17 Macrofilaricidal activity was difficult to evaluate. The current procedure was to wait four months after drug administration before cutting out nodules for histopathological examination, which took a further two months. Clinical trial results were therefore only available for fasted patients treated early in 1988. With a dosing schedule of 10 mg/kg given on three consecutive days, CGP 6140 killed the majority but not all adult worms in about half of the patients treated. In the remainder there was no effect or it was not possible to determine whether death of the worms had occurred. Adverse reactions included a fairly severe Mazzotti reaction and, with higher doses, a reaction indicating toxicity to the central nervous system, which resulted in disturbances of behaviour, hearing and eyesight.

- 9.18 All the available data on CGP 6140 would be reviewed at a meeting between the company and OCT early in 1989, when new protocols for further clinical trials would be drawn up. Trials would continue in Ghana and Guatemala, and also in Mali, provided sufficient patients with viable worms and not treated with ivermectin remained available to the Bamako centre, which was now in the OCP treatment zone. If Bamako was unable to continue, another centre elsewhere in Africa would have to be sought.
- 9.19 Six further compounds from the same company were currently on trial in Australia in the O.gibsoni cattle screen. First results would be available early in 1989. Preliminary results from microfilaricidal counts appeared to indicate that multiple dosing would be needed.
- 9.20 Multiple doses of ivermectin were being tested for a possible macrofilaricidal effect in a trial in Liberia. A group of 30 patients had been treated with ivermectin at a rate of 100 mg/kg every two weeks for a total of six doses. Nodules would be performed in February 1989 and viability of worms would be compared with that of worms taken from 30 untreated patients.
- 9.21 Protocols had been drawn up for testing combinations of ivermectin with albendazole and mefloquine, which were already registered for use in humans, seeking a macrofilaricidal effect. Trials would begin soon in Hohoe in Ghana. Other combinations were under consideration.
- 9.22 OCT had supported research on another chemical series, phenylamidines, from another pharmaceutical company for a number of years. The most promising compounds had been shown to be active against adult O.volvulus worms in vitro in trials in Ghana and Liberia. The same compounds were currently being tested in dogs infected with Brugia pahangi. Results would be available in the middle of 1989, at which time the company would determine whether any of the compounds were suitable for clinical trial. Again it appeared that multiple dosing would be necessary.
- 9.23 A second series of phenylamidines from the same company was being tested and results would be available late in 1989.
- 9.24 The Director, TDR, said that collaboration between OCP and TDR had been intensified as regards ivermectin field trials and basic protocols had been drawn up jointly. In addition to the OCP trials, TDR had initiated studies in Malawi, Cameroon, Nigeria, Liberia and Guatemala which had given similar results in terms of safety and efficacy. A large number of trials had been undertaken in order to test ivermectin for safety in many different settings. It remained to be determined how ivermectin should be used under different conditions in the most cost-effective way in order to prevent disease, especially the development of blindness. Nevertheless what had been achieved within the OCP area would be of significance for strategies of onchocerciasis control elsewhere. TDR was also involved in training and the ivermectin trials had been used as a training ground for field application.
- 9.25 The Filariasis Steering Committee of TDR, in addition to drug development, was involved in the development of vaccines against filarial diseases including onchocerciasis, and in diagnostic techniques. A workshop would be held in 1989 to review the rapid progress in the development of a DNA probe which would distinguish between the forest and savanna types of onchocerciasis.
- 9.26 TDR was also undertaking vector research to investigate the possibility of developing agents similar to B.thuringiensis H-14.

9.27 Noting that the EAC review of OCT's activities was included in the EAC report, a member of EAC said that the Committee had emphasized the importance of the availability of a macrofilaricide. At the OCT Steering Committee meeting the importance to OCP of the 1991 deadline for the identification of candidate compounds had been stressed. Nevertheless, EAC recognized that the development of an effective macrofilaricide was important per se since it would be needed both outside the OCP area and after the Programme had finished. EAC had urged OCT to seek additional funding and to extend its approaches to industry in order to increase the chances of finding suitable compounds.

Discussion

9.28 The representative of a Donor Country welcomed the measures taken to reorient the structure and activities of OCT, and the comprehensive information provided to JPC.

9.29 The representatives of two Donor Countries expressed the hope that OCT would make efforts to ensure that collaboration with the Bamako centre, which had proved most useful in the past, would be continued, and that a compromise could be reached with OCP activities in the area.

9.30 The Director of OCP and the Manager of OCT, while agreeing that there had been excellent collaboration with the Bamako centre, drew attention to the need to have sufficient patients for trials to continue, and to the ethical problems involved in denying access to ivermectin treatment. Similar problems had been encountered in Ghana, but it had proved possible to move to a new trial area within the same country. It was hoped that a similar solution could be found in Mali.

10. MODIFIED PLAN OF OPERATIONS FOR REMAINDER OF THIRD PHASE AND ITS APPROVAL: Agenda item 12 (document JPC9.5)

10.1 Introducing the document the Director of OCP recalled that in 1987, as had already been stated, operations in the third Phase had been expected to be three years behind schedule, but that thanks to unsparing efforts and new techniques (section 6), particularly in the rotating use of insecticides, it had been possible to catch up on most of the delay.

