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DRAFT

PROJECT PAPER

ONCHOCERCIASIS CONTROL PROGRAM

PHASE IV

(698-0485)

TABLE OF CONTENTS

- I. EXECUTIVE SUMMARY
- II. INTRODUCTION
- III. BACKGROUND
 - A. Target Area
 - 1. Original Target Area
 - 2. Extension Areas
 - B. Donor Coordination and Contributions
 - C. A.I.D. Funding for OCP
 - D. The OCP Time Table
 - E. Long-Term Strategy
 - Phases I, II, III, IV and V
 - F. Operational Focus of OCP
 - 1. Vector Control
 - 2. Ivermectin Distribution
 - 3. Results of Transmission Control
 - G. Research
 - H. Training
 - I. Operational Structure
 - 1. The World Health Organization (WHO)
 - 2. The World Bank
 - 3. The Joint Program Committee (JCP)
 - 4. The Committee of Sponsoring Agencies (CSA)
 - 5. The Expert Advisory Committee (EAC)
 - 6. The National Onchocerciasis Committees (NOCs)
 - 7. Evaluation Units
 - a. The Entomological Evaluation Unit (EEU)
 - b. The Epidemiological Evaluation Unit (EPI)
 - 8. Ecological Panel
 - 9. The Biostatistical and Information System (BIS)
 - J. AID/W Management

IV. PROGRAM DESCRIPTION

- A. Program Purpose
- B. Program Strategy
- C. Program Outputs
- D. EOPS
- E. Beneficiaries

V. IMPLEMENTATION PLAN

- A. Vector Control
- B. Ivermectin Distribution
- C. PVO/Peace Corps Collaboration
- D. Devolution
 - 1. Devolution Plans
 - 2. Epidemiological Surveillance and Control
 - 3. Technical Assistance and Training
 - 4. Strengthening Public Health Systems
 - 5. Communication, Coordination and Monitoring
 - 6. Devolution Unit
 - 7. Harmonization
- E. Research
- F. Training
- G. Organizational Structure
- H. Support for Socioeconomic Development

VI. PROGRAM ANALYSES

- A. Technical Analysis
 - 1. Cause and Effect
 - 2. Control and Treatment
 - 3. Obstacles to Devolution
 - a. Larvicide Resistance
 - b. Ivermectin Resistance/Interference with Epidemiological Monitoring
 - c. Geographical Extension of Vectors
 - d. Reinvasion of Infective Vectors

- e. Failure to Plan and Implement Devolution
- f. Delayed Detection of or Failure to Control
Recrudescence
- g. In-Migration of Infected Human Populations

B. Economic Analysis

1. Benefit-Cost Analysis
2. Devolution and Recurrent Cost Issue

C. Social Science Analysis

D. Initial Environmental Examination
(Categorical Exclusion)

VII. BUDGET

VIII. APPENDICES

A. Statutory Checklist

B. Summaries of National Devolution Plans:

1. Burkina Faso
2. Mali
3. Niger
4. Cote d'Ivoire
5. Ghana
6. Togo
7. Benin

D

I. EXECUTIVE SUMMARY

Onchocerciasis (river blindness) is a debilitating and disabling disease which has been a long-standing impediment to socioeconomic growth and agricultural development in Africa. In addition to having a serious detrimental effect on the labor force, onchocerciasis causes fertile land along the rivers to go undeveloped or to be abandoned. Responding to this challenge, the Onchocerciasis Control Program (OCP), a long-term, multi-donor, regional disease control effort, seeks to control, and eventually eliminate, river blindness as a disease of public health importance and impediment to socioeconomic development in 11 countries in the Sahel and West Africa. Launched in 1974 by A.I.D., the World Bank, WHO, UNDP, FAO and nine donor countries, OCP is scheduled to extend over a period of 26 years. The Program is carried out in four, discrete six-year phases (Phase I: 1974-79, Phase II: 1980-85, Phase III: 1986-91 and Phase IV: 1992-97), concluding with a two-year phasing-out period (Phase V: 1998-2000). WHO is the executing agency. The World Bank has responsibility for donor coordination, mobilizing donor financing and managing OCP's Trust Fund. The activity described in this paper is the fourth phase of OCP.

The seven original target countries constituted one of the most heavily oncho-infected areas in the world -- the home to more than 10 million people -- when OCP was launched in 1974. OCP has now

virtually eliminated the transmission of river blindness in this original target area. These results have been achieved by controlling the vector -- a savanna black fly -- which transmits the parasitic worm that is the source of the disease. Black fly breeding sites in rivers are treated by aerial spraying of environmentally safe insecticides which break the cycle of disease transmission. As a consequence of long-term vector control in the original target area, the parasite reservoir has now disappeared throughout most of the human population, enabling OCP to phase out vector control operations there.

Considerable progress has also been made in securing control over the disease in neighboring areas -- known as the "extension areas." In the mid-80's, control operations were extended into these areas to control the blackfly breeding sites which had produced a serious reinvasion of infective black flies into the original target area. The extension areas included four additional countries and 20 million more people. OCP operations now fully cover these extension areas and have succeeded in halting the reinvasion. As a result, the original target area is fully protected from any renewed transmission of the disease.

Since 1987, OCP has employed the drug, ivermectin, to complement vector control. Although ivermectin treatment alone will not interrupt transmission of onchocerciasis and has no effective impact on the adult worms in humans, it reduces the number of infant worms migrating through the body causing debilitation and

blindness. Last year, OCP oversaw treatment of 450,000 people with ivermectin. OCP's current strategy is to combine ivermectin treatment, to reduce the burden of infection and prevent blindness in those already infected, with vector control to stop transmission and eliminate the adult worm reservoir throughout the human population over the long term. Research supported by OCP continues to search for a safe and effective drug which would kill the adult worm. Such a discovery would certainly shorten the duration of the Program and help guarantee effective control of this disease.

The meeting of the Joint Program Committee (JCP) of the OCP in December 1991 in Riyadh, set the stage for this year's launching of the last major operational phase of OCP -- Phase IV -- which will last through 1997. In Riyadh, OCP's donors and beneficiary countries approved the plan of operations and legal framework for Phase IV. While the plan projected a cost of \$175 million over the next six years -- averaging less than \$1 per person protected per year -- the donor pledging resulted in commitments of only \$153.47 million, or 88 percent of the new funding required under Phase IV. The World Bank, however, believes that OCP will be able to make up the shortfall over the coming years.

A.I.D. continues to be the largest contributing donor, pledging \$21 million for Phase IV -- or 13.2 percent of total contributions. The World Bank is the second largest donor, pledging \$15.8 million or 10 percent of total contributions. Historically, A.I.D. and the Bank have been the largest donors and sponsors of OCP, contributing

between 20-25 percent of total expenditures for each phase. Phase IV was formally launched on February 25, 1992 when representatives of 22 donors, including A.I.D., assembled at the World Bank Headquarters in Washington, D.C. to sign the Phase IV Fund Agreement with the Ambassadors of the 11 target countries in attendance. (A.I.D.'s pledge of \$21 million was conditioned by administrative approval of the Program and the availability of funds.)

OCP has had a tremendous impact to date: Thirty million people are currently protected from further transmission of river blindness. Nine million children, born since OCP began, face no risk of contracting the disease. One and a half million people who were once seriously infected have no further trace of the disease. OCP estimates that it has prevented more than 100,000 cases of blindness. Furthermore, large tracts of arable land, frequently the most fertile river valleys (estimated at a total 25 million hectares by the end of Phase IV), which were nearly impossible to inhabit and cultivate due to the severity of the disease, are now being made available for resettlement and agricultural development, providing significant benefits to the target countries. For example, in Burkina Faso, agricultural production increased more than 6 percent during most of the 1980's, due primarily to a 5 percent annual increase in cultivated land from the former onchocerciasis endemic regions of the country.

Phase IV will involve increased attention to ensuring the

sustainability of, and capitalizing upon, the achievements of OCP. Thus, preparations to transfer residual responsibilities for maintaining control of river blindness to the beneficiary countries -- a process known as "devolution" -- will be accelerated during Phase IV. In Riyadh, it was agreed to strengthen OCP's capacity to provide technical assistance to the target countries for devolution activities, due in part to the position of A.I.D. which considers devolution crucial to the successful conclusion of OCP. The World Bank has now agreed to finance Burkina Faso's devolution plan, and USAID/Niger, through the PVO, Helen Keller International, is funding the initial implementation of that country's devolution plan. Two other donor nations, Belgium and the Netherlands, have expressed interest in funding the devolution process. The Bank is also considering channelling support for devolution through on-going or new Bank supported health projects for other target countries.

During Phase IV, the emphasis of vector control operations will shift from the original target areas (where the objective will have been fully met before the end of PACD), to the extension areas where vector control will safeguard the achievements in the original target area, protect the populations in the extension areas, and move OCP towards attaining its objective throughout the 11 country target areas. Program operations during the 1992-97 period will aim at attaining the following specific targets:

1. By CY 1992, devolution plans will have been prepared and

devolution activities will begin in the seven original target countries.

2. Between CY 1994-97, devolution plans will be completed for the countries in the extension areas.

3. Between CY 1994-95, what little is left of larviciding in the non-reinvaded original target area will have been terminated.

4. Between CY 1992-94, entomological surveillance (i.e., sampling of vectors to determine infectivity and probability of onchocerciasis transmission) in the major part of the original target area will be discontinued and the network of entomological surveillance will be reduced.

5. By CY 1996, remaining entomological surveillance network from the non-reinvaded original target area will be withdrawn.

Phase IV will be followed by a winding-down period expected to carry OCP through to an orderly and lasting conclusion in the year 2000. By conducting OCP operations until the end of this century, OCP will have attained its objective of "eliminating onchocerciasis as a disease of public health importance and as an obstacle to socioeconomic development throughout the 11 target countries, and ensuring that these countries will be able to maintain this achievement." In more specific terms, this means that by the beginning of the new century, approximately 40 - 50 million people

in the Sahel and West Africa will no longer live under the threat of onchocercal infection and its serious ocular manifestations.

Furthermore, more than 25 million hectares of fertile, river basin land, previously deserted due to the threat of onchocerciasis, will have become available for cultivation, enough to feed approximately 17 million people. This will be achieved without any ecological damage in spite of continued aerial larviciding over extended periods.

When OCP ceases operations, it will also have made a substantial contribution to manpower development in Sahel and West Africa. Close to 1,000 Africans will have worked with OCP, acquiring considerable experience in technical disciplines as well as in the field of management. In addition, 400 to 500 fellows will have received OCP grants for graduate and post-graduate studies in disciplines related to onchocerciasis control. Finally, it is anticipated that the devolution process, by its very nature, will contribute to and catalyze the development of public health systems in the participating countries.

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II. INTRODUCTION

Onchocerciasis, or river blindness, is considered one of the world's most formidable public health diseases, afflicting at least 18 million people, of whom one million are partially or completely blind. More than 85.5 million people live in endemic areas, mainly in tropical Africa, but also in South America and the Arabian Peninsula. The geographical distribution of onchocerciasis in Latin America is sporadic, with important foci in Mexico, Guatemala and Venezuela. The disease has also been found in Colombia, Ecuador and the Amazon region of northern Brazil, and localized foci exist in Sudan and Yemen. However, approximately 90 percent of onchocerciasis infections occur in a wide zone extending across the African continent where up to 78 million people in 22 countries are at risk of developing the disease. Roughly, the northern border of this zone lies along the 15th parallel from Senegal to Ethiopia. The endemic areas extend south of the equator to Angola in the west and Tanzania in the east.

The extent and severity of onchocerciasis have been recognized only during the last two decades. It is an insidious, chronic disease that mainly affects rural populations, and often accepted as inevitable by people living in impoverished endemic areas. The medical, social, economic and political implications of onchocerciasis are enormous. It is a striking example of how a disease can compromise the human potential for economic

development. WHO estimates that 10 percent or more of the heavily infected communities were "economically blind" before the Program began; i.e., it significantly handicapped the human potential for economic development in the same way that blindness handicaps the individual. In some villages in Burkina Faso and Ghana, the prevalence of blindness reached 35 percent. Blindness of this magnitude reduces the productivity of agricultural communities below their survival level. Another study also estimated that a community lost an average of 22 productive man-years (nine years of disability and 13 years lost due to premature death) for every blind person. Another study of onchocerciasis-related blindness in Burkina Faso estimated that the country lost 60,000 productive man-years annually.

The infection in man is caused by the filarial worm, Onchocerca volvulus, which is transmitted from person to person through the bites of small gnat-like black flies which are subspecies of the Simulium damnosum complex. There are two major strains of onchocerciasis, a forest strain and a savanna strain. The forest strain is considered less severe and leads less often to blindness than the savanna strain. The intensity of onchocerciasis transmission is highest near rivers and streams where the vector flies breed. There is no effective cure for onchocerciasis, and until recently, no effective and safe means of preventing the debilitating and disabling effects of the disease in those infected. The control of onchocerciasis has only been possible through the regular larviciding of black fly breeding sites.

In 1968, a meeting in Tunis sponsored by A.I.D., the World Health Organization (WHO) and the Organization for Coordination and Cooperation in the Campaign Against Endemic Diseases (OCCGE), began to map out a strategy for control of river blindness. By the time OCP was launched in 1974, the disease had reached hyperendemic proportions in Sahel and West Africa. More than one million people out of a total population of 10 million were suffering from onchocerciasis, and at least 100,000 persons were blind or had their eyesight seriously impaired. Furthermore, large areas of fertile, river basin land had been abandoned due to the heavy toll of the disease.

As a result of field studies undertaken during the 1960s, it was concluded that control of onchocerciasis by means of larviciding was feasible, and in the beginning of the 1970s, seven countries in the Sahel and West Africa submitted requests to a number of donor countries and bilateral agencies to support a control program based on aerial larviciding. Following acceptance of the recommendations of a Preparatory Assistance Mission (the PAG Mission), larviciding operations in the Volta River Basin area were launched in 1974. Since then, OCP has conducted a highly successful operation which has led to interruption of the transmission of the disease in practically all of the original target area and opened up oncho-freed land for resettlement and agricultural development.

There is a strong reason to be optimistic about the future of the Program. It has a strong, proven track record as one of the most

effective multi-donor programs in the history of development assistance. And, the basic elements -- a highly efficient control strategy, continued donor support, close regional cooperation -- are in place. However, to bring OCP to a successful and lasting conclusion, the achievements of the Program need to be maintained by all of the participating countries. Thus, preparing for and implementing the devolution process will be one of the main objectives of Phase IV. Only when devolution activities are fully integrated into the national health systems of the participating countries, so new outbreaks of onchocerciasis can be detected and controlled at an early stage, can one of West Africa's most ancient and devastating scourges no longer be considered a threat to human lives, productivity, and socioeconomic growth and development.

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III. BACKGROUND

Onchocerciasis has traditionally been a major health problem in the Sahel and West Africa. It is caused by the bite of the savanna blackfly which breeds in the vegetation found in fast-flowing rivers throughout the fertile Volta River valleys and adjacent river basins. It transmits a parasitic worm (Onchocerca volvulus), of which the adult female (macrofilaria, 40-45 cm. long) lodges in nodules under the skin, producing millions of microscopic infant worms (microfilariae) during its lifespan which may exceed 14 years. The infant worms live about two years and may cause intense personal suffering, debility and disfigurement from itching, rashes, wrinkling, thickening and depigmentation of the skin, lymphadenitis resulting in hanging groins and elephantiasis of the genitals, weight loss, and eventually, severe eye lesions and blindness. Onchocerciasis is a terrible disease; it maims, but it does not kill. In addition to being a serious public health problem, onchocerciasis is also an impediment to socio-economic development, undermining the social and economic fabric of infected rural communities, lowering productivity, and eventually, leading to the abandonment of fertile agricultural lands.