10.2 It was proposed in line with EAC's recommendation for caution about premature suspension of vector control that larviciding would continue at the present level until 1990 in the Original OCP area and beyond that date in certain zones where the reduction in the CMFL had not kept pace with that in the major part of the area. There would be no reduction in the entomological surveillance network but the emphasis would shift to transmission monitoring.

10.3 Full-scale larviciding in the Southern Extension area, started in 1988, would continue up to the end of the third Financial Phase while vector control would gradually expand in the Western Extension area, aiming at full coverage by 1990. In both areas larviciding would be carried out on a seasonal and selective basis to ensure the highest possible cost/efficiency ratio.

10.4 The proposal foresaw the use of ivermectin in large-scale applications in hyperendemic zones in the Extension areas and in reinvaded and problem zones in the Original area reaching in all 250 000 people by 1990.

10.5 However, should conclusive evidence in favour of a more active role for ivermectin in onchocerciasis control come forth, the proposal anticipated the possibility of drug control becoming a replacement for larviciding in certain areas and this even before the end of the Phase.

10.6 The total cost of operations for the 1989-1991 period was estimated at US \$93 million.

10.7 The representative of EAC, reporting its agreement with the modified Plan, joined the Programme Director in an appeal for support, particularly from WHO headquarters, in recruiting the best possible staff, and for flexibility in management - as when the dollar fluctuated or shortage of funds hindered progress - as well as maximum collaboration from the World Bank and other sponsoring agencies and non-governmental organizations.

Discussion

10.8 Representatives of Donor Countries responded positively to that appeal. It was noted that training did not receive sufficient attention in the document, but that the question had been the subject of consultant studies since the early stages of OCP, and the relevant reports could be made available on request. Priority would be given to training of epidemiologists.

10.9 The representative of a Participating Country described the arrangements that would enable national networks to assume responsibility for ivermectin distribution in parallel with preventive programmes such as the Expanded Programme on Immunization. The Director of OCP confirmed that when countries were committed to such tasks he knew of no case where national support had not been forthcoming.

10.10 An assurance was given that a Donor's suggestion for possible further economies to be made through "contracting-out" of services for OCP would be examined.

10.11 The modified Plan of Operations was approved.

11. REPORT OF THE EXTERNAL AUDITOR: Agenda item 11 (document JPC9.8)

11.1 The Director, WHO Division of Budget and Finance, introducing the report, noted that the total obligations incurred in 1987 were US \$33 801 373 as compared to the approved budget for the year of US \$34 472 000, leaving an unobligated balance of US \$670 627.

11.2 The External Auditor had visited the project early in 1988 and had examined the WHO Onchocerciasis Trust Fund Status of Funds Statement for the financial year 1987. Their examination had included a general review of accounting procedures and tests of the accounting records and other supporting evidence.

11.3 The External Auditor was satisfied that the Status of Funds Statement and its supporting Annex had been prepared in accordance with WHO accounting policies and that expenditure incurred had been in accordance with the Financial Regulations.

11.4 The External Auditor continued to follow closely developments related to OCP and his absence did not reflect a lack of interest but was due to the fact that there were no particular observations to be made, as well as to heavy commitments elsewhere.

11.5 WHO External Auditors continued to cooperate fully with the Internal Auditor and with the administration of OCP.

11.6 The Director of OCP, welcoming the report, gave an assurance that efforts would be continued to ensure complete accountability in the Programme and expressed his gratitude to the External Auditor for his constructive support to the Programme.

11.7 JPC noted the report by the External Auditor.

12. PLAN OF ACTION AND BUDGET OF THE PROGRAMME FOR 1989: Agenda item 13 (document JPC9.4)

12.1 The Chief of Administration and Support Services said that during 1987 and 1988 savings of approximately US \$2 million had resulted from improved management of larviciding and aerial operations in the Vector Control Unit. Further important savings had been realized by contracting out a number of services required by OCP.

12.2 The proposed budget for 1989 of US \$32 178 000 represented an increase of 9.2% over the budget approved for 1988. The increase reflected the need expressed in the Modified Plan of Operations for larviciding in the Extension areas, and large-scale ivermectin treatment, as well as the estimated expenditures for the operation of the other units of OCP.

12.3 Zero-based budgetary procedures had again been followed in establishing cost estimates, and all activities, research projects and personnel posts had had to be justified. No contingencies had been built into the budget, but cost estimates incorporated an annual inflation rate of 5% for Professional and 12% for General Service staff costs, and 5% for foreign and 10% for local procurement costs.

12.4 Despite a further reduction of 9% in the number of permanent posts, personnel salary costs were expected to increase by 13%. There was expected to be a considerable increase in the number of national staff made available to OCP in the Western Extension area. Consideration was being given to replacing the 20% salary supplement paid to such staff by OCP by payment of a premium in future years.

12.5 Increases of 10.5% for operational travel and 22% for aerial operations were envisaged, but thanks to improved efficiency and pricing there would be a decrease of 18% in larvicide requirements. Other operating costs would be maintained at 1988 levels but extra expenditure would be incurred by a change in accommodation in Bamako. An investment of US \$1.5 million over the next three years (US \$750 000 in 1989) was proposed for vehicle replacement. There was a proposed increase of 152% in the budget for training to meet devolution requirements.

12.6 The proposed budget had been prepared on the basis of an exchange rate of 287 CFA francs to one US dollar. Should the value of the dollar increase, the net gain would be transferred to the reserve. Should the value decrease, there would be a need for close monitoring in order to absorb any additional costs through operational economies.

Discussion

12.7 Representatives of Donor Countries welcomed the clear and comprehensive presentation of the budget.

12.8 In reply to a question of the representative of a Donor Country, the Director, WHO Division of Budget and Finance recalled that resolution WHA34.17 requested WHO to make a standing charge of 13% for programme support costs to programmes supported from extrabudgetary sources. The same resolution indicated that account should be taken of any administrative expenditure already included in the budgets for such special programmes. Full account of that had been taken and WHO was making no charge to OCP for programme support costs. The only costs involved were the costs of four General Service posts in WHO Headquarters in relation to centralized services such as payroll, pensions and insurance, personnel and supplies. The Programme Director and the Chief of Administration and Support Services emphasized that considerable support was provided without charge from WHO Headquarters, which was essential for the operation of OCP.

12.9 In answer to a request for further information on the employment of national staff, the Programme Director said that many of those who were currently involved in OCP had been working on onchocerciasis control for their governments prior to the start of OCP. They were now working for OCP on a full or part-time basis and were paid by their governments at local rates. In addition they received a 20% supplement from OCP, calculated on the basis of the national salary. The Chief of Administration and Support Services said that a further group of national Professional and General Service staff was employed on a permanent basis by the Programme and their salaries were in accordance with the Professional and General Service salary scales laid down by the United Nations.

12.10 The Plan of Action and Budget of US \$32 178 000 for 1989 was approved.

13. FINANCING OF THE ONCHOCERCIASIS CONTROL PROGRAMME: Agenda item 14

13.1 The representative of the World Bank reported that US \$159 million was now projected to be available for the financing of OCP for the six-year period 1986-1991. Current estimates of needs for that third Phase totalled US \$182 million based upon the modified Plan of Operations. Therefore, there was a projected financial shortfall of US \$23 million for the remainder of the third Phase.

13.2 Consultations with current and potential Donors had elicited a positive response; most of them had unofficially indicated the intention to provide additional support to help cover the deficit. But such intentions must still be translated into formal commitments, and in any case tight financial control by the Programme would be necessary.

13.3 Midway through the third Phase of its operations, Donor support for OCP was stronger than ever in spite of the difficulties of 1986 and 1987. By the end of 1988, 20 Donors would have contributed the equivalent of US \$78 million for an expenditure of US \$89 million, the remaining US \$11 million having been provided by reducing the reserve to the minimum level approved by JPC in 1986.

13.4 Revised expenditure estimates, excluding chemotherapy research in the third Phase, totalled US \$175 million, an increase of US \$41 million or 30% over the 1985 estimates. The revised estimates included : (1) increased costs of about US \$18 million since 1985 resulting from the decline in the rate of the US dollar; (2) an additional US \$18 million to combat blackfly resistance; and (3) an extra US \$5 million for the field-testing and distribution of ivermectin. Continuation of chemotherapy research at the level proposed by CSA in 1988 would increase the third Phase budget by a further US \$7 million, making a total of US \$182 million.

13.5 Despite the higher expenditure in the third Phase, OCP remained extremely cost-effective, averaging approximately US \$1 per person protected per year. Annual expenditure was expected to reach a peak in 1989 and to fall gradually throughout the remainder of the third Phase.

13.6 The expected shortfall of US \$23 million was based on the assumption that a contingency reserve of US \$10 million would be maintained through 1991 to guard against unforeseen emergencies.

13.7 Additional funds to cover the shortfall were sought (1) from current Donors and (2) from potential new Donors. The 12 Donors who had contributed an average of at least US \$1 million per annum to OCP were asked to contribute a supplemental amount totalling at least US \$1.5 million for the next three years, 1989-1991, and the other eight contributors were being requested to make smaller supplementary contributions. No one Donor was asked to contribute more than an additional 25% for the entire Phase. If the current OCP Donor community complied with the Bank requests for increases of the magnitude indicated, the shortfall would be reduced by at least US \$18 million. Eleven potential new Donors had been approached (Austria, Brazil, Denmark, Luxembourg, Portugal, Republic of Korea, Spain, Sweden, the International Fund for Agricultural Development, the Arab Bank for Economic Development in Africa and the Gulbenkian Foundation). Austria and the Republic of Korea had sent observers to the current session and Luxembourg had announced that it would join OCP in 1989. New Donors would help to reduce the remaining shortfall in 1990-91.