A. Target Areas:

1. Original Target Area: In 1974, at the request of three countries in the Volta River Basin: Burkina Faso, Niger and Mali -- followed in 1980 by four additional countries, Cote d'Ivoire, Ghana, Togo and Benin -- OCP, a long-term, multi-donor regional disease control effort, was established. The total population of this original target area exceeded 10 million people, covering an area of 764,000 sq. km. with more than 18,000 sq. km. of rivers. It was estimated that more than one million people in this original target area were infected by onchocerciasis, with 100,000 suffering from serious ocular manifestations and 35,000 people blinded by the disease.

2. Extension Areas: In the mid-1980s, OCP encountered operational problems created by the reinvasion of the blackfly and resistance to the organophosphorous compounds used in larviciding. To protect the populations in the bordering areas from which reinvasion occurred, and to prevent further reinvasion of the original target area, OCP expanded operations into four additional countries: Guinea, Guinea-Bissau, Senegal and Sierra Leone, increasing the total population to 30 million, the land area to 1.3 million sq. km. and the length of rivers to about 50,000 sq. km. The total target area now consists of eleven countries with 2.4 million people infected by onchocerciasis and close to 100,000 blinded by the disease.

B. Donor Coordination and Contributions: The beginning of a major international effort to control the onchocerciasis began in 1974 with six donor countries pledging their support: Canada, France, Germany, Netherlands, the United Kingdom and the U.S., and four development agencies: the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP), the World Health Organization (WHO) and the World Bank, pledging their support. Because of the scope and purpose of the Program, OCP continued to attract donors: 19 donors contributed to Phase II and 24 donors to Phase III. Countries such as Belgium, Finland, Italy, Japan, Korea, Kuwait, Luxembourg, Norway, Portugal, Saudi Arabia and Switzerland and organizations such as the African Development Bank, the European Economic Community (EEC), the Gulbenkian Foundation and the OPEC Fund for International Development, have contributed to the OCP effort. In fact, OCP is considered a model of donor coordination. The overall conclusion of A.I.D.'s 1986 Impact Evaluation Report was that "The OCP appears to be one of the more successful multi-donor programs in the short history of development assistance." The 11 target countries themselves contribute 1.4 percent of the total budget, make staff available to the Program, and provide office space and operational facilities.

For the fourth phase of the OCP, 22 donors, including 15 donor countries and seven organizations, have pledged their financial support. Table 1 lists the contributors and their funding levels for Phase IV:

Table I

OCP Contributors and Funding Levels for Phase IV

(in \$000s)

<u>Countries:</u>	<u>Phase IV Funding:</u>
Belgium:	0.50
Canada:	8.67
France:	8.46
Germany:	8.97
Italy:	0.85
Japan:	10.80
Korea:	0.60
Kuwait	1.50
Luxembourg:	1.59
Netherlands:	15.38
Portugal:	0.30
Saudi Arabia:	13.98
Switzerland:	12.93
United Kingdom:	11.03
United States:	<u>21.00</u>
	Subtotal: 116.56
<u>Agencies:</u>	
African Development Bank:	2.37
EEC:	9.16
Gulbenkian Foundation:	0.30
OPEC Fund for Int'l Dvlopment:	0.30
UNDP:	7.50
WHO:	1.50

World Bank:	<u>15.78</u>
Subtotal:	36.91
Total Contribution:	153.47

C. **A.I.D. Funding for OCP:** From the beginning, A.I.D., representing the USG, has contributed the largest share of OCP funding for the Program, averaging 13.2 percent of total contribution (see Table 2 below). Other donors, in planning their contributions, were said to take their lead from A.I.D. While there was no official "agreement" that A.I.D. should provide the largest amount of funding for OCP, a "commitment" from A.I.D. during the initial planning stages indicated a willingness to provide a substantial contribution to the long-term effort of controlling onchocerciasis. Robert S. McNamara, the World Bank President during the early stages of the OCP, recalled in a recent interview in the River Blindness Foundation Newsletter (Spring 1991) that "... I said that the Bank would guarantee a certain percent -- I think it was ten. The director of AID, John Hannah, agreed to guarantee 25%. The fact that we could go to the world and say we had 35% of the money guaranteed if the others would put up the other 65% permitted us to get the Program going."

D. **The OCP Time Table:** The basic strategy for the OCP activities was laid down by a PAG Mission and an UNDP-funded interim project in the early 1970s. Both insisted that a 20 years time span for the OCP operations was necessary under the assumption that "the cumulative lifespan of adult o.voluvulus filaria

(parasitic worms) and of the last microfilariae (infant worms) produced by these adults was in the region of 16 to 18 years." Donors and participating countries alike subscribed to the principle and to the PAG/UNDP requirement of a 20 year Program. However, in the 1980s, when OCP encountered reinvasion of black flies and the subsequently expanded Program, its time table was revised to go beyond the original target year to 26 years.

The preparation of time frames for OCP operations has also been guided by the duration of vector control believed to be required to ensure virtual elimination of the human parasite reservoir. This period has recently been estimated to be 14 years -- the maximum lifespan of the onchocercal adult worm. The duration of larviciding is 11 to 12 years except in the periphery of the reinvaded zones of the original OCP area, where it is necessary to continue larviciding for 14 years. The probability also exists that the additive effect of larviciding and community-wide ivermectin distribution carried out simultaneously, could shorten the required duration of larviciding. The following table shows the years of each operational phase and A.I.D.'s contribution:

Table 2

A.I.D.'s Contribution to OCP

<u>Phases:</u>	<u>Years:</u>	<u>A.I.D. Funding:</u>	<u>Total Donor Contrib.:</u>	<u>A.I.D. %-age of Total Contrib.:</u>
Phase I	1974-1979	\$ 7.70 mill.	\$ 56.20 mill.	13.7 %
Phase II	1980-1985	\$15.30 mill.	\$104.50 mill.	14.6 %
Phase III	1986-1991	\$20.98 mill.	\$179.60 mill.	11.7 %
Phase IV	1992-1997	\$21.00 mill.	\$153.47 mill.	13.7 %
Phase V	1998-2000	*)	\$ 72.00 mill.est.	-
Total				
Contrib.:	1974-97:	*)	\$567.77 mill.est.	-

*) A.I.D. has stipulated in Phase IV that there is no guarantee that it will provide any funding to Phase V. Funding for this phase will depend, in part, on how well the target countries execute their devolution plans.

E. Long-Term Strategy: OCP's control strategy follows a five step technical plan: exploratory, preparatory, attack, consolidation and maintenance. This strategy is being carried out in five discrete financial phases, of which this proposal represents Phase IV. The following phase descriptions show how OCP has developed over the years:

Phase I (1974-79) began in three target countries: Burkina Faso, Niger and Mali, affecting 10 million people over an area of 655,000 sq. km. An intensive effort of larviciding, epidemiological surveillance, ecological monitoring, scientific research and training began. Accomplishments included a remarkable decline in the prevalence of onchocerciasis in the area (particularly among children), a stabilization of symptoms in persons previously infected, new resettlement and development of target river valleys, considerable training of African staff and advances in using cost-effective techniques, ecological monitoring and chemotherapy.

Phase II: (1980-85) added an additional four countries to the original target area: Cote d'Ivoire, Ghana, Togo and Benin thereby increasing the population covered to 16 million and the areas covered to 764,000 sq. km. including the treatment of 18,000 sq/km of rivers. Achievements during this phase included a further dramatic decline (sometimes total elimination) of onchocerciasis among several target groups, increase in local resettlement development, improvement in epidemiology, transmission dynamics and therapy, and more cost-effective larvicides and delivery techniques. However, a reinvasion of infective blackflies and resistance to the larvicides became serious obstacles during the last year of this phase.

Phase III (1986-91). To better deal with the problem of reinvasion, OCP extended activities to four adjacent countries,

Guinea, Guinea Bissau, Senegal and Sierra Leone as well as substantial new areas in the original target countries (except for Niger and Burkina Faso). Including the seven original target countries, the OCP operations now covered 1.3 million sq. km. -- or 32 percent -- of a total land mass of 4 million sq. km. as well as 30 million people -- or 39 percent -- of a total population of 76.4 million in all 11 OCP countries. Fifty thousand kilometers of rivers were also covered. The Third Phase successfully overcame the reinvasion problem through rotational larvicide schemes, and saw the advent of ivermectin as an effective means of controlling, but not deterring, the disease.

Phase IV (1992-97): Operations will continue to adhere to the lines laid down in the long-term strategy, consolidating the results obtained during the previous phases. The main features of Phase IV will be: (1) continuation of larviciding to control transmission; (2) community-wide application of ivermectin to control all manifestations of the disease, and (3) preparation for, and implementation/consolidation of, the devolution process, whereby the participating countries assume responsibility for controlling the disease. Since maintaining the achievements of OCP will depend on the extent to which the target countries will be able to identify and control new blackfly outbreaks, preparing for and implementing the process of devolution will be one of the main objectives during this phase. By the PACD, it is expected that the epidemiological situation will be such as to allow for a definite phasing-out of vector control; i.e., that larviciding in the

original OCP areas will terminate, and that vector control will be confined to parts of the extension areas where larviciding will already have considerably reduced the human reservoir of the parasite.

Phase V (1998 - 2000): During this phase-out period, vector control will be rapidly discontinued. It is expected that OCP operations as such would cease, and that the participating countries will have the institutional capability to take over OCP operations. Under the most pessimistic scenario, which is considered highly unlikely at this time, larviciding would be required for a full 14 years; i.e., continuing OCP operations in limited areas until the year 2002.

F. Operational Focus of OCP: The paramount work of OCP is achieving and maintaining interruption of transmission of onchocerciasis over a sufficiently long period, so that the onchocercal worms now infecting the human population will die out. From the beginning, the Program has maintained a limited and specific objective: to control onchocerciasis in a clearly delineated area in the savannah zones of Sahel and West Africa. The two major operational methods of obtaining this goal are long-term, large-scale vector control and mass distribution of the drug, ivermectin.

1. Vector Control: Larviciding began in 1974 in the original target area, and in 1987 in the extension areas. Aerial

operations are carried out by a fleet of up to 11 helicopters and 2 fixed-wing aircraft, available on commercial contract. Weekly flight plans and dosage schedules for larviciding are worked out on the basis of entomological and hydrological data collected by the Program-wide entomological surveillance network, and communicated to the operational base and OCP headquarters in Ouagadougou by means of the OCP radio system. This surveillance network consists of sectors and sub-sectors manned by entomologists, laboratory technicians, vector collectors, radio operators and drivers. Hydrological conditions (water level and discharge rates) are monitored by automatic devices in rivers and teletransmitted via satellite to the operational centers.

Vector control has been tremendously successful. As early as 1978, the Annual Transmission Potential (ATP) -- the theoretical number of onchocercal larvae received by a person stationed at an insect capture point during one year -- had dropped from 800 to below the acceptable level of 100* in two thirds of the area under larviciding. This situation was rapidly realized in the entire original target area, except for certain reinvaded zones in the West and South-East. Thus, in 1985, the last year of larviciding in the original OCP area, more than 90 percent of the insect capture points reported ATP's of less than 100 and, in many cases,

* The upper tolerable limit for occupying the river valleys without risk of contracting serious onchocercal ocular lesions.

zero. Since then, larviciding has practically ceased in the original target area with the exception of the reinvaded zones and in a few areas where operational problems have temporarily impeded effective control. The situation of the reinvaded zones in the original target area has greatly improved since larviciding was extended to the sources of reinvasion beyond its boundaries.

A transmission model developed by OCP, capable of producing epidemiological forecasts under varying control scenarios, including the risk of new outbreaks of infection and disease after cessation of vector control, concluded that 14 years of larviciding is required to eliminate the human reservoir of the onchocercal worm and preclude any risk of new outbreaks emanating from inside the area under control.

In spite of extensive larviciding by OCP, there has been little effect on the aquatic environment; i.e., no disappearance of fish and invertebrate species has been recorded and the observed modifications have been of minor importance, and reversible. In fact, the system of strict environmental monitoring and surveillance conducted by OCP during 17 years, has shown no adverse impact from larviciding.

2. Ivermectin Distribution: In 1987, ivermectin, a microfilaricide, became available for large-scale distribution in human populations and has been provided free of charge from its manufacturer, Merck Sharp & Dohme. Ivermectin has proven to be a

valuable therapeutic agent, easily dispensed under field conditions. Ivermectin is administered orally and gives rise to few, and only mild, adverse reactions and its clinical effect is pronounced. The discomforts of the disease, such as itching, disappear rapidly, and the risk of blindness, is significantly reduced. Being a microfilaricide, ivermectin needs to be given regularly, once or twice annually, during several years. Unfortunately, the reduction in microfilariae following large-scale application of the drug, is insufficient to bring the human parasite reservoir to an epidemiologically insignificant level and thereby interrupt transmission. This is because the repopulation of the infant worms commences fairly soon after treatment. While ivermectin kills the infant worms, preventing them from migrating through the body and causing debilitation and blindness, it has almost no effect on the adult female worm allowing the infection to persist. Ivermectin distribution within the OCP area is summarized below:

Table 3

No .of Persons Included in OCP Ivermectin Distribution 1987-91

	<u>1987/88</u>	<u>1988/89</u>	<u>1989/90</u>	<u>1990/91</u>
Original OCP Area:	28,482	23,515	25,299	29,787
Extension Areas:	22,447	40,128	193,104	229,460
Total:	50,929	63,643	218,403	259,247

The drug cannot be dispensed to pregnant women, mothers during the first week of lactation, children less than five years old, and patients suffering from severe diseases.

3. Results of Transmission Control: As a result of the interruption of transmission during the past 17 years of vector control, the epidemiologic marker traditionally used for surveillance, the community microfilarial load (CMFL), has come close to zero in all of the original program area, except for the reinvaded zones. The prevalence of onchocerciasis in the major part of the original target area is now below a level of significance and larviciding has been discontinued in more than 80 percent of the area. Another success of vector control, confirmed by an OCP epidemiological evaluation, is the fact that no onchocercal infections occurred in the original area among children born since the start of the vector control, except in the reinvaded zones and in the few areas where transmission temporarily relapsed. In these areas, only 10 to 20 percent of the infections expected in the absence of larviciding were recorded. As for ivermectin, it is estimated that effective community-wide application of ivermectin can cope with new outbreaks, provided such distribution is instituted soon after the appearance of new infections in the community.

G. Research: The OCP research program is entirely operations-oriented and follows closely the recommendations made by the Expert Advisory Committee (EAC) (see below). Research priorities fall into six major groups: vector control, identification of parasite strains, immuno-diagnostic testing, chemotherapy, effect of ivermectin on transmission, and modelling and health systems research. Applied research continues to search

for improved cost efficiency of OCP operations. OCP also relies on a number of institutions and consultants for carrying out studies in more specific areas. The results of OCP conducted and supported research have helped OCP to cope with many operational obstacles such as larvicide resistance, vectorial behavior of the blackfly as related to patterns of blindness, detection of early infection, and making ivermectin available for large-scale treatment of the disease. The OCP-funded **Onchocerciasis Chemotherapy Project (OCT)**, which gives grants to pharmaceutical institutions to do research into drug and vaccination development, has been engaged in the search for anti-onchocercal drugs with the focus on macrofilaricides (killing the adult worms) since 1982. Should such a macrofilaricide be found and made available before the OCP terminates, a new strategy would be developed, lowering both the costs of operations as well as shortening the time frame.