13.8 Meanwhile the Programme's success in controlling costs in 1988 augured well for its financial integrity in the future. It was also striving to achieve further economies, e.g. through more efficient use and rotation of insecticides, and integration of ivermectin treatment with vector control.

13.9 A decision to curtail planned operations during the remainder of the third Phase in order to reduce the deficit was likely to be counter-productive. Delaying planned operations would raise costs during Phase Four by an amount that would exceed any short-term saving, and would increase the need for Donor support, in addition to jeopardizing the successful conclusion of the Programme in 1997.

13.10 The World Bank would increase its contribution in 1989 to US \$2.5 million, and subject to its Board's approval, would maintain that higher level for the rest of the third Phase, making a total contribution of US \$14.5 million for that Phase instead of US \$13 million.

13.11 It was announced that Luxembourg, which would join OCP in 1989, would contribute the equivalent of US \$200 000 for the three years 1989-91.

13.12 The representative of the Federal Republic of Germany announced an increase of 920 000 Deutschmarks in its contribution for the second half of the third Phase from DM 5.9 million to DM 6.82 million, subject to parliamentary approval of the 1989 budget.

13.13 The representative of Saudi Arabia announced that its contribution for 1989 would remain at US \$2 million per annum.

13.14 The representative of Switzerland said that an additional contribution of SFrs 2.5 million would be made for the third Phase, bringing the total to SFrs 20.5 million, to be distributed over the three years in accordance with a request from the World Bank.

13.15 The representative of Japan said that his country had contributed the equivalent of US \$2 million in 1987 and 1988 and that his government had the firm intention of continuing to contribute according to Japan's means.

13.16 The representative of the United States of America announced that its contribution would be increased to US \$5 million for 1989, bringing his government's total pledge for the third Phase, to US \$18.5 million.

13.17 The representative of the Netherlands said that his country would contribute the equivalent of an average of 2.5 million Guilders annually, which it had agreed could be disbursed flexibly according to Programme needs.

13.18 The representative of Norway said that its total contribution of 18 million Norwegian Kroner to the third Phase had been "front-loaded" (i.e. more was available for use in the earlier years as necessary); a supplemental contribution was under consideration.

13.19 The representative of France said that he hoped it would be possible to add to its contribution of 45 million French francs to the third Phase; the 1989 contribution of FF 7.5 million would be paid by the end of the current session of JPC.

13.20 The representative of Belgium announced an increase of 4 million Belgian Francs in its contribution for the third Phase, totalling BFRs 32 million.

13.21 The representative of Canada said that its contribution had been increased by Canadian \$300 000 in 1987 over that for 1986; the new Government could not at present commit to another increase; however, he would report the successful outcome of the JPC session with a view to obtaining a favourable response.

13.22 The representative of Italy announced that his government intended to increase its contribution from US \$1.25 million per annum during 1988-1989 to US \$1.75 million per annum for 1990-1991.

13.23 It was announced that the United Kingdom contribution would be increased to £900 000 for 1989. This represented an increase of 20% over the 1988 level and had been approved to assist in meeting the projected funding gap.

13.24 The representative of WHO said that its contribution of US \$500 000 for 1989 had already been transferred to the World Bank. Everything possible was being done to ensure prompt payment of the amounts for 1990 and 1991.

13.25 The representative of the African Development Bank said that it would maintain its total contribution of about 1.68 million units of account or 280 000 units of account per year.

13.26 The representative of the United Nations Development Programme recalled its original pledge of US \$7.5 million for 1987-1991; he could not commit his agency to an increase beyond the US \$1 million already agreed for financing the Land Settlement Study, until the UNDP review of activities in Africa was completed in mid-1989, when he hoped a supplemental increase for the Programme would be approved.

13.27 The representative of the World Bank concluded that since eight Donors had announced supplemental contributions totalling an additional US \$9 million, the shortfall could be expected to be reduced sufficiently to ensure full financing of activities in 1989. Given the remaining gap for 1990-1991, 1989 would likely be a crucial year for obtaining increased support. The announcements of additional contributions had in some cases been indefinite as to 1990-1991 so that it could be hoped that, provided the increased levels of support which were announced were maintained through the end of the Phase, the estimated remaining shortfall of US \$14 million would be even further reduced.

13.28 The Director of OCP expressed the satisfaction of staff and the gratitude of Participating Countries for the satisfactory financial situation and the commitments for additional contributions.

14. SOCIOECONOMIC DEVELOPMENT: Agenda item 15 (JPC9.7)

14.1 Speaking on behalf of CSA, the representative of the World Bank recalled that the socioeconomic development programme consisted of three complementary activities: a regional study to identify areas with promising development potential and to propose follow-up activities; a regional study of land settlement to provide guidelines for promotion of sustainable settlement-related development; and in-depth analyses at the national level to further the process of formulating development plans for each Participating Country's onchocerciasis areas, which would be fully integrated into wider national development plans.