H. Training: The training program funded by OCP awards fellowships to nationals of the participating countries in areas of direct relevance to onchocerciasis control. The program has, over the last few years, become increasingly oriented towards training in subjects related to devolution. Between 1974-1990, 338 OCP fellows received training in oncho-related disciplines, practically all in African institutions. OCP also arranges for in-service training for its own staff.

I. Organizational Structure: The main components and functions of the managerial structure of OCP are as follow:

1. **The World Health Organization (WHO)** is designated as the executing agency for OCP. As such, OCP is managed according to WHO procedures, technically and administratively assisted by that organization. WHO provides a Program Director (located at OCP headquarters in Ouagadougou), assigns a qualified professional and support staff, and is responsible for implementation of OCP, as defined in the annual budgets and plans of work. The Director of OCP is supported by five technical and administrative units (vector control, epidemiological evaluation, biostatistical analysis and information systems support, support to devolution, and administration and support services) each headed by a chief assisted by operational/scientific and general services staff. A Liaison Office is located at WHO HQ in Geneva.

2. **The World Bank:** The World Bank mobilizes funding for OCP, manages the Program's trust fund and is the principal contact with the participating donor community, including A.I.D. The World Bank has statutory responsibility for determining the level of funding required to finance OCP operations and for soliciting contributions from individual donors. All contributions are deposited in the Onchocerciasis Trust Fund which is administered by the World Bank and audited by its external auditors.

3. **The Joint Program Committee (JCP)** serves as the ultimate decision-maker regarding overall policies, planning, execution and financing of OCP operations. It is a plenary inter-governmental body, composed of representatives from the donor

community and the target countries. This key group meets at least once a year to consider the annual progress report, approve next year's plan of action and budget, and to deal with other key issues.

4. **The Committee of Sponsoring Agencies (CSA)** is comprised of UNDP, FAO, World Bank and WHO, and acts as a "steering committee" for the Program. It meets quarterly to review work plans and budgets, monitor OCP operations, consider management issues, and examine reports prepared by the OCP's advisory bodies. CSA also supports socioeconomic development of the oncho-controlled areas which is not a direct responsibility of OCP. So far, the CSA has initiated a series of socioeconomic development studies to identify development opportunities and to propose follow-up actions in the oncho controlled areas of the participating countries. (See para. V-G, Support to Socioeconomic Development.)

5. **The Expert Advisory Committee (EAC)** with a membership of 12 scientists, carries out annual, independent evaluations of OCP operations and provides independent advice on key scientific, technical, ecological or economic matters related to the OCP. A five-member Ecological Group, a sub-committee of EAC, monitors the effect of vector control on the aquatic environment.

6. **National Onchocerciasis Committees (NOCs)** have been established within each of the participating African governments to serve as the major coordinating element within the national

government. Each NOC is composed of representatives of pertinent national services and is given the authority to command appropriate resources for coordinating the national effort as well as serving as a liaison between the government and OCP headquarters. NOCs promote OCP sponsored activities, such as devolution. NOCs are non-statutory bodies.

7. Evaluation Units: OCP has two strong evaluation units which maintain continuous technical evaluation of control operations. These are:

a. The Entomological Evaluation Unit (EEU) which measures success and failure of the black fly control operations. Throughout the year, personnel who serve as human bait, determine the number of biting blackflies at numerous sampling sites that cover the operational area.

b. The Epidemiological Evaluation Unit (EPI):
Until 1988, the activities of the EPI were essentially oriented to an assessment of the impact of vector control. Since 1990, EPI has completed a comprehensive program of epidemiological mapping in the extension area with a view to establish baselines for assessing control operations, estimating the number of people infected and blinded by onchocerciasis, identifying communities in need of large-scale ivermectin treatment and evaluating the effect of ivermectin treatment. EPI also supports community-wide ivermectin distribution programs carried out by national teams with the

7 assistance of NGOs in villages with populations at risk of blindness.

8. **The Ecological Panel** ensures that the protection of the environment is adequately considered as described in the Environmental section, VI-D.

9. **The Biostatistical and Information System (BIS)** supports other units in the analysis of operational data and in the planning and evaluation of field studies. It also provides technical backstopping for the OCP computerized information system, and trains Program staff for its use. The computer network covers OCP HQs and all operational stations.

J. **AID/W Management:** AID/W management for the project is provided by AFR/ONI/TPPI, in close collaboration with R&D/Health, appropriate country desks and other technical offices within the Bureau. ONI/TPPI's responsibilities will include monitoring program performance, deciding who will represent A.I.D. at JCP meetings, and maintaining liaison with OCP headquarters (through USAID/Ouagadougou), WHO headquarters (through the U.S. Mission/Geneva) and the World Bank. Past experience has shown that the additional workload imposed upon overseas missions is minimal, generally limited to a small number of message transmittals.

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IV. PROGRAM DESCRIPTION

The Onchocerciasis Control Program (OCP) is a large, multi-donor-supported program that involves region-wide disease control operations to reduce the incidence of river blindness in 11 countries in Sahel and West Africa. The activity described in this paper is the fourth phase (FY 1992-97) of a five-phased Program that began in 1974 and is expected to be completed in the year 2000. A.I.D., which together with the World Bank initiated the Program, has already contributed \$44 million towards OCP and will provide an additional \$21 million for Phase IV, pending availability of funds.

A. Program Purpose: A.I.D.'s purpose for Phase IV supports the OCP long-term objective (described below). That is: To continue support for the international effort to eliminate onchocerciasis as a disease of public health importance and as an obstacle to socioeconomic development, and to ensure that participating countries in Sahel and West Africa will assume responsibility for controlling this disease. This corresponds with OCP's long-term objective, slightly modified in 1990 when ivermectin became available, which is

"To eliminate onchocerciasis as a disease of public health importance and as an obstacle to socioeconomic development

throughout the program area and for the participating countries to maintain this achievement."

B. Program Strategy: The overall strategy for Phase IV will continue to be based on larviciding as the means of transmission control with ivermectin as an important complement preventing severe ocular manifestations of the disease in those already infected. The OCP's long term strategy continues to be: (1) continuation of transmission control by larviciding; (2) expansion of vector control into the extension areas, and (3) an intensified search for a macrofilaricide which, if and when available, could alter the control strategy.

C. Program Outputs: Program operations during the 1992-1997 period will aim at attaining the following targets:

1. By 1992, devolution plans will have been prepared and devolution activities will begin in the seven original target countries.

2. Between 1994-97, devolution plans will be completed for the countries in the extension areas.

3. Between 1994-95, what little is left of larviciding in the non-reinvaded original target area will have been terminated.

4. Between 1994-95, entomological surveillance in the major part of the original target area will be discontinued and the network of entomological surveillance will be reduced.

5. By 1996, remaining entomological surveillance network from the non-reinvaded original OCP area will be withdrawn.

During the 1992-97 period, the emphasis of control operations will shift from the original target area (where the objective will have been fully met before the end of that period) to the extension areas where vector control will safeguard the achievements in the original target area, protect the populations in the extension areas, and move OCP towards attaining its objective throughout the eleven-country area.

D. EOPS: The implementation of Phase IV will take OCP a long way towards meeting its objective. For example, by 1997, and even before, onchocerciasis will no longer be a problem of public health importance or an impediment to socioeconomic development within the original seven target countries, nor will there be any risk of uncontrolled recrudescence as it is expected that devolution will have been firmly established in the national health services of those countries.

The following objectives are expected to be achieved during Phase IV: (1) Vector control will be discontinued in all of the original target countries and most of the extension areas; (2) the

original target area will be protected from reinvasion; (3) people living in endemic regions within the extension area will no longer be exposed to infection; (4) the human reservoir of the parasitic worms in the extension area will be well on its way to virtual elimination; (5) all persons originally suffering from onchocercal infection will be treated by ivermectin for at least six years with a considerable reduction of morbidity and risk of blindness; (6) river basin land will be made available for resettlement; and (7) devolution will be fully operational in the original target countries with preparations completed in the extension countries.

A number of equally important, but less tangible, achievements will continue to accrue as a result of the various activities of the Program. Although direct national participation in OCP operations was limited in scope until the beginning of the 1980's, participating countries have since then become increasingly involved in OCP activities. This trend will be intensified during the 1992-97 period to the benefit of the health services of the target countries. In this context, devolution can be seen as a means to promote health delivery systems in the participating countries. With vector control practically completed in the original target area, and well underway in the extension areas, the dominant feature of Phase IV will be the consolidation of devolution in the former area and its preparation and gradual implementation in the latter. The ultimate success of the Program will depend on the extent to which the participating countries will arrive at early detection of new outbreaks and at its effective control by means of

ivermectin distribution. Thus, the strengthening of the national epidemiological surveillance and control capability will remain a major concern of OCP throughout Phase IV. The Devolution Unit, established at the end of Phase III, will be further strengthened during this phase to assist the participating countries to sustain this capacity.

E. Beneficiaries: It is estimated that during Phase IV:

- 30 million people will continue to be protected from onchocerciasis infection.
- 6 million more children born during this period will grow up without the risk of blindness.
- 150,000 cases of onchocercal blindness will have been averted.
- An additional 10 million hectares of fertile river basin land in the extension area will become available for cultivation.

By the end of this phase, OCP will have been operational for 23 years. It is expected that as a result of the large-scale vector control and mass distribution of ivermectin over this time period, the following achievements will have accrued by the end of 1997:

- (1) 30 million people will continue to be protected from onchocercal infection;
- (2) 15 million children born since the OCP began in 1974 will have grown up without the risk of blindness due to onchocerciasis;
- (3) 2 million persons will have lost their infection;
- (4) 350,000 cases of onchocercal blindness will have been averted;
- (5) Approximately 25 million hectares of fertile, river basin land will have become available for cultivation, potentially sufficient to feed more than 17 million people if free from other major constraints to agricultural development and if cultivating the land using traditional technologies and agricultural practices.

V. IMPLEMENTATION PLAN

The main features of OCP operations during the 1992-97 period, as reflected in the present plan of operations, are: continuation of larviciding to control transmission; community-wide application of ivermectin for the purpose of control of manifestations of the disease including prevention of ocular manifestations, and preparation for, and implementation/consolidation of, the devolution process.

A. Vector Control: The operational aim will remain virtual interruption of transmission wherever there exist significant human reservoirs of onchocercal parasites with a potential for causing the blinding form of the disease. The approach to attaining this aim will continue to be the use of seasonal and selective larviciding which is fine-tuned to prevent transmission of the blinding strain of the parasitic worm.

During the first two years of the Phase IV, larviciding, which ceased during 1990 in the major part of the original target area, will remain confined to a few zones, where the reduction in the microfilarial load was delayed due to temporary vector control problems. These zones will be kept under intensive epidemiological surveillance in order to determine when larviciding can be discontinued without risk of resumption of transmission. It is expected that vector control will no longer be needed there after 1994. Entomological surveillance will continue for two more years

after cessation of larviciding. Vector control will continue in the south-eastern and western periphery of the original target area where persistent transmission maintained by reinvasion was not brought under control until the late 1980s. In summary, by 1994, larviciding will come to an end throughout the original target area, with the exception of the previously reinvaded peripheral zones where vector control will be continued as an integral part of OCP operations in the extension areas.

Vector control methods and supplemental activities which have been used successfully throughout the other phases will continue in Phase IV. These include applied research, generalized use of satellite-transmitted data, analysis of hydrological and larviciding application, rotation of different larvicides and continued monitoring and surveillance of the aquatic environment.

When larviding is terminated in a circumscribed area, the national health authorities concerned will be notified accordingly by OCP with a view, inter alia, to make the final arrangements for devolution activities required in that area. However, as a general principle, the entomological surveillance network will be kept in place for two years after larviciding has been discontinued in a given area, in order to ensure that transmission has reached an insignificant level (post control evaluation).

During Phase IV, the Program will continue its investigations of the impact of larviciding on the river basin milieu and encourage

national authorities to monitor the broader environmental effects that human resettlement and socioeconomic development may bring to oncho-controlled areas. OCP will also monitor eco-environmental changes in the oncho-controlled zones with respect to any potential impact that may exacerbate the potential for new outbreaks.

As vector control comes to an end, the blackfly will return. This could, apart from the nuisance of the bites, again give rise to the fear of blindness. This fear should be alleviated by raising community awareness of the mode of transmission and the manifestations of onchocerciasis. Reassurances that the return of the blackfly carries no risk of reappearance of the disease must therefore be given to the populations concerned.

B. Ivermectin Distribution: In communities at risk of onchocercal blindness, OCP will continue annual, large-scale distribution to all persons infected with the onchocercal parasite, suspected of being infected, or merely living in the villages concerned. This will be done with increasing national participation. Ivermectin will also continue to be supplied free of charge by the manufacturer to all health administrations and organizations. OCP acts on behalf of the eleven OCP countries as the procurement agency for the entire area.

The treatment will last for an average of six years to achieve maximum benefits of ivermectin in the control and arrest of ocular manifestations, after which vector control will ensure virtual

elimination of the human reservoir of the parasite. Insofar as OCP-directed ivermectin treatment has been provided to these communities since 1987, starting with a limited number in the original program area and rapidly increasing to communities throughout the OCP area, distribution will gradually cease between 1992 and the end of Phase IV in 1997.

Most of the actual field work associated with ivermectin distribution will be carried out by national epidemiological evaluation teams supplemented by the staff of local health centers. OCP will be primarily concerned with drawing up the distribution schedules, supervising the treatment, evaluating the results and providing technical and logistics support. Full use will also be made of "outreach" activities such as immunization campaigns to enhance large-scale distribution.

Estimates of OCP/EPI-conducted treatment during the 1992-97 period are given below:

Table IV

Estimated Number of OCP/EPI Ivermectin Treatments

(in 000s)

<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
400	400	350	350	100	50

The gradual decrease in the annual total is explained by the fact that an increasing number of persons will have received five to seven years of treatment after which they are no longer included in the distribution program.

Although the probability that microfilaria will become resistant to ivermectin is remote, a process of monitoring their susceptibility to the drug will be instituted in order for OCP to be assured of the continuing efficacy of ivermectin.

C. PVO/Peace Corps Collaboration: OCP will continue, and strengthen, its collaboration with NGOs and PVOs in the distribution of ivermectin. Interested NGOs and PVOs operating in the OCP area do so under agreement with the participating countries and in the framework of national program activities. Therefore, NGO/PVO collaboration falls naturally within the Program's collaborative agreement with the national health authorities concerned.

While there are no Peace Corps volunteers working on primary assignments in river blindness in Africa, there are over 150 volunteers in the health field in 10 OCP target countries, many of whom are working in health education activities which could include information and prevention of river blindness.

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D. **Devolution:** While OCP has demonstrated its ability to eliminate onchocerciasis as a problem of public health and socioeconomic importance, the ultimate test of the success of the Program will be the extent to which the participating countries will detect and control any new outbreaks of the disease after OCP operations terminate. Although the risk of reappearance of the disease in oncho-freed areas has been reduced to a minimum, the target countries will still need to maintain a state of vigilance to ensure that early detection of renewed transmission, should it occur, is dealt with rapidly and effectively.

Undetected or ignored, resurgence of new infections could result in an unmanageable situation not only within the afflicted area, but also, via trans-border transmission, in neighboring countries. Strengthening the devolution process is therefore of crucial importance. (Also see Technical Analysis, Section VI-A.)

In general terms, devolution means "the maintenance by the participating countries of OCP's achievements after the termination of Program operations." It is anticipated that devolution-connected activities will be integrated into the national health systems of the participating countries, so that new outbreaks of onchocerciasis may be detected and controlled at an early stage.

1. **Devolution Plans:** Given that vector control has already stopped in parts of the original target area, and will cease throughout that area during Phase IV, the years 1992 to 1997 will be a period for field-testing of devolution activities by the target countries. Country-specific devolution plans have now been prepared by the Ministries of Health and approved by the JPC in the original seven target countries with implementation beginning by the end of 1992. In the original three core countries (Burkina Faso, Mali and Niger), this process has already begun: In Burkina Faso, the devolution plan has been incorporated into a \$2 million, five year, World Bank-funded Health Services Development Project; the devolution plan for Mali is expected to be funded by the Government of Belgium this year, and Helen Keller International is expected to participate in the devolution process for Niger with approximately \$300,000 financing from the USAID Mission. The Government of The Netherlands has indicated an interest in funding devolution plans. The World Bank will continue to seek support for devolution from other multilateral organizations as well as from bilateral agencies, NGOs and PVOs. The World Bank also anticipates incorporating the devolution plans of countries with no donor funding into their own on-going or new health projects by 1994-95. A summary of the devolution plans for each original target country can be found in Annex B.

The Devolution Plans for the extension countries will be prepared by 1995, but will not be fully implemented during this phase of the OCP as program operations will be ongoing to the end of 1997.

2. Epidemiological Surveillance and Control:

Operationally, there are two tools of devolution: epidemiological surveillance to detect recrudescence cases, and control of such cases. Onchocercal surveillance will be conducted by epidemiological investigations or community skin-snip surveys, conducted regularly in selected indicator villages in high-risk areas. The control of recrudescence will consist of community-wide application of ivermectin, organized by mobile epidemiological surveillance teams or by local health center staff in communities where a resurgence of the disease has been detected. It is therefore of the utmost importance that the target countries have strong, central epidemiological services, capable of planning and directing field surveillance as well as analyzing the data collected so prompt control can be initiated whenever and wherever required. The capacity to detect and control recrudescence early, must be firmly planted in the public health systems of the OCP countries as a continuing and sustainable activity.

In addition to active surveillance, static health centers in oncho-endemic areas will also be equipped to carry out passive

surveillance of patients who present symptoms of onchocercal infection and migrants from areas outside of the OCP area.

3. Technical Assistance and Training: OCP has assisted the national health authorities in the OCP countries by providing technical guidance (including manuals) with regard to epidemiological surveillance and control of recrudescence, and trained national staff in disciplines related to devolution, including multi-disease surveillance, drug distribution and management. The participating countries have been encouraged to enhance the role of their National Onchocerciasis Committees (NOCs) and make them the "focal point" for devolution, capitalizing upon their established working relationships with OCP. During Phase IV, OCP will provide technical assistance for the preparation of human resource development plans and the sensitization of governments and communities to the importance of onchocerciasis control maintenance. OCP will also continue operational research connected with drug delivery systems, the epidemiological impact of ivermectin in different regimes and its long-term safety and community participation.

4. Strengthening Public Health Systems: As already mentioned, the success of devolution will depend on the capacity of the national health systems to cope effectively with onchocercal case-detection and control of renewed transmissions.

Thus, there is a need for strengthening the public health systems in the participating countries and for instituting or enhancing continuing training of health workers to enable them to participate effectively in the devolution process. Technical assistance and material support by OCP and WHO Regional Office for Africa (WHO/AFRO) will assist in this endeavor. WHO will specifically focus on laying the foundation for the devolution process within, and among, the participating countries. An inter-country coordinator for devolution, stationed in the office of the WHO Representative in Ouagadougou, has been appointed by the Regional Director to help spearhead this effort, and WHO representatives in all the participating countries have been encouraged to give priority attention to devolution activities and to attend regular meetings between WHO/AFRO and OCP staff. It is expected that the direct involvement of the Regional Office and its field staff in the devolution process will be further strengthened during Phase IV.

5. Communication, Coordination and Monitoring:

Intercountry communication and collaboration, which have been spearheaded and supported by OCP, will continue unabated after the end of the Program. Thus, during Phase IV, OCP will institute a system of exchange of information regarding epidemiological surveillance in individual countries and its findings, as well as possible instances of recrudescence and

their control. Such a system of exchange will be instituted at an early date and extended gradually to become fully operational before the termination of Program operations.

During Phase IV, OCP and the target countries will discuss the arrangements to be made at the end of OCP operations for maintaining coordination between the participating countries and for ensuring the information-flow necessary for effective surveillance and control. This would include monitoring epidemiological trends throughout the target area, coordinating onchocerciasis research carried out in the participating countries, assisting in data processing and storage, helping countries to determine their needs and priorities, and making arrangements for training and reviewing research. By the end of the Phase, a blueprint for a suitable arrangement will be available.

6. Devolution Unit: Devolution, once fully operational, is by its very nature a national undertaking. For that purpose, OCP has established a Devolution Unit staffed by an officer (who is also responsible for support to socioeconomic development) and four professionals, one secretary and an annual budget of \$1.1 million. The unit will be strengthened during Phase IV and expertise will be sought in such fields as epidemiology, management, social sciences and training on an "as

and when required" basis. Consultants will be employed whenever necessary.

7. Harmonization: A particular concern with devolution is the reintegration of OCP staff seconded by the national administrations concerned. Close to 1,000 people are currently working in OCP in various operational capacities. The Ouagadougou headquarters alone employs a staff of 600 of which 96 percent are African nationals. Currently, the salaries of staff are topped off by 20 percent by OCP in addition to frequent per diem for travelling in the 11 OCP countries. What will happen to the staff once the Program terminates, is an issue of great concern both to the participating countries and the donor community. The ability of the participating countries to absorb the OCP staff, and at the same salary levels as OCP, is certainly questionable. At the same time, it would seem essential to retain such staff which would be capable of making a substantial contribution to the strengthening of national health service systems in the indigenous countries. The process of transferring staff on OCP rolls on to the national country rolls is called "harmonization." OCP will be working on this issue with each of the individual countries during Phase IV.

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E. Research: OCP-sponsored research activities will continue to meet the priorities set by the Expert Advisory Committee (EAC). The main emphases for research activities during the 1992-97 period include: Continued emphasis on vector control, screening and evaluation of new larvicides, early diagnosis and detection of recrudescence, long-term effect of ivermectin, in vitro test for determining the level of microfilarial susceptibility to ivermectin, further development of the epidemiological model, and the risks and dynamics of recrudescence and its detection and control under devolution. In connection with the increasing involvement of the participating countries in epidemiological surveillance of onchocerciasis and control of recrudescence, OCP will increase its involvement of operational research to identify the requirements for devolution to succeed on a sustainable basis, as well as investigate operational aspects of devolution activities, assess the extent to which the necessary infrastructure and resources exist in the countries concerned, and to help in closing the gap between what is required and what is available.

OCP will continue to maintain its support to the search for a macrofilaricide that will eliminate the adult worms in the human body through the funding of the **Onchocerciasis Chemotherapy Project**. The emergence of an effective, field applicable drug without serious side-effects would certainly ease the control of the disease and radically alter the strategy of the Program. Such

a macrofilaricide would also greatly simplify the control of recrudescence.

F. Training: The OCP-funded training program will center on the preparation for, and reinforcement of, the devolution process. Fellowship will be awarded to nationals of the participating countries to study management of health services, epidemiology, epidemiological surveillance, health statistics, organization and implementation of large-scale public health activities, health education and impact assessment.

As a general principle, OCP fellows will continue to be trained in institutions located in Africa. Given the importance of strong epidemiological surveillance in the context of devolution, special efforts are underway to strengthen institutions in Bamako and Accra in order that they may provide courses in epidemiology at the Master's Degree level. It is also expected that OCP-funded training for devolution will be coordinated with, and supported by, the award of fellowships by WHO/AFR. The Regional Office has recommended to its West African member states that they reserve a fixed percentage of the WHO regular budget allocations for onchocerciasis control. Part of these amounts could be spent on training for devolution.

The Program will continue an in-service training program for its own staff, both on the technical and administrative side. Given that more than 95 percent of the total number of staff positions

are filled by nationals from the target countries, OCP can be said to make a significant contribution to manpower development within the region it serves. During Phase IV, particular attention will be paid to the employment of former OCP fellows, and the national administrations concerned will be encouraged to direct the expertise of these fellows to devolution-connected activities.

G. Organizational Structure: Both WHO and the World Bank will continue their roles as executing agency and fundraiser/manager of OCP's financial resources respectively. The Joint Program Committee (JCP) will continue to serve as the ultimate decision-maker for overall policies, planning and execution of the OCP operations. The Epidemiological Evaluation Unit (EPI) will also continue its traditional role as the focal point for assessing the impact of vector control, essentially in the extension areas where the epidemiological maps prepared in 1989/90 will serve as benchmarks. Apart from monitoring the impact of vector control in the extension areas, epidemiological evaluation will provide the data necessary for the Vector Control Unit (VCU) to decide on cessation of larviciding. The unit responsible for biostatistical analysis and support to information systems development (BIS) will continue to work closely with the VCU and EPI in the planning and collection of the data necessary to determine cessation of larviciding in a given area. BIS will also assist VCU in developing programs for the two years' entomological surveillance to be continued after discontinuation of larviciding and help in the ensuing data analyses. Other OCP units will

continue the same work as previously described in the Background Section.

H. Support for Socio-Economic Development: Assistance to socioeconomic development in the onchocerciasis controlled zones falls outside OCP's terms of reference which are limited to control of the disease. Support to the participating countries in this field was therefore entrusted to the Committee of the Sponsoring Agencies (CSA) acting as a collegiate body or individually through its member organizations within their fields of competence. So far, program activities in this field have been limited to the collection of data required for assessing the impact of OCP operations on socioeconomic development. As a first step, CSA sponsored a regional study to identify, within areas under OCP control, the zones with promising development potential, and to prepare follow-up actions. The second step was a study of resettlement designed to provide guidelines for promoting settlement-related development in oncho-controlled zones. The third activity consisted of an in-depth analysis at the national level to serve as the basis for the formulation of development plans for each country's onchocerciasis area. So far, 15 million hectares of tillable river basin have been made available for resettlement and cultivation, in part as a result of OCP operations. This has provided foodstuffs enough to feed 10 million people per annum. It is expected that the land available for resettlement will come close to 25 million hectares before the end of this century.

The contribution of OCP per se will essentially be one of providing liaison services with the participating countries and the CSA in support of socioeconomic development. The Program will also assist, whenever required, in any studies that may be required to assess the progress made in this field on the basis of the pre-control data collected by the program in the extension areas as well as on the recommendations emanating from the above regional studies. The OCP responsible officer for socio-economic development will work closely with the Devolution Unit to which he will be also be administratively attached.

VI. PROGRAM ANALYSES

A. Technical Analysis:

1. **Cause and Effect:** Onchocerciasis is caused by Onchocerca volvulus, a filarial parasite transmitted by the bite of small gnat-like black flies which are subspecies of the Simulium damnosum complex. There are two major strains of onchocerciasis, a forest strain and a savannah strain. Each is associated with different bio-climatic conditions and is transmitted by different subspecies of black fly.

Humans are the only significant mammalian reservoir of onchocerciasis. Adult female black flies ingest a larval form of O.volvulus while taking a blood meal from an infected human. The larva develop into an infective stage within the fly and are released when she takes her next blood meal. The immature worms develop into adults, or macrofilariae, which live in copula in subcutaneous fibrous nodules. The adult worms may live for up to fourteen years producing millions of microfilariae which invade the skin and soft tissues of the human host. The repeated invasion of tissue by the microfilariae may result in significant damage and a variety of debilitating and disabling conditions including ocular changes and blindness. The severity of onchocercal disease is associated with the intensity and duration of infection, and the strain of O. volvulus. The forest strain

is considered less severe and leads less often to blindness than the savannah strain.

There is no effective cure for onchocerciasis, and until recently, no effective and safe means of preventing the debilitating and disabling effects of disease in those infected. The control of onchocerciasis has only been possible through the regular larviciding of black fly breeding sites.

Female black flies lay their eggs on vegetation and submerged objects in fast flowing rivers and water courses which provide the black fly larvae with the highly oxygenated water they need to mature. The larval stage of development lasts eight to ten days and is the only stage in the black fly life cycle during which the vector is susceptible to the available chemical and biological pesticides.

2. Control and Treatment: OCP has employed the strategy of regular aerial application of effective larvicides at seven day intervals to all active breeding sites of the vector species in the defined program area. Regular larviciding is maintained until transmission is interrupted and the infection dies out in the human reservoir, a period thought not to exceed fourteen years -- the maximum lifespan of the adult onchocercal worms. The OCP has targeted geographic areas in which the more severe savannah strain of onchocerciasis was predominant.

Recent advances in chemotherapy, through the introduction of annual ivermectin treatment, have significantly enhanced the control effort. Large-scale ivermectin distribution programs were initiated under OCP auspices during the third phase of the program. Previously available drugs were not suitable for large-scale use in the control of onchocerciasis. The use of diethylcarbamazine DEC as a microfilaricide and Suramin as a macrofilaricide were associated with high rates of severe, often life-threatening, adverse reactions.

Entomological surveillance will be conducted for two years after cessation of larviciding to monitor possible reinvasion of infective vectors and recrudescence of the disease. When entomological surveillance is withdrawn, the detection of recrudescence will rely entirely on sentinel epidemiologic surveillance conducted by the participating countries. If detected, recrudescence will be addressed by large-scale ivermectin distribution in the affected areas. Enhanced epidemiologic monitoring and annual ivermectin distribution for a period of fourteen years will also be the responsibility of the participating countries.

3. Obstacles to Devolution: The process of devolution, which is a major feature of the fourth phase, is intended to insure that participating countries will have the skills, infrastructure and will to detect and control recrudescence of onchocerciasis when larviciding and

entomological surveillance by the OCP have ceased. Several major challenges are being addressed by the OCP during the fourth phase. All are potential obstacles to sustaining previous program accomplishments. These include:

a. Larvicide Resistance: Larvicide resistance is a challenge which has already been faced by the OCP. Lowered susceptibility of black fly larvae to organophosphorus larvicides occurred on a large scale in 1986/1987. The problem was addressed by rotating six available larvicides, only three of which were organophosphorus compounds. This strategy has helped to re-establish larvicide sensitivity. The potential for the future development of larvicide resistance to the currently used compounds is recognized and monitored. Research to develop and identify new compounds and techniques of control are supported by the OCP.

b. Ivermectin Resistance\Interference with Epidemiologic Monitoring: The lowered susceptibility of onchocercal microfilariae to ivermectin could reduce the value of the drug in the secondary prevention of blindness and other onchocercal sequelae and is a potential threat to the effective control of recrudescence. At this time it is not possible to predict if and when such resistance might occur. Methods for monitoring ivermectin resistance will be established by OCP and should later be incorporated into the devolution plans of the participating countries. This monitoring should occur in areas

where large-scale ivermectin distribution programs are conducted by the participating countries and non governmental organizations, and to the extent possible, in areas where passive distribution of ivermectin has been encouraged.