14.2 The first regional study had been completed in September 1988, and a summary volume of the report, known as the Hunting Report, was available. The report contained recommendations for a national onchocerciasis zone development study in each Participating Country, which should assist governments in formulating their development plans. The report also contained a development proposal for each of the seven Participating Countries in the core area, consisting of measures that could be implemented with little further preparation. CSA believed the report offered a basis for dialogue between Participating Countries and Donors regarding support for follow-up actions in onchocerciasis-controlled areas.

14.3 CSA had continued the series of consultations with the governments of Participating Countries on country-specific aspects of the socioeconomic development programme, with initial visits during 1988 to Benin, Niger, Senegal and Togo.

14.4 A number of development activities were also under way in onchocerciasis-controlled areas of Burkina Faso, Ghana, Mali and Niger through the collaboration between the Participating Countries, Sponsoring Agencies and various Donors.

14.5 Following completion of the Hunting Report, Participating Countries might wish to discuss the recommended development proposals with interested Donors and to launch the recommended national onchocerciasis zone development studies. The Sponsoring Agencies were ready to collaborate in preparing terms of reference for each national study, which would serve as a basis for arranging financing by interested Donors, and to assist in selecting consultant support and reviewing progress of studies under way. Preparation for the launching of national studies had started in Togo and Benin, with support from FAO and the World Bank.

14.6 During 1989, CSA would complete the initial round of consultations with visits to Côte d'Ivoire, Guinea, Guinea-Bissau and Sierra Leone. The recommendations of the Hunting Report could serve as a basis for the discussions as was the case in visits to Benin, Senegal and Togo.

14.7 A major portion of the regional study on land settlement would be undertaken during 1989.

14.8 CSA was encouraged by the collaboration taking place between the Participating Countries and Donors in socioeconomic development programme activities and would continue its support.

14.9 Considerable efforts had been made by CSA to set up appropriate mechanisms for socioeconomic development and to determine the precise role of each Sponsoring Agency. The regional studies would ensure a better understanding by all parties concerned of the strategies that could be adopted for socioeconomic development in onchocerciasis-controlled areas, and for the integration of such strategies into overall national development plans. The development proposals outlined in the Hunting Report seemed to be realistic and in accordance with the priorities of the countries concerned. It was hoped that the regional study on land settlement would be undertaken in the same spirit of collaboration and would lead to practical solutions.

14.10 The representative of FAO welcomed the Hunting Report as a further step in the ongoing process of defining the development potential of onchocerciasis-controlled zones. The comprehensive bibliography, which would appear as a separate volume, would prove invaluable to project formulators.

14.11 FAO fully endorsed the land-use capability methodology used in the study. Given the limited time available, the consultants had been restricted to reviewing existing development proposals and placing them in a local order of priority. New proposals would have to come in the next round of consultations. The follow-up visits made to Benin, Senegal and Togo should help to define the next steps to be taken and to identify potential Donors for particular development proposals.

14.12 An example of FAO's involvement was the series of projects covering integrated rural development in Benin. Control of the transmission of onchocerciasis would greatly enhance the contribution such projects could make to the well-being of the rural community. FAO would consider favourably giving support to the proposed migration study.

14.13 The representative of UNDP said that socioeconomic development in onchocerciasis-controlled zones would be the ultimate proof of OCP's success. UNDP was keen to support development plans which would emerge from the in-depth national analyses. UNDP Resident Representatives were already aware of OCP and its potential contribution to the socioeconomic development process. Once they had been briefed about the Hunting Report and the views of Participating Countries and JPC on the report and on devolution, they would be in a position to consider requests for assistance in the implementation of socioeconomic development and devolution.

Discussion

14.14 Representatives of Participating and Donor Countries expressed interest in the Hunting Report and said they thought it was accurate as far as it went; but in some instances it was too general and too academic to serve as guidelines for specific aspects of socioeconomic development except where, as in Togo, a site had been proposed for a specific development programme. It was explained that the report was a preliminary study intended precisely to stimulate programmes and interest the Donor community. Tentative proposals had been made in accordance with the indications of governments. Efforts must continue to collect more detailed information within the framework of the CSA socioeconomic development programme.

14.15 Participating Countries undertook to provide such data, including aerial maps and details of climate, hydrology, communications and infrastructure, the essential aim being to develop land in onchocerciasis-controlled zones. It was pointed out that in Côte d'Ivoire, for example, according to the National Onchocerciasis Zone Development Studies the proposed change from extensive to intensive farming was a matter of urgency to arrest the degradation of natural resources and to ensure adequate supplies of essential agricultural goods. In Burkina Faso, the land-use survey should help to solve the problems of soil degradation and migration; the master plan for agriculture developed at a national seminar was an indication of that country's serious intentions; execution of the plan was estimated to cost 3000 million CFA francs and to increase average household earnings to 210 000 - 240 000 CFA francs per annum. The Togo project proposal stressed road-building and water supplies to relieve the conditions of a land-locked area. Participating Countries once again stressed regional solidarity in development in the preliminary stages.

14.16 One such country's representative would have liked the Hunting Report to go more in-depth but realized that aerial photograph interpretation and satellite image analysis had been precluded by time and money restrictions and that some indirect evidence had had to be used as the experts had in many cases not been able to visit the areas.