It has been recognized that in areas with large-scale ivermectin distribution programs epidemiologic surveillance is hampered. The epidemiologic marker traditionally used for surveillance of onchocerciasis is the community microfilarial load (CMFL), which relies on the detection of microfilaria in the skin snips of infected individuals. Ivermectin treatment leads to a significant reduction in the number of microfilariae detectable in the skin without eliminating infection. This increases the likelihood of false negative skin snips. The CMFL thus becomes an invalid means of evaluating the impact of transmission control and continues to be invalid for approximately three years after cessation of the ivermectin distribution programme. As such, the OCP will rely on entomological surveillance in ivermectin treated Program areas to assess the continued impact of vector control. It is uncertain to what extent passive distribution of ivermectin, which has been encouraged, will effect epidemiologic surveillance. Research into new diagnostic tools for onchocerciasis, such as an appropriate immunodiagnostic test, would greatly enhance epidemiologic monitoring and surveillance and is strongly supported by the OCP.

c. Geographical Extension of Vectors: The OCP has focussed its efforts in geographic areas where the vector species of Simulium and the bioclimatic conditions have been conducive to the transmission of the more severe savannah strain of onchocerciasis. Modification of the environment as a result of deforestation or changes in climate could potentially lead to an extension of the geographic areas in which transmission of the more severe strain of onchocerciasis could occur. An ecological transition of this type could enhance the possibility of reinvasion of the programme area by infective black flies.

d. Reinvasion of Infective Vectors: The OCP states that the risk of epidemiologically significant, massive invasion of infective black flies from outside the program area is minimal. Nonetheless, reinvasion has occurred (and is currently controlled) in the original program area, and it is acknowledged that the potential for reinvasion does exist. Ideally entomological surveillance would detect reinvasion before a significant epidemiologic impact could occur, however, entomological surveillance will be discontinued two years after larviciding has ceased in any given area. Therefore, detection of reinvasion in the longer term will rely solely on epidemiologic surveillance.

e. Failure to Plan and Implement Devolution: The OCP has reorganized structurally to facilitate the process of devolution and has made a significant commitment to transferring

the skills needed to conduct epidemiologic surveillance and ivermectin distribution. The Devolution Unit of the OCP provides assistance to the participating countries in planning and implementing the process of devolution. Devolution plans for seven countries (Burkina Faso, Mali, Niger, Ghana, Cote d'Ivoire, Togo, Benin) have already been received and the rest are expected late in the fourth phase. A review of the individual participating country devolution plans has shown the documents to be consistent with the intent of the OCP. All plans call for the strengthening of health infrastructures and the integration of onchocerciasis control activities with other disease control programs and primary health care. The challenges each participating country will face in detecting and controlling recrudescence of onchocerciasis are discussed in more detail below. All devolution plans should be updated periodically and carefully reviewed by the Devolution Unit. In general, it will be important for participating countries to identify mechanism for the long-term financial support of devolution activities, including the strengthening and maintenance of health infrastructures.

f. Delayed Detection of or Failure to Control Recrudescence: The process of devolution outlined by the OCP highlights the detection and control of recrudescence by participating countries as the ultimate tests of the success of the Program.

Epidemiologic surveillance is a key feature of the devolution process and the means by which recrudescence of onchocerciasis will be detected by the national teams. Entomological surveillance by the OCP will be discontinued two years after cessation of larviciding in any given area and will not play a role in recrudescence detection thereafter.

Delayed detection of recrudescence could occur if the devolution plans of the participating countries fail to be implemented or sustained, or if the methods of epidemiologic surveillance established by the participating countries are inadequately sensitive to changes in the CMFL in controlled areas. This could result from an inadequate or infrequent sampling of sentinel villages or a failure of the currently available diagnostic technologies. The reduction in the adequacy of skin snips as a measure of the prevalence of onchocerciasis in communities receiving large-scale treatment by ivermectin has been noted. In addition, the possibility that uncontrolled passive distribution of ivermectin may delay recognition of recrudescence, by increasing the rate of false negative skin snips, should be acknowledged. This risk could be removed in the event an adequate immunodiagnostic tool becomes available for surveillance purposes, or if the passive distribution of ivermectin is controlled and documented.

If recrudescence occurs and is detected, control will be established through community treatment with ivermectin and

participating countries may need the capacity to monitor transmission entomologically. Although ivermectin is the best available chemotherapeutic agent for onchocerciasis control, it does not prevent infection by the larval stage Onchocerca volvulus, has been shown inadequate to interrupt transmission of onchocerciasis in the absence of vector control, and must be distributed annually for as many as fourteen years to insure that the infection dies out in the treated human reservoir. The availability of an effective macrofilaricide would greatly enhance recrudescence control within the context of devolution. Research aimed at identifying and testing such compounds is supported as a priority by the OCP.

g. In-Migration of Infected Human Populations:

Although epidemiologically the migration of a large number of onchocerciasis infected individuals into the onchocerciasis freed areas would be required to give rise to recrudescence, the threat does exist. Due to the long and productive lifespan of Onchocerca volvulus, the cumulative effect of migration over a period of years must be considered in estimating the size of the infected human reservoir and not simply the number of potentially infected migrants in a given year. Migrants from endemic regions should be screened for onchocerciasis upon arrival in the participating countries, and treated with ivermectin annually if infected. Individual country devolution plans should address the issue of screening and treating migrants specifically.

Doc: PrivDir: Oncho.Jay (Jay Smith)

B. Economic Analysis:

1. Benefit-Cost Analysis: A benefit-cost analysis of the Onchocerciasis Control Program has been carried out by Bruce Benton and Elizabeth Skinner of the African Region, The World Bank. This analysis uses conservative estimates of the value of productivity gains from the prevention of blindness in populations at risk and the benefits from land brought into production which would otherwise have remained inaccessible. It assumes the benefit from preventing blindness is equal to the subsistence income level of \$150 per capita, not the higher average per capita income level in the affected areas. By 2023 the program will have prevented an estimated 690,000 cases of blindness. The analysis also assumes the minimum additional output of workers on newly available lands of \$10 per annum per worker. This is a lower bound of numerous estimates made of the additional output which can be obtained on new lands compared to other available land.

Using these minimum estimates of benefits and program costs of \$437 million over the life of the program (constant 1985 dollars) from 1974 to 2004, the authors calculate an internal rate of return of 11 to 13 per cent. This is an acceptable rate of return for economic benefits only. To this may be added the unquantifiable but appreciable improvement in the overall quality of life obtained from preventing blindness.

With respect to the issue of the value of continuing the Onchocerciasis Control Program, the authors calculate the internal rate of return from 1990 onward, treating the costs incurred prior to this year as sunk costs and disregarding previous benefits. Since most of the benefits from continuing the program are ahead of us, a conservative cost-benefit calculation yields a 63% internal rate of return based upon the labor-related returns alone. From the donor community's standpoint, investment in continuing the Onchocerciasis Control Program is an excellent use of funds.

2. Devolution and Recurrent Cost Issue: The capacity of the participating states to eventually assume full financial responsibility for detection and control of recrudescence of the disease after OCP operations have come to an end remains at issue. This involves continuing epidemiological surveillance and community-wide application of ivermectin organized by the public health services to control recrudescence of the disease. In preparing for this devolution of responsibilities, the OCP has established a Devolution Unit to manage the technical aspects of devolution to the national health services and to ensure that critical information exchange can take place among these national entities.

The technical issues with devolution are treated elsewhere. The economic issue is the potential for significant erosion of benefits if the financing of the devolved activities is inadequate to prevent the recrudescence of disease. The WHO Plan of Operations

for the Fourth Phase of OCP states that participating countries will be encouraged to "direct part of the proceeds from economic activities in areas freed from onchocerciasis . . . towards the financing of devolution activities." The issue remains because of the poor experience with earmarking of funds in West Africa. Examples abound of earmarked taxes destined for specific uses or funds such as Road Funds which have been diverted to pay for more pressing public expenditures during economic crises. The suggestion of earmarking is not inappropriate, but it is more important to impress upon the national financing authorities the critical importance of maintaining surveillance and control and the high cost of neglecting program maintenance. A concerted effort should be made in this regard to educate the highest non-technical levels of government in participating countries during the Fourth Phase, particularly given the drought-prone nature of much of the region and the limited financing capability of West African states.

Doc: PrivDir: Onchosoc (Vicky)

C. Social Soundness Analysis: A major parasitic disease in the tropics, onchocerciasis has gravely handicapped both human health and potential for socioeconomic growth and development. According to WHO, in the mid-1970s, at least 10 percent of some ten million people living in endemic areas in Africa were infected, and at least 100,000 person were blind or partially blind.

In addition to blindness, onchocerciasis produces a number of unsightly, disfiguring skin conditions that range from depigmentation, leathery skin patches and tumor-like nodules to bizarre swelling and sagging of the flesh caused by chronic interference with lymphatic circulation. These manifestations are rarely life-threatening, but can affect mobility and social acceptablility. Onchocercal infection also reduces resistance to other diseases, and reduces life expectancy among infected people by about 13 years.

Onchocerciasis is rarely a primary cause of death, particularly among the young. However, in hyperendemic areas, it is likely that infants are exposed to the bites of infective black flies from the day of birth. Infection can begin in childhood as early as the first year of life. Because of the repetitive exposure to this parasitic disease, many children are condemned to a future of misery and the possibility of blindness.

Onchocerciasis-related blindness results from decades of infection and reinfection. The risk of blindness often reduces the size of the population through departure of young people and premature death of blind persons. Those who remain are subjected to an increased rate of infection since the number of biting black flies in the area remains relatively constant. The intensity of onchocerciasis transmission is highest near rivers and streams where the vector flies breed. Thus, people in certain river-related occupations, such as fishermen, rice growers and ferrymen, are particularly exposed to the risk of onchocerciasis. However, it is difficult to generalize the dynamics of the disease. For example, while rice growing is a high-risk activity in Sierra Leone and Cote d'Ivoire where it is practiced in the vicinity of oncho-infested rivers, in Burkina Faso, rice growing appears to reduce the dispersal of the black flies by destroying the plant cover, therefore, limiting the spread of the disease.

It is equally difficult to generalize gender issues. It is generally assumed that women are less heavily infected than men owing to the division of labor. This is borne out in Burkina Faso among the Lobi and Birifor populations, where women only farm the peridomestic areas while the men work in the external fields. However, among the Dagaray people, where women share the tasks with men, the two sexes have similar rates of infection. Among the Senoufo people in Cote d'Ivoire where only women practice rice growing, women are more infected than men.

Onchocerciasis is a striking example of how a disease can compromise the human potential for economic growth and development. Since any degree of onchocerciasis-related blindness is considered virtually irreversible, suffering from varying degrees of visual impairment, people become "economically blind", or unable to see well enough to work. In hyperendemic oncho-infected regions where blindness affects over 10 percent of the population, people in these entire communities have been rendered "economically blind". In some villages in Burkina Faso and Ghana, the prevalence of blindness has reached 35 percent. Blindness of this magnitude reduces the productivity of agricultural communities below their survival level. A community loses an average of 22 productive man-years (nine years of disablement and 13 years lost due to premature death) for every blind person. One study of onchocerciasis-related blindness in Burkina Faso before OCP began, estimated that the country lost 60,000 productive man-years annually.

The cultivation of new fields in the river valleys is either brought about through supervised settlement as part of national development programs or, more likely, as a result of spontaneous occupation by immigrants from other areas or from existing villages near the river valleys. When people move into unoccupied land from a village between the rivers, there are usually few social problems, since these communities are already established on the land in the valleys. In such instances, there is no disruption of the land tenure system. However, occupation of new land by migrants from other parts of the country (nationals or foreigners)

can only take place with the agreement or tactical understanding of the local communities holding traditional tenure over the area. Thus, such moves may entail major social changes. For example, in Burkina Faso, it is often the Mossi ethnic group which undertakes such migrations. Attempts in Cote d'Ivoire to settle Lobi populations in the Koulango territory, have proved unsuccessful. While assistance to socioeconomic development falls outside the scope of OCP, the Committee of Sponsoring Agencies (CSA) provides liaison services with the participating countries in efforts to support such development.

INITIAL ENVIRONMENTAL EXAMINATION
or
CATEGORICAL EXCLUSION

PROJECT COUNTRY: Africa Regional
PROJECT TITLE AND NO.: Onchocerciasis Control Program in West
Africa Phase IV (OCP-4)
(625-0966)
FUNDING: FY(s) _____ US\$ _____
IEE PREPARED BY: John J. Gaudet, AFR/ARTS/FARA

ENVIRONMENTAL ACTION RECOMMENDED:

Positive Determination _____
Negative Determination _____
Categorical Exclusion _____ XXX _____
Deferral _____

SUMMARY OF FINDINGS:

This activity meets the criteria for Categorical Exclusion in accordance with Section 216.2(c)(2)(iv), because A.I.D. contributes as a minor donor to this mutidonor project.

Phase IV activities under this program are presently being monitored in order to provide information to guide implementation, and this is outlined in the attached synopsis.

If, at any time during implementation of this program, new information becomes available regarding significant impacts, a new environmental examination will be required.

CONCURRENCE:

Bureau Environmental Officer:
John J. Gaudet, AFR/TR/ANR

APPROVED: _____
DISAPPROVED: _____
DATE: _____

CLEARANCE:

GC/AFR: _____ DATE: _____

Synopsis of Environmental Monitoring
Program for OCP-4

(Information Provided by Bruce Benton of the World Bank)

1. International High-Level Ecologist Group are appointed by the Program Steering Committee.
2. The Ecologists Group annually review the results of the Program Environmental Monitoring Program (the EMP).
3. The EMP working through National Monitoring Groups, test and screen all chemicals used as larvicides.
4. Previous use of Temphos has been reduced, and has now been replaced by a biocontrol agent (*Bacterium thuringensis* = BT) which is used extensively during periods of low water (during still, calm water conditions).
5. During high water, other larvicides, such as, permethrins, carbosulfans and/or pyraclofos, are used.
6. Target organisms being monitored are fish and stream biota.

Doc: PrivDir: ONCHOBUDG (Vicky)

VII. FINANCIAL PLAN AND BUDGET:

1. **A.I.D. Funding:** A.I.D.'s contribution over the past three phases has amounted to \$43.98 million or 11.4 percent of total donor contributions of \$340.3 million. This includes \$7.7 million, \$15.3 million and \$20.98 million respectively for each phase or in percentages: 13.7, 14.6 and 11.7 percent, respectively. For Phase IV, the OCP Project Committee recommended a contribution at the same level as the previous phase; i.e., \$21 million over a six year period. Although this level was \$4 million below the \$25 million request from the World Bank, it covered a reasonable 13.7 percent of the projected Phase IV costs of \$153.5 million and thus, constituted a reasonable contribution by historic standards. A.I.D. is, of course, to retain flexibility to increase or decrease this funding in any given year or over the life of the Phase IV Program. See Table 5 Funding for Phase IV: Projected Contributions Based on Pledges in Riyadh.

TABLE 5

FUNDING FOR PHASE IV (1992-1997)
PROJECTED CONTRIBUTIONS BASED ON PLEDGES IN RIYADH
(US\$ millions)

CONTRIBUTORS	1992	1993	1994	1995	1996	1997	TOTAL	CURRENCY OF CONTRIBUTION	EXCHANGE RATES OF
								(US dollar if not specified)	As of February 10, 1992
Relatively Firm Contributions Based on Pledges in Riyadh									
AFRICAN DEVT BANK	0.39	0.39	0.39	0.39	0.39	0.39	2.37	UA	0.7093
BELGIUM	0.50	0.00	0.00	0.00	0.00	0.00	0.50	Belgian franc	32.2100
CANADA	1.45	1.45	1.45	1.45	1.45	1.45	8.67	Canadian dollar	1.1760
EEC	0.00	9.16	0.00	0.00	0.00	0.00	9.16	ECU	0.7640
FRANCE	1.41	1.41	1.41	1.41	1.41	1.41	8.46	French franc	5.3170
GERMANY	2.56	1.28	1.28	1.28	1.28	1.28	8.97	Deutschmark	1.5600
GULBENKIAN FOUNDATION	0.05	0.05	0.05	0.05	0.05	0.05	0.30		
ITALY	0.85	0.00	0.00	0.00	0.00	0.00	0.85	Italian Lira	1175.0000
KUWAIT	0.25	0.25	0.25	0.25	0.25	0.25	1.50		
LUXEMBOURG	0.26	0.26	0.26	0.26	0.26	0.26	1.59	Lux. franc	32.1500
NETHERLANDS	2.56	2.56	2.56	2.56	2.56	2.56	15.38	Guilder	1.7560
OPEC FUND FOR INTL DEVT	0.05	0.05	0.05	0.05	0.05	0.05	0.30		
PORTUGAL	0.05	0.05	0.05	0.05	0.05	0.05	0.30		
SAUDI ARABIA	2.33	2.33	2.33	2.33	2.33	2.33	13.98		
SWITZERLAND	2.16	2.16	2.16	2.16	2.16	2.16	12.93	Swiss franc	1.3920
UNITED KINGDOM	1.84	1.84	1.84	1.84	1.84	1.84	11.03	Pound sterling	0.5440
UNITED STATES	3.50	3.50	3.50	3.50	3.50	3.50	21.00		
UNDP	1.50	1.50	1.50	1.50	1.50	0.00	7.50		
WHO	0.25	0.25	0.25	0.25	0.25	0.25	1.50		
WORLD BANK	2.63	2.63	2.63	2.63	2.63	2.63	15.78		
Subtotal	24.59	31.13	21.96	21.96	21.96	20.46	142.07		
Expected Contributions, Not Yet Pledged									
JAPAN	1.80	1.80	1.80	1.80	1.80	1.80	10.80		
KOREA	0.10	0.10	0.10	0.10	0.10	0.10	0.60		
Subtotal	1.90	1.90	1.90	1.90	1.90	1.90	11.40		
TOTAL CONTRIBUTIONS	26.49	33.03	23.86	23.86	23.86	22.36	153.47		
INVESTMENT INCOME a/	1.00	0.69	0.91	0.60	0.60	0.60	4.40		
TOTAL REVENUE	27.49	33.72	24.77	24.46	24.46	22.96	157.87		
TOTAL EXPENDITURE	32.66	30.09	30.03	28.30	27.73	26.86	175.67		
SURPLUS/DEFICIT	-5.16	3.63	-5.26	-3.84	-3.27	-3.90	-17.80		
SURPLUS/DEFICIT INCLUDING GAP OF PREVIOUS YEAR	-5.16	3.63	-5.26	-3.95	-7.22	-11.12			
DRAWDOWN OF RESERVE	5.16	-3.63	5.15	0.00	0.00	0.00			
END-1991 RESERVE:									
16.68									
END-YEAR RESERVE BALANCE	11.52	15.15	10.00	10.00	10.00	10.00			
FUNDING GAP	0.00	0.00	0.11	3.95	7.22	11.12			

a/ Investment income is calculated as simple interest of 6% earned on reserve of preceding year.

11-Feb-92

On February 25, 1992, the A.I.D. Administer attended the World Bank-sponsored ceremony which formally launched Phase IV, co-signing the OCP Fund Agreement with the other 21 donors. The Fund Agreement contained a number of conditions attached to A.I.D. support and does not constitute an obligating document for A.I.D. purposes. These included: (1) A.I.D.'s administrative approval of the Phase IV Program; (2) the availability of funds; (3) the establishment of verifiable program objectives and related progress indicators for all components of Phase IV, including devolution; (4) that the seven original target countries begin implementing devolution by the end of 1994, and that the four extension countries develop and submit their devolution plans to the Joint Program Committee (JCP) by the end of CY 1995, and finally, (5) that there will be no assurances that A.I.D. will participate in the phase-out period (Phase V) of the Program. It was further recommended that, to the extent possible, contributions be made in equal annual installments over the six-year Phase IV period, beginning with \$3.5 million in CY 1992. These conditions are contained in sub-para. (m), on p. 4, of the Agreement. It was GC/AFR's view that with these conditions in place, A.I.D. could sign the Agreement without such signature constituting an obligation of funds.

The House Appropriations Committee has earmarked \$5 million of health money for OCP in FY 1992. It is now assumed that if this earmark becomes law, the FY 1992 obligation for OCP will be drawn from that earmark and not from DFA funds. However, future

obligations may be a split between the health earmark and the DFA.

2. Planned 1992-97 Budget: The planned 1992-97 budget reflects a situation where operations in the original target area have ceased and have been transferred to extension areas as a successor program designed to safeguard the achievements in the former area, and to protect the populations in the latter. This move was already initiated during Phase III, and will allow for a gradual decrease in control activities throughout Phase IV, resulting in a 17 percent reduction in the budget from 1992 to 1997.

The cost of implementing Phase IV, expressed in 1991 prices, including contingency, is projected at \$175.7 million. In real terms, this is 26 percent lower than Phase III's cost of \$180 million. Since total contributions to date by the 22 donors amount to 153.47 million for Phase IV, a shortfall of \$17.8 million is apparent. However, the World Bank believes this gap will be closed over the Phase IV implementation period by drawing down on accumulated reserves (\$16.69 million) or securing additional contributions. One of the major concerns in drawing up the present budget plan has been to establish minimum yet effective control operations and corresponding resource requirements, which will allow OCP to eventually reach its objective at the least cost. A second major concern has been the increased emphasis on planning, implementing and consolidating the devolution process during this phase.

The budgetary forecasts for the 1992-97 period are summarized in the table below. These estimates are based on (a) costs used for the 1991 plan of action and budget, applying a US dollar/CFA exchange rate of 285 and (b) on assumptions made for annual cost increases in the various categories of expenditures. These are as follows: (1) an annual cost increase of 7.5 percent for professional staff and 7 percent for general services staff; (2) an increase of 21 percent in aerial contracts during 1993-97; (3) an annual increase of 5 percent in cost of fuel (taking into account the cost increase as well as overall consumption); (4) air fares increase of 10 percent annually in 1992-93 and 5 percent each year during the remainder of the phase; (5) an annual per diem increase of 5 percent; (6) an annual increase of 3.5 percent in cost of vehicles between 1992-94 (thereafter few, if any, purchases); (7) 5 percent increase in cost of equipment between 1992-94 (thereafter cost increases to be offset by decreases in quantities purchased); (8) 8 percent annual increase in services, and finally, (9) no increase for larvicides. See Budget Table 6: Estimated Costs of Operations by Program Activity and Calendar Year.

3. CY 1992 Budget: The planned budget for 1992 is presented by program activities and program expenditures. Included is a change aimed at highlighting the importance of devolution; i.e., devolution will no longer be included in the budget of the office of the Program Director, but appears as a separate program activity, placed under a unit newly created for that purpose. The following tables give a synthesis of the costs by each OCP

activity. Two tables contain a summary of Phase III and the amounts proposed by CY 1992 with regards to program activities and expenditures; the other two tables present graphically the proposed budget for CY 1992 by program activity and expenditures. A final table summarizes both categories.

The approved budget for 1992 is \$32,66 million. This is a decrease of 4.9 percent from last year's budget of \$34,355,000 and is due to a decrease of the budget of certain categories of expenditures such as operational travel, contracts, aerial operations, operating costs and larvicides. In general, the OYB will decrease as OCP progresses and the devolution process is implemented.

4. Methods of Financing: In accordance with simple procedures first established in 1974 in the Onchocerciasis Fund Agreement, and as continued in subsequent fund agreements, A.I.D. and other donors will provide untied grants to the Onchocerciasis Trust Fund, administered by the World Bank. Funds will be disbursed annually pursuant to a Letter Grant Agreement and subsequent annual amendments to said Agreement, specifying, inter alia, incremental funding levels.

TABLE 6

BUDGET

Estimated costs of Operations
by Activity and Calendar Year
(US\$ 000)

<u>Activity</u>	1992	1993	1994	1995	1996	1997	Total
<u>Vector control</u>	22 365	19 860	19 777	18 690	18 641	18 562	117 895
<u>Epidemiological evaluation</u>	1 803	1 867	1 670	1 564	1 535	1 528	9 967
<u>Biostatistics and information systems</u>	288	265	265	265	265	265	1 613
<u>Devolution</u>	964	1 010	1 057	1 110	1 164	1 222	6 527
<u>Onchocerciasis Chemotherapy Project (OCT)</u> ¹	2 196	2 386	2 771	2 510	2 295	1 785	13 943
<u>Management and administration</u> ²	3 285	3 107	2 899	2 872	2 836	2 817	17 816
<u>Capital costs</u>	907	907	907	610	313	-	3 644
<u>Administrative support costs Geneva</u>	340	360	360	360	360	360	2 140
<u>Statutory meetings</u>	305	323	323	323	323	323	1 920
<u>Total, of which</u>	<u>32 453</u>	<u>30 085</u>	<u>30 029</u>	<u>28 304</u>	<u>27 732</u>	<u>26 862</u>	<u>175 465</u>
- budgeted for the Original OCP areas:	11 400	8 700	6 600	2 200	1 900	1 400	32 200
- budgeted for Extension areas:	21 100	21 400	23 400	26 100	25 800	25 400	143 200

1 Cost-estimates for other research included budgetary forecasts for individual activities.

2 This budget line includes provision for expenditures in respect to the Director's Office, Administration & Support Services comprising Personnel, Budget and Finance, Supplies & Services, and Transportation amounting to around 10% of the total expenditures.

TABLE 7
BUDGET BY PROGRAMME ACTIVITY
(US \$)

Programme Activity	P H A S E III			Proposed 1992
	Expenditure	Expenditure	Approved	
	1986/1989	1990	1991	
Vector Control	80,147,242	21,555,762	24,969,000	22,365,000
Epidemiological Evaluation	4,095,852	1,459,558	1,754,500	1,803,000
Biostatistics & Info. Systems	542,818	253,870	327,500	286,000
Socioeconomic Development (1)	390,148	121,634	142,000	
Dévolution				964,000
Chemotherapy Project	8,954,443	1,834,931	1,841,500	2,196,000
Office of the Director	4,633,662	1,154,558	1,240,500	727,000
Administration & Support services	9,577,713	2,532,698	2,685,500	2,558,000
Administrative Support costs Geneva	1,021,062	322,647	340,000	340,000
Statutory Meetings	1,107,240	309,845	305,000	305,000
Capital Costs (2)		1,086,857	949,500	907,000
Applied Research and Environmental Monitoring	3,925,385			
TOTAL	114,395,365	30,432,360	34,355,000	32,453,000

(1) As from 1992, Socioeconomic development will be included in "Dévolution" Programme Activity

(2) Capital cost expenditures for 1986 to 1989 are included in the expenditures of the Programme activities above.

Note

Ivermectin: 900,000 tablets valued at US\$ 3 a tablet, provided free of charge by Merck Sharp and Dohme.

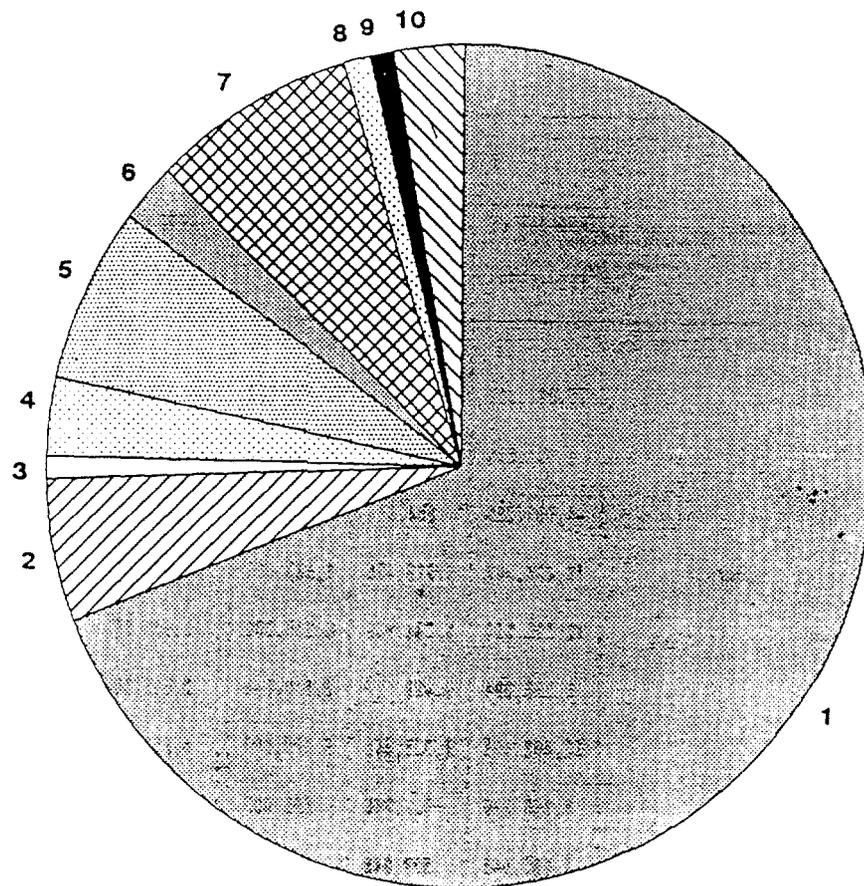
TABLE 8

BUDGET BY CATEGORY OF EXPENDITURE
(US \$)

Category of expenditure	P H A S E III			Proposed 1992
	Expenditure	Expenditure	Approved	
	1986/1989	1990	1991	
RECURRENT COSTS				
Personnel services	36,081,437	10,417,471	11,334,500	10,939,000
Consultants	2,991,848	886,984	1,202,000	1,217,000
Operational travel	4,001,229	864,885	1,375,000	1,167,000
Contracts(research & others)	10,438,583	1,812,495	1,533,000	2,489,000
Aerial operations	18,725,094	6,334,999	6,815,000	6,500,000
Operating costs	8,266,004	2,499,127	2,510,000	2,512,000
Larvicides	22,408,403	4,355,340	6,120,000	4,250,000
Supplies	2,268,220	504,246	555,000	545,000
Meetings	1,095,548	309,845	305,000	305,000
Fellowships and training	983,933	308,407	316,000	317,000
National teams	1,886,036	931,077	1,000,000	965,000
Administrative support costs - Geneva	1,021,062	322,847	340,000	340,000
Sub-total	109,967,377	29,345,503	33,405,500	31,546,000
CAPITAL COSTS				
Office furniture	212,598	64,587	25,000	25,000
Data processing equipment	58,811	52,245	54,500	77,000
Vehicles	1,749,839	702,855	650,000	597,000
Technical equipment	1,855,993	221,581	210,000	198,000
Buildings	550,747	45,589	10,000	10,000
Sub-total	4,427,988	1,086,857	949,500	907,000
TOTAL	114,395,365	30,432,360	34,355,000	32,453,000