14.17 The bibliography was somewhat academic. Also, it might be difficult to convert a farmer whose tribe had traditionally been pastoralist into a rice cultivator as suggested in a particular recommendation of the report. Land tenancy arrangements and mention of soil studies would need to be elaborated upon. The work of local experts should be given due consideration.

14.18 It was noted that the National Onchocerciasis Secretariat in his country had been among those providing the most exhaustive information and that all national data should be taken into account before projects were elaborated. Meanwhile the Hunting Report could be considered a useful international reference document.

14.19 A Donor representative inquired about the next stage; more detailed studies would be the responsibility of countries, but they would need resources and expertise. CSA and the World Bank, which had commissioned some aerial imaging to accelerate the preliminary studies, should mobilize funds for joint studies for areas in several countries at a time by experts. Agriculture and integrated land development were a priority for such studies, in which the African Development Bank undertook to assist on a regional or country-by-country basis.

14.20 The representative of the World Bank and CSA expressed approval of that approach. It was observed that once CSA had noted initial reactions to the Hunting Report and national comments on the feasibility of the recommendations, funding might be sought within UNDP "indicative planning figures". CSA would cooperate with Donors and Participating Countries in preparing terms of reference for national studies and in selecting consultants as well as in monitoring the progress of the studies. Some countries had already approved development proposals.

14.21 JPC approved a proposal to publicize cost-benefit estimates (e.g. in terms of productive capacity of land and resettled areas freed of onchocerciasis).

15. OTHER MATTERS: Agenda item 16

OCP Staff members leaving the Programme

15.1 The Committee adopted a resolution proposed by the representative of the Côte d'Ivoire recognizing the services of Mr J.D.M. Marr, Mr C. Pharand, Dr B. Philippon and Dr D. Kurtak with appreciation and gratitude and wishing them well in the future.

15.2 The Director of OCP asked the members of JPC to mark their appreciation by giving those staff members of OCP a standing ovation (Applause).

Expression of gratitude to the President, Government and People of Senegal

15.3 JPC also adopted a resolution proposed by the same representative thanking President Abdou Diouf and his Government and People for their friendly hospitality to the participants of the session, and expressing its gratitude to the President in particular for his personal interest in the Programme and for having given an audience to heads of delegations, who assured him of their devotion to the success of OCP.

Expression of gratitude to the producers of ivermectin

15.4 A third resolution tabled by the representative of Côte d'Ivoire was adopted by JPC recognizing the importance of ivermectin as a measure to relieve suffering from onchocerciasis and to advance the Programme, and thanking the producers for their generous gesture in providing it free of charge to OCP.

Final Communiqué

15.5 JPC adopted the following final communiqué:

(1) The Joint Programme Committee (JPC) of the Onchocerciasis Control Programme in West Africa (OCP) held its ninth session at the Hotel Teranga, Dakar from 29 November to 2 December 1988. The African Development Bank, Belgium, Benin, Burkina Faso, Canada, Commission of European Communities, Côte d'Ivoire, Federal Republic of Germany, France, Ghana, Guinea, Guinea-Bissau, Italy, Japan, Mali, Netherlands, Niger, Norway, Saudi Arabia, Senegal, Sierra Leone, Switzerland, Togo, United Kingdom of Great Britain and Northern Ireland and the United States of America were represented as members, as were the Sponsoring Agencies, UNDP, FAO, the World Bank and WHO which is the executive agency of the Programme. Members of the Expert Advisory Committee (EAC) and of the Ecological Group also attended as did a representative of the French Institute of Scientific Research for Development through Cooperation (ORSTOM). Austria, the Republic of Korea and the Mectizan Expert Committee were also represented as observers.

(2) The session was opened at the International Centre for External Commerce of Senegal (CICES), Dakar by H.E. the President of the Republic of Senegal, Mr Abdou Diouf, in the presence of members of his Government, of the Diplomatic Corps, of the National Assembly, of the Economic and Social Council, and of the local collective.

(3) The Head of State of Senegal paid tribute to the excellent results obtained by OCP, and expressed his appreciation for the benevolence and generosity of the different Donors and for their support of the various activities which had been conducted since 1974. Finally, President Abdou Diouf expressed his determination to promote, in his country and within the African and international communities, the complete realization of the objectives of the Onchocerciasis Control Programme.

(4) In his presentation, the representative of the Director-General of WHO, Dr M. Abdelmoumène, Deputy Director-General, expressed the pride of his organization in the spectacular results achieved by the Programme. He also underlined the necessity for a progressive national participation which, alone, would guarantee the continuation of residual activities at the end of the Programme.

(5) The Programme Director thanked the President of the Republic of Senegal for the efforts he had made personally to facilitate the extension of OCP to its present limits and for the measures taken by his government, which had contributed to the effective implementation of Programme activities in Senegal.

(6) Prior to the election of Mrs Thérèse King, Minister of Public Health, Senegal, to the Chairmanship of the ninth session of the Joint Programme Committee, the proceedings had been conducted by H.E. the Ambassador of Italy at Dakar, representing his country and also the Chairman of the eighth session of JPC. The representative of the Netherlands was elected Vice-Chairman.

(7) Reporting on the increased activities of the Programme for the period 1987-1988, the Programme Director indicated that this period had been marked by especially heavy rainfall. However, he had been very impressed by the results obtained, thanks to rational management of the Programme's human, financial and material resources. Entomological surveillance and evaluation activities, while being reduced in the Original OCP area and in the Southern Extension, had been expanded in the Western Extension area. The five insecticides used by the Programme remained operational. Everywhere insecticide resistance in savanna blackflies was under control. Ivermectin treatment trials had been launched in eight countries within the OCP area and had given encouraging results. These trials had demonstrated that the drug was safe and well accepted and it had a marked influence on transmission of onchocerciasis. The OCP thanked the pharmaceutical firm producing ivermectin for its offer to provide the drug free of charge to the populations concerned and for as long as it was required. The Programme envisaged collaborating with certain NGOs within the framework of future programmes for the large-scale distribution of ivermectin. Finally, the Programme Director thanked the whole of the Donor community, the Participating Countries and the members of the Programme's statutory committees (EAC, Ecological Group and CSA) for their continued support and availability.

(8) In the course of the discussions, the WHO Regional Director for Africa (AFRO), Professor G. Monekoso, reaffirmed his commitment to support the activities of OCP and indicated the role which, from now on, AFRO would play with regard to devolution and socioeconomic development throughout the Programme area. JPC also hoped that AFRO would be able to intensify its activities in relation to training and institution building.

(9) JPC expressed its satisfaction to the Programme Director and to his staff for their accomplishments and for the efforts made to improve the cost-efficiency of Programme activities.

(10) The concept of devolution was re-defined to take account of "progressive national participation" in onchocerciasis control in order to ensure the phasing out of OCP. The JPC confirmed the necessity to accelerate devolution activities throughout the Original Programme area and the Extensions and expressed its satisfaction with the protocol and operational programme proposed by Burkina Faso. While awaiting the formulation of other projects similar to that proposed by Burkina Faso for presentation to the next session of JPC, the World Bank, within the framework of CSA, would continue to play a coordinating role between the Participating Countries and the Donors. This would encourage the financing of devolution while, at the same time, OCP would assure the training of personnel. The representative of the WHO Regional Office for Africa reaffirmed his preoccupation with devolution and expressed the view that the scenario for accelerated health development in three phases, as accepted by the 35th session of the Regional Committee held in Lusaka, Zambia, in September 1987, offered the most appropriate pathway for devolution activities.

(11) JPC noted with approval that after a review of the OCT mandate by a CSA group, including Donor and EAC representatives, the OCT had already implemented most of the CSA recommendations. Continued clinical trials of CGP-6140 and the preliminary results of studies on its macrofilaricidal activity would form the substance of a report to be released early in 1989. These investigations would be associated with clinical studies on the utilization of multiple doses of ivermectin at short intervals, with a view to determining the possible effects of such treatment on adult worms.

(12) The modified Plan of Operations for the remainder of the third Financial Phase was introduced by the Programme Director, who underlined the important role of high quality personnel in the success of the OCP. After the representative of EAC had amplified the proposals of the Programme Director, the Committee approved the Plan and requested WHO to assist the OCP in the expeditious recruitment of appropriate personnel.

(13) JPC accepted the certified statement of the External Auditor on 1987 expenditure.

(14) JPC approved the proposed Plan of Action and Budget for the fiscal year 1989, which amounted to US \$32 178 000.

(15) The representative of the World Bank explained that, on the basis of pledges received to date, available funding for the period 1986-1991 amounted to US dollars 159 million. However, expenditure for the implementation of the modified Plan of Operations for this period was estimated at US dollars 182 million. Consequently, in the absence of further contributions, the third Financial Phase was faced with a shortfall of about US dollars 23 million which would be most acutely felt during the years 1990 and 1991. During the past year, the World Bank had contacted existing Donors to explain the Programme's financial situation and had approached eleven potential new Donors. Positive indications for supplemental increases had been received from most current Donors and had raised hope that a major portion of the extra financing for the modified Plan of Operations for the next three years would be assured. Supplementary contributions pledged by eight Donors during the current session of the JPC amounted to the equivalent of US dollars 9 million representing a 40% reduction of the shortfall. The intentions of other Donors to increase their contributions would need to be translated into formal commitments before the end of 1989 if the Programme was to be able to implement the planned activities for the remainder of the third Financial Phase.

(16) Representatives of the Committee of Sponsoring Agencies (CSA) reported upon the progress made in the socioeconomic programmes which were accepted by the seventh session of the JPC which had been convened in Accra in December 1986. The regional socioeconomic development study conducted by Hunting Technical Services Ltd and "Organisation et Environnement" had been reported upon to the appropriate governments in October 1988. CSA had had parallel consultations with the Governments of Niger, Togo, Benin and Senegal on the priorities and intentions of their national socioeconomic development programmes. JPC noted with satisfaction the progress made in the study of the implementation of the socioeconomic development programmes as endorsed in Accra, and expressed

its general approval of the Hunting Report. The next step was to elaborate upon the national studies which had been endorsed by the participating governments, by the direct involvement of national experts. The CSA assured these governments of its support in assisting to develop national studies into projects which could be submitted to appropriate bilateral and multilateral funding agencies. In this respect the CSA hoped to be able to solicit the collaboration of other OCP Donors.