FIGURE 1

1992 BUDGET BY PROGRAMME ACTIVITY

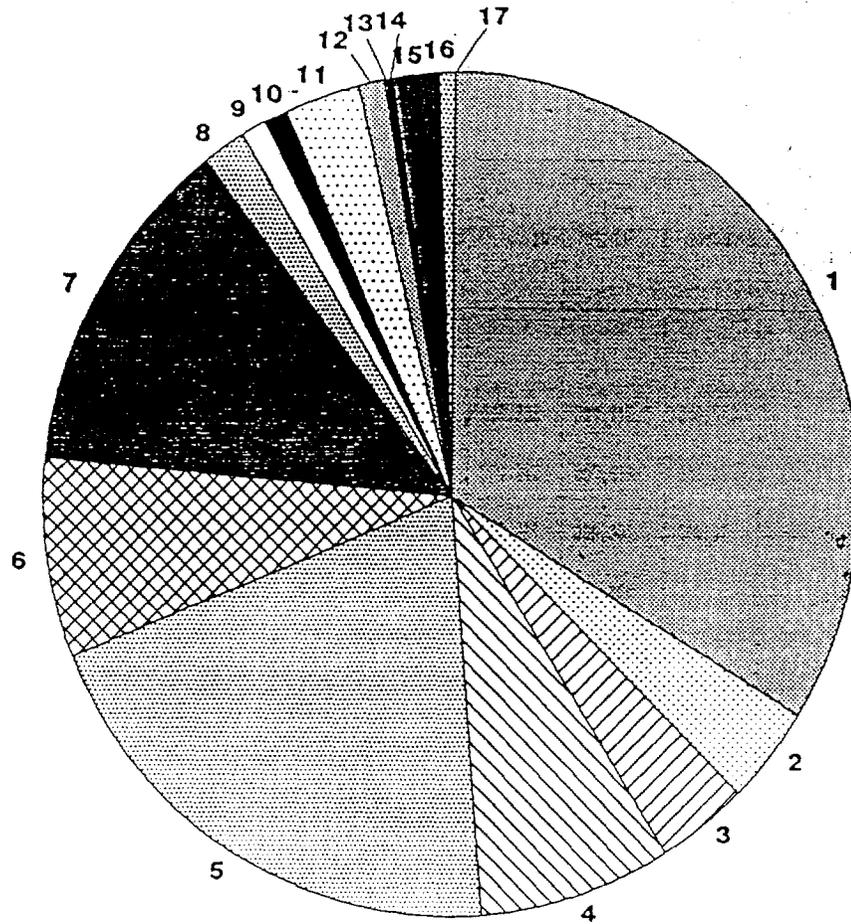


	(US \$)	(%)
1 Vector control	22.365.000	68.91
2 Epidemiological evaluation	1.803.000	5.56
3 Biostatistics & Information Systems	288.000	0.89
4 Devolution	964.000	2.97
5 Chemotherapy Project	2.196.000	6.77
6 Office of the Director	727.000	2.24
7 Administration & support services	2.558.000	7.88
8 Administrative support costs Geneva	340.000	1.05
9 Statutory meetings	305.000	0.94
10 Capital costs	907.000	2.79
Total	32.453.000	100.00

TABLE 10

FIGURE 2

1992 BUDGET BY CATEGORY OF EXPENDITURE



	(US \$)	(%)
1 Personnel services	10,939,000	33.70
2 Consultants	1,217,000	3.75
3 Operational travel	1,167,000	3.60
4 Contracts (research & others)	2,489,000	7.67
5 Aerial operations	6,500,000	20.02
6 Operating costs	2,512,000	7.74
7 Larvicides	4,250,000	13.10
8 Supplies	545,000	1.68
9 Meetings	305,000	0.94
10 Fellowships and training	317,000	0.98
11 National teams	965,000	2.97
12 Administrative Support costs - Geneva	340,000	1.05
13 Office furniture	25,000	0.08
14 Data processing equipment	77,000	0.24
15 Vehicles	597,000	1.84
16 Technical equipment	198,000	0.61
17 Buildings	10,000	0.03
Total	32,453,000	100.00

TABLE 11

BUDGET FOR 1992 - SUMMARY BY PROGRAMME ACTIVITY AND CATEGORY OF EXPENDITURE
(US \$)

Category of expenditure	Activity Programme Director	Vector Control	Epidemiological Evaluat.	Biostatistics & Inf Systems	Devolution	Chemo-therapy Project	Adminis-tration	Statutory Meetings	Total 1992
RECURRENT COSTS									
Personnel services	524,000	7,322,000	582,000	146,000	459,000		1,896,000		10,939,000
Consultants	98,000	472,000	376,000	80,000	136,000		55,000		1,217,000
Operational travel	70,000	700,000	230,000	12,000	35,000		120,000		1,167,000
Contracts (research & others)		200,000	15,000	30,000	10,000	2,196,000	32,000		2,483,000
Aerial operations		6,500,000	-						6,500,000
Operating costs	10,000	2,000,000	140,000	5,000	7,000		350,000		2,512,000
Insecticides		4,250,000							4,250,000
Supplies	25,000	300,000	100,000	15,000			105,000		545,000
Fellowships and training					317,000				317,000
National Teams		615,000	350,000						965,000
Administrative Support costs-Geneva							340,000		340,000
Statutory meetings								305,000	305,000
Sub-total	727,000	22,365,000	1,003,000	288,000	964,000	2,196,000	2,898,000	305,000	31,546,000
CAPITAL COSTS									
Office furniture	1,000	10,000	5,000	2,000			7,000		25,000
Data processing equipment	7,000	24,000	7,000	22,000			17,000		70,000
Vehicles		467,000	75,000				55,000		597,000
Technical equipment		171,000	7,000				20,000		198,000
Buildings		10,000							10,000
Sub-total	8,000	682,000	94,000	24,000	0	0	99,000	0	907,000
TOTAL	735,000	23,047,000	1,097,000	312,000	964,000	2,196,000	2,997,000	305,000	32,453,000

5C(2) - ASSISTANCE CHECKLIST

Listed below are statutory criteria applicable to the assistance resources themselves, rather than to the eligibility of a country to receive assistance. This section is divided into three parts. Part A includes criteria applicable to both Development Assistance and Economic Support Fund resources. Part B includes criteria applicable only to Development Assistance resources. Part C includes criteria applicable only to Economic Support Funds.

CROSS REFERENCE: IS COUNTRY CHECKLIST UP TO DATE?

A. CRITERIA APPLICABLE TO BOTH DEVELOPMENT ASSISTANCE AND ECONOMIC SUPPORT FUNDS

1. Host Country Development Efforts (FAA Sec. 601(a)): Information and conclusions on whether assistance will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.

2. U.S. Private Trade and Investment (FAA Sec. 601(b)): Information and conclusions on how assistance will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

1. The project's objective is to control Onchocerciasis in West Africa. Control of this debilitating disease will permit significant socio-economic development in the eleven participating countries, thereby creating conditions which could stimulate the development of any of the factors listed in items (a) through (f).

2. Although the executing agency for the project (World Health Organization) will manage the procurement of goods and services, U.S. firms are well placed and competitive to finish a significant level of the project's inputs. Under earlier phases of this program, U.S. suppliers have provided millions of dollars worth of goods and services to the project.

3. Congressional Notification

a. **General requirement (FY 1991 Appropriations Act Secs. 523 and 591; FAA Sec. 634A):** If money is to be obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified (unless the notification requirement has been waived because of substantial risk to human health or welfare)?

a. A notification will be forwarded to the Congress prior to any obligation of funds for this project.

b. **Notice of new account obligation (FY 1991 Appropriations Act Sec. 514):** If funds are being obligated under an appropriation account to which they were not appropriated, has the President consulted with and provided a written justification to the House and Senate Appropriations Committees and has such obligation been subject to regular notification procedures?

b. N/A

c. **Cash transfers and nonproject sector assistance (FY 1991 Appropriations Act Sec. 575(b)(3)):** If funds are to be made available in the form of cash transfer or nonproject sector assistance, has the Congressional notice included a detailed description of how the funds will be used, with a discussion of U.S. interests to be served and a description of any economic policy reforms to be promoted?

c. N/A

4. **Engineering and Financial Plans (FAA Sec. 611(a)):** Prior to an obligation in excess of \$500,000, will there be: (a) engineering, financial or other plans necessary to carry out the assistance; and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

4. Yes

5. **Legislative Action (FAA Sec. 611(a)(2)):** If legislative action is required within recipient country with respect to an obligation in excess of \$500,000, what is the basis for a reasonable expectation that such action

5. N/A

85

will be completed in time to permit orderly accomplishment of the purpose of the assistance?

6. **Water Resources** (FAA Sec. 611(b); FY 1991 Appropriations Act Sec. 501): If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See A.I.D. Handbook 3 for guidelines.)

6. N/A

7. **Cash Transfer and Sector Assistance** (FY 1991 Appropriations Act Sec. 575(b)): Will cash transfer or nonproject sector assistance be maintained in a separate account and not commingled with other funds (unless such requirements are waived by Congressional notice for nonproject sector assistance)?

7. N/A

8. **Capital Assistance** (FAA Sec. 611(e)): If project is capital assistance (e.g., construction), and total U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively?

8. N/A

9. **Multiple Country Objectives** (FAA Sec. 601(a)): Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

9. See response to item A. 1. on page 1.

10. **U.S. Private Trade** (FAA Sec. 601(b)): Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

10. See response to item A. 2. on page 1.

11. Local Currencies

a. **Recipient Contributions** (FAA Secs. 612(b), 636(h)): Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.

11. a. Although the program's budget does not include contributions from recipient countries, plans are already established or under development to devolve surveillance and drug distribution responsibilities to the recipient countries during this phase IV of the program.

b. **U.S.-Owned Currency** (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

b. N/A

c. **Separate Account** (FY 1991 Appropriations Act Sec. 575). If assistance is furnished to a foreign government under arrangements which result in the generation of local currencies:

c. N/A

(1) Has A.I.D. (a) required that local currencies be deposited in a separate account established by the recipient government, (b) entered into an agreement with that government providing the amount of local currencies to be generated and the terms and conditions under which the currencies so deposited may be utilized, and (c) established by agreement the responsibilities of A.I.D. and that government to monitor and account for deposits into and disbursements from the separate account?

(2) Will such local currencies, or an equivalent amount of local currencies, be used only to carry out the purposes of the DA or ESF chapters of the FAA (depending on which chapter is the source of the assistance) or for the administrative requirements of the United States Government?

(3) Has A.I.D. taken all appropriate steps to ensure that the equivalent of local currencies disbursed from the separate account are used for the agreed purposes?

(4) If assistance is terminated to a country, will any unencumbered balances of funds remaining in a separate account be disposed of for purposes agreed to by the recipient government and the United States Government?

12. Trade Restrictions

a. **Surplus Commodities** (FY 1991 Appropriations Act Sec. 521(a)): If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?

12. a. N/A

b. **Textiles (Lautenberg Amendment)** (FY 1991 Appropriations Act Sec. 521(c)): Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of

b. N/A

textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel?

13. **Tropical Forests (FY 1991 Appropriations Act Sec. 533(c)(3)):** Will funds be used for any program, project or activity which would (a) result in any significant loss of tropical forests, or (b) involve industrial timber extraction in primary tropical forest areas?

13. No

14. **PVO Assistance**

14. N/A

a. **Auditing and registration (FY 1991 Appropriations Act Sec. 537):** If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.?

b. **Funding sources (FY 1991 Appropriations Act, Title II, under heading "Private and Voluntary Organizations"):** If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government?

15. **Project Agreement Documentation (State Authorization Sec. 139 (as interpreted by conference report)):** Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision).

15. The appropriate project documentation will be transmitted to State and A.I.D. in a timely manner.

24

16. **Metric System** (Omnibus Trade and Competitiveness Act of 1988 Sec. 5164, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance activity use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

16. Yes

17. **Women in Development** (FY 1991 Appropriations Act, Title II, under heading "Women in Development"): Will assistance be designed so that the percentage of women participants will be demonstrably increased?

17. Yes

18. **Regional and Multilateral Assistance** (FAA Sec. 209): Is assistance more efficiently and effectively provided through regional or multilateral organizations? If so, why is assistance not so provided? Information and conclusions on whether assistance will encourage developing countries to cooperate in regional development programs.

18. Assistance is being channled through multilateral organizations to enhance its effectiveness and, in combination with other donor assistance, attract and engage targeted developing countries to cooperate in sustaining this Onchocerciasis control program over time.

19. Abortions (FY 1991 Appropriations Act, Title II, under heading "Population, DA," and Sec. 525):

19. a. No

a. Will assistance be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization?

b. Will any funds be used to lobby for abortion?

b. No

20. Cooperatives (FAA Sec. 111): Will assistance help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life?

20. No

21. U.S.-Owned Foreign Currencies

21. N/A

a. Use of currencies (FAA Secs. 612(b), 636(h); FY 1991 Appropriations Act Secs. 507, 509): Describe steps taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. are utilized in lieu of dollars to meet the cost of contractual and other services.

b. Release of currencies (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

22. Procurement

22. N/A (WHO procurement policies and procedures will be followed.)

a. Small business (FAA Sec. 602(a)): Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?

b. U.S. procurement (FAA Sec. 604(a)): Will all procurement be from the U.S. except as otherwise determined by the President or determined under delegation from him?

c. **Marine insurance (FAA Sec. 604(d)):** If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?

d. **Non-U.S. agricultural procurement (FAA Sec. 604(e)):** If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)

e. **Construction or engineering services (FAA Sec. 604(g)):** Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)

f. **Cargo preference shipping (FAA Sec. 603):** Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates?

g. **Technical assistance (FAA Sec. 621(a)):** If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the

facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

h. U.S. air carriers

(International Air Transportation Fair Competitive Practices Act, 1974): If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?

i. Termination for convenience of U.S. Government (FY 1991 Appropriations Act Sec. 504): If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

j. Consulting services

(FY 1991 Appropriations Act Sec. 524): If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)?

k. Metric conversion

(Omnibus Trade and Competitiveness Act of 1988, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy): Does the assistance program use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest

documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

1. Competitive Selection

Procedures (FAA Sec. 601(e)): Will the assistance utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

23. Construction

23. a. N/A

a. **Capital project (FAA Sec. 601(d)):** If capital (e.g., construction) project, will U.S. engineering and professional services be used?

b. **Construction contract (FAA Sec. 611(c)):** If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

b. N/A

c. **Large projects, Congressional approval (FAA Sec. 620(k)):** If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the Congressional Presentation), or does assistance have the express approval of Congress?

c. N/A

24. U.S. Audit Rights (FAA Sec. 301(d)): If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

24. N/A

25. Communist Assistance (FAA Sec. 620(h)). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries?

25. N/A

26. Narcotics

a. Cash reimbursements (FAA Sec. 483): Will arrangements preclude use of financing to make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated?