(17) A suggestion was made that an external evaluation be conducted before the end of the third Financial Phase to assess progress towards achieving Programme objectives and towards devolution and socioeconomic development.

(18) The members of the JPC expressed their sincere appreciation to the President of the Republic of Senegal, H.E. Mr Abdou Diouf, to his government and to the Senegalese people for the warm welcome they had received and for the amenities which had been placed at their disposal to facilitate the holding of the ninth session of the JPC in Dakar.

(19) The JPC gratefully accepted the kind offer of the government of the Netherlands for the tenth session of the JPC to be held in the Hague from 4 to 6 December 1989.

16. DATE AND PLACE OF THE TENTH SESSION: Agenda item 17

16.1 The representative of the Netherlands formally confirmed his Government's invitation to JPC to hold its tenth session in that country.

16.2 JPC accepted the invitation with thanks and agreed to hold the tenth session, in the Hague, Netherlands, from 4 to 6 December 1989.

17. CLOSURE OF THE NINTH SESSION

17.1 Before closing the session the Committee observed a one minute's silence in memory of Professor Patrick Hamilton, member of the Expert Advisory Committee, who died suddenly in Ouagadougou during the Committee's 1988 June session.

17.2 The Chairman thanked OCP and the participants in the session in the name of the populations of the countries of West Africa benefiting from the Programme, reminding them of President Diouf's message enjoining them to persevere, and wished all participants a good journey home.

17.3 The session closed with renewed thanks to the President, Government and People of Senegal for their hospitality, and with the customary exchange of courtesies.

ANNEX I

AGENDA

1. Opening of the session
2. Election of Officers
3. Adoption of the Agenda
4. Adoption of the report of the eighth session of the Joint Programme Committee
5. Reflections of the Committee of Sponsoring Agencies
6. Progress report of the World Health Organization for 1988
7. Report of the Expert Advisory Committee
8. Results of ivermectin trials
9. Devolution
10. Progress report on Onchocerciasis Chemotherapy Project
11. Statement by the External Auditor
12. Modified Plan of Operations for remainder of third phase and its approval
13. Plan of Action and Budget of the Programme for 1989 and its approval
14. Financing of the Onchocerciasis Control Programme
15. Socioeconomic Development
16. Other matters
17. Date and place of the tenth session
18. Closure of the ninth session

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ANNEX III
Subject to Audit

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
AS ADMINISTRATOR OF THE SPECIAL ACCOUNT FOR THE
ONCHOCERCIASIS CONTROL PROGRAMME (PHASE III)
STATEMENT OF CASH RECEIPTS, DISBURSEMENTS AND ACCOUNT BALANCE
(Expressed in United States dollars)

<u>Receipts</u>	Year Ended <u>December 31, 1988</u> US \$	January 1, 1986 to <u>December 31, 1988</u> US \$
<u>Contributions</u>		
African Development Bank	397 225	731 122
Belgium	785 855	1 416 893
Canada	1 620 648	4 113 883
European Economic Commission		6 772 972
Finland	344 709	871 351
France	1 176 507	2 741 375
Germany, Federal Republic of	2 180 288	4 087 042
International Bank for Reconstruction and Development	2 000 000	7 000 000
Italy	800 000	1 960 000
Japan	2 000 000	5 100 000
Kuwait	300 000	2 500 000
Netherlands	5 556 344	9 998 041
Norway	722 126	2 124 568
OPEC Fund for International Development	100 000	150 000
Saudi Arabia	2 000 000	6 000 000
Switzerland		6 972 495
United Kingdom ¹	650 438	2 713 438
United Nations Development Programme	2 625 000	5 250 000
United States of America	3 500 000	8 500 000
World Health Organization	500 000	1 500 000
	<hr/>	<hr/>
Income from investments	27 259 140 1 579 197	80 503 180 4 515 818
	<hr/>	<hr/>
Total receipts	28 838 337	85 018 998
Balance from Phase II		22 594 373
	<hr/>	<hr/>
	28 838 337	107 613 371
<u>Disbursements</u>		
Transfers to World Health Organization as executing agency	28 500 000	93 000 000
	<hr/>	<hr/>
Excess of receipts	338 337	14 613 371
	<hr/>	<hr/>
<u>Represented by</u> Cash and investments		14 613 371

¹ An additional payment of £375 000 was transmitted by the United Kingdom on 29 December 1988. Due to the time required to convert the contribution into US dollars and to deposit the resulting dollar equivalent into the Onchocerciasis Fund, however, the additional US\$ 667 000 equivalent was not credited to the Fund until early 1989. This additional amount will be reflected in next year's JPC report.