26. a. Yes

b. Assistance to narcotics traffickers (FAA Sec. 487): Will arrangements take "all reasonable steps" to preclude use of financing to or through individuals or entities which we know or have reason to believe have either: (1) been convicted of a violation of any law or regulation of the United States or a foreign country relating to narcotics (or other controlled substances); or (2) been an illicit trafficker in, or otherwise involved in the illicit trafficking of, any such controlled substance?

b. Yes

27. Expropriation and Land Reform (FAA Sec. 620(g)): Will assistance preclude use of financing to compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President?

27. Yes

28. Police and Prisons (FAA Sec. 660): Will assistance preclude use of financing to provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?

28. Yes

29. CIA Activities (FAA Sec. 662): Will assistance preclude use of financing for CIA activities?

29. Yes

30. Motor Vehicles (FAA Sec. 636(i)): Will assistance preclude use of financing for purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?

30. N/A

31. **Military Personnel (FY 1991 Appropriations Act Sec. 503):** Will assistance preclude use of financing to pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? 31. Yes
32. **Payment of U.N. Assessments (FY 1991 Appropriations Act Sec. 505):** Will assistance preclude use of financing to pay U.N. assessments, arrearages or dues? 32. Yes
33. **Multilateral Organization Lending (FY 1991 Appropriations Act Sec. 506):** Will assistance preclude use of financing to carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? 33. Yes
34. **Export of Nuclear Resources (FY 1991 Appropriations Act Sec. 510):** Will assistance preclude use of financing to finance the export of nuclear equipment, fuel, or technology? 34. Yes
35. **Repression of Population (FY 1991 Appropriations Act Sec. 511):** Will assistance preclude use of financing for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? 35. Yes
36. **Publicity or Propoganda (FY 1991 Appropriations Act Sec. 516):** Will assistance be used for publicity or propoganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propoganda purposes not authorized by Congress? 36. No

37. **Marine Insurance (FY 1991 Appropriations Act Sec. 563):** Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate?

37. N/A

38. **Exchange for Prohibited Act (FY 1991 Appropriations Act Sec. 569):** Will any assistance be provided to any foreign government (including any instrumentality or agency thereof), foreign person, or United States person in exchange for that foreign government or person undertaking any action which is, if carried out by the United States Government, a United States official or employee, expressly prohibited by a provision of United States law?

38. No

B. CRITERIA APPLICABLE TO DEVELOPMENT ASSISTANCE ONLY

1. **Agricultural Exports (Bumpers Amendment) (FY 1991 Appropriations Act Sec. 521(b), as interpreted by conference report for original enactment):** If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities: (1) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (2) in support of research that is intended primarily to benefit U.S. producers?

1. N/A

2. **Tied Aid Credits (FY 1991 Appropriations Act, Title II, under heading "Economic Support Fund"):** Will DA funds be used for tied aid credits?

3. **Appropriate Technology (FAA Sec. 107):** Is special emphasis placed on use of appropriate technology (defined as relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

4. **Indigenous Needs and Resources (FAA Sec. 281(b)):** Describe extent to which the activity recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

5. **Economic Development (FAA Sec. 101(a)):** Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

6. **Special Development Emphases (FAA Secs. 102(b), 113, 281(a)):** Describe extent to which activity will: (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries

2. No

3. Yes. Some 600 African nationals are employed under the program and they will constitute the nucleus of the participating countries control efforts following this multi-donor program.

4. As indicated in B. 3. above Africans are being trained to continue the Onchocerciasis control efforts at the country level following this regional multi-donor program. This phase IV program will establish and execute devolution plans to facilitate the transition from a regional, multi-donor program to national control programs.

5. The program is establishing large Oncho-free areas which will attract farmers and others to pursue development opportunities.

6. The program will: (a) open up economic opportunities for millions of low income rural families; (b) strengthen ties with NGOs/PVOs also engaged in Oncho-control activities in the region; (c) support the establishment of Oncho-control units within the Ministries of Health of participating countries; (d) protect women and others from this debilitating disease; and (e) encourage continued regional cooperation in combatting the disease.

and the improvement of women's status; and
(e) utilize and encourage regional
cooperation by developing countries.

7. **Recipient Country Contribution**
(FAA Secs. 110, 124(d)): Will the
recipient country provide at least 25
percent of the costs of the program,
project, or activity with respect to which
the assistance is to be furnished (or is
the latter cost-sharing requirement being
waived for a "relatively least developed"
country)?

7. N/A

8. **Benefit to Poor Majority** (FAA
Sec. 128(b)): If the activity attempts to
increase the institutional capabilities of
private organizations or the government of
the country, or if it attempts to
stimulate scientific and technological
research, has it been designed and will it
be monitored to ensure that the ultimate
beneficiaries are the poor majority?

8. Yes

9. **Abortions** (FAA Sec. 104(f); FY
1991 Appropriations Act, Title II, under
heading "Population, DA," and Sec. 535):

a. Are any of the funds to be
used for the performance of abortions as a
method of family planning or to motivate
or coerce any person to practice
abortions?

9. a. No

b. Are any of the funds to be
used to pay for the performance of
involuntary sterilization as a method of
family planning or to coerce or provide
any financial incentive to any person to
undergo sterilizations?

b. No

c. Are any of the funds to be
made available to any organization or
program which, as determined by the
President, supports or participates in the
management of a program of coercive
abortion or involuntary sterilization?

c. No

d. Will funds be made available only to voluntary family planning projects which offer, either directly or through referral to, or information about access to, a broad range of family planning methods and services?

9. d. N/A

e. In awarding grants for natural family planning, will any applicant be discriminated against because of such applicant's religious or conscientious commitment to offer only natural family planning?

e. N/A

f. Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning?

f. No

g. Are any of the funds to be made available to any organization if the President certifies that the use of these funds by such organization would violate any of the above provisions related to abortions and involuntary sterilization?

g. No

10. **Contract Awards (FAA Sec. 601(e)):** Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

10. Yes, following WHO contracting procedures.

11. **Disadvantaged Enterprises (FY 1991 Appropriations Act Sec. 567):** What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?

11. N/A

12. **Biological Diversity (FAA Sec. 119(g):** Will the assistance: (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?

13. **Tropical Forests (FAA Sec. 118; FY 1991 Appropriations Act Sec. 533(c)-(e) & (g)):**

a. **A.I.D. Regulation 16:** Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16?

m b. **Conservation:** Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (1) stress the importance of conserving and sustainably managing forest resources; (2) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (3) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (4) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (5) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded; (6) conserve forested watersheds and rehabilitate those which have been deforested; (7) support training, research, and other actions

12. The program is systematically addressing the environmental implications of opening up large areas of uninhabited lands to settlers. A regional conference is planned to discuss land-use management and measures to protect the environment from inappropriate exploitation.

13. a. Yes

b. The program supports the identification of areas most suitable for agro-pastoral production, the identification of land settlement issues and the identification of environmentally sustainable production systems. To these ends, land settlement reviews are being financed for each of the participating countries and program participants are being convened at regional conference to determine appropriate development strategies protective of the environment.

which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (8) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (9) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (10) seek to increase the awareness of U.S. Government agencies and other donors of the immediate and long-term value of tropical forests; (11) utilize the resources and abilities of all relevant U.S. government agencies; (12) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land; and (13) take full account of the environmental impacts of the proposed activities on biological diversity?

c. Forest degradation: Will assistance be used for: (1) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; (2) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas; (3) activities which would result in the conversion of forest lands to the rearing of livestock; (4) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undergraded

13. c. As indicated in 13. b. above, the program is making a concerted effort to promote environmentally sound development schemes in the Oncho-free areas of West Africa including efforts to prevent the degradation of forest lands. The program is largely focused, however, on the control of Onchocerciasis in eleven West African countries.

forest lands; (5) the colonization of forest lands; or (6) the construction of dams or other water control structures which flood relatively undergraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

d. Sustainable forestry: If assistance relates to tropical forests, will project assist countries in developing a systematic analysis of the appropriate use of their total tropical forest resources, with the goal of developing a national program for sustainable forestry?

13. d. See paras. 13 b. and c., above.

e. Environmental impact statements: Will funds be made available in accordance with provisions of FAA Section 117(c) and applicable A.I.D. regulations requiring an environmental impact statement for activities significantly affecting the environment?

e. An Initial Environmental Examination has been proposed for this program.

14. Energy (FY 1991 Appropriations Act Sec. 533(c)): If assistance relates to energy, will such assistance focus on: (a) end-use energy efficiency, least-cost energy planning, and renewable energy resources, and (b) the key countries where assistance would have the greatest impact on reducing emissions from greenhouse gases?

14. N/A

15. Sub-Saharan Africa Assistance (FY 1991 Appropriations Act Sec. 562, adding a new FAA chapter 10 (FAA Sec. 496)): If assistance will come from the Sub-Saharan Africa DA account, is it: (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) to be used to promote sustained economic growth, encourage

15. The planned assistance: (a) will contribute significantly to the health and economic prosperity of millions of West Africans, taking into account questions of equity, local participation and the environmental soundness of follow-on activities; (b) will promote, indirectly, private sector-led economic development; (c) will coordinate with complementary

private sector development, promote individual initiatives, and help to reduce the role of central governments in areas more appropriate for the private sector; (c) to be provided in a manner that takes into account, during the planning process, the local-level perspectives of the rural and urban poor, including women, through close consultation with African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (d) to be implemented in a manner that requires local people, including women, to be closely consulted and involved, if the assistance has a local focus; (e) being used primarily to promote reform of critical sectoral economic policies, or to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities; and (f) to be provided in a manner that, if policy reforms are to be effected, contains provisions to protect vulnerable groups and the environment from possible negative consequences of the reforms?

16. Debt-for-Nature Exchange (FAA Sec. 463): If project will finance a debt-for-nature exchange, describe how the exchange will support protection of: (a) the world's oceans and atmosphere, (b) animal and plant species, and (c) parks and reserves; or describe how the exchange will promote: (d) natural resource management, (e) local conservation programs, (f) conservation training programs, (g) public commitment to conservation, (h) land and ecosystem management, and (i) regenerative approaches in farming, forestry, fishing, and watershed management.

PVO activities seeking to control Onchocerciasis; (d) will involve the active participation of local people in order to effectively control the spread of this disease; (e) will address a critical health sector priority impacting on the lives of millions of poor West Africans; and (f) will take into account and make provisions for safeguarding the region's environment.

16. N/A

17. Deobligation/Reobligation (FY 1991 Appropriations Act Sec. 515): If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same region as originally obligated, and have the House and Senate Appropriations Committees been properly notified?

17. N/A

18. Loans

18. N/A

a. Repayment capacity (FAA Sec. 122(b)): Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest.

b. Long-range plans (FAA Sec. 122(b)): Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities?

c. Interest rate (FAA Sec. 122(b)): If development loan is repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter?

d. Exports to United States (FAA Sec. 620(d)): If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest?

19. Development Objectives (FAA Secs. 102(a), 111, 113, 281(a)): Extent to which activity will: (1) effectively involve the poor in development, by expanding access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from

19. See para. B. 6., above.

cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (2) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (3) support the self-help efforts of developing countries; (4) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (5) utilize and encourage regional cooperation by developing countries?

20. Agriculture, Rural Development and Nutrition, and Agricultural Research (FAA Secs. 103 and 103A):

a. Rural poor and small farmers: If assistance is being made available for agriculture, rural development or nutrition, describe extent to which activity is specifically designed to increase productivity and income of rural poor; or if assistance is being made available for agricultural research, has account been taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made.

b. Nutrition: Describe extent to which assistance is used in coordination with efforts carried out under FAA Section 104 (Population and Health) to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value; improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration programs explicitly addressing the problem of malnutrition of poor and vulnerable people.

20. Although this program is directed primarily at controlling a major health problem in West Africa, it will promote the settlement and development of arable lands throughout the region and thus address nutritional, food security, and income needs for millions of rural poor and small farmers living in the area.

c. Food security: Describe extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves, with particular concern for the needs of the poor, through measures encouraging domestic production, building national food reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

21. Population and Health (FAA Secs. 104(b) and (c)): If assistance is being made available for population or health activities, describe extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems, and other modes of community outreach.

22. Education and Human Resources Development (FAA Sec. 105): If assistance is being made available for education, public administration, or human resource development, describe (a) extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, and strengthens management capability of institutions enabling the poor to participate in development; and (b) extent to which assistance provides advanced education and training of people of developing countries in such disciplines as are required for planning and implementation of public and private development activities.

23. Energy, Private Voluntary Organizations, and Selected Development Activities (FAA Sec. 106): If assistance is being made available for energy, private voluntary organizations, and selected development problems, describe extent to which activity is:

21. This vertical health program is using the latest technology to control Onchocerciasis. As this control is achieved, low-cost Oncho-control units will be established within existing health outreach systems to maintain effective country-based protocols to avoid the recrudescence of the disease.

22. Extensive formal and on-the-job training is being undertaken to establish a cadre of West Africans capable of carrying out an effective control program with minimal outside assistance.

23. N/A

a. concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; and facilitative of research on and development and use of small-scale, decentralized, renewable energy sources for rural areas, emphasizing development of energy resources which are environmentally acceptable and require minimum capital investment;

b. concerned with technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

c. research into, and evaluation of, economic development processes and techniques;

d. reconstruction after natural or manmade disaster and programs of disaster preparedness;

e. for special development problems, and to enable proper utilization of infrastructure and related projects funded with earlier U.S. assistance;

f. for urban development, especially small, labor-intensive enterprises, marketing systems for small producers, and financial or other institutions to help urban poor participate in economic and social development.

APPENDIX B:

SUMMARIES OF NATIONAL DEVELOPMENT PLANS

Note: Summaries have been transcribed directly from the approved Devolution Plans submitted by the OCP participating countries. The Summary for Burkina Faso was translated from the original French.

* * * * *

1. BURKINA FASO

The Onchocerciasis Control Programme (OCP) began operations in Burkina Faso in 1975. The present epidemiological situation is such that in the context of devolution, the disease's residual surveillance and control activities can be integrated with those of other communicable diseases covered by the Ministry of Health and Social Welfare, particularly trypanosomiasis.

When vector control was initiated in Burkina Faso, onchocerciasis was a real public health problem (with a blindness rate of 10% in first line villages), and an obstacle to socioeconomic development. Today, the transmission of onchocerciasis has been interrupted in the whole of the country and has ceased to be a significant public health problem allowing the development of previously abandoned lands. However, migration into the newly freed lands and the possibility of reinvasion of infective blackflies following cessation of vector control are factors which require continued vigilance if there is to be no recrudescence of endemic disease.

The current epidemiological situation of trypanosomiasis is not yet well known, but the first epidemiological and immuno-parasitological surveys demonstrate the presence of factors which favor new outbreaks in former trypanosomiasis foci. These factors include the presence of the tsetse fly vector, infected humans, and a considerable movement of populations around the watercourses.

The strategy for preventing the recrudescence of onchocerciasis will have three facets:

- public information and education (IEC);
- longitudinal epidemiological surveillance of sentinel villages, and

-- systematic treatment of populations at risk of recrudescence.

The surveillance strategy for trypanosomiasis will begin with active screening of at risk populations using immunodiagnostic tests, and parasitological examination if necessary. Follow-up surveys will also be conducted. Cases will be treated at appropriate centers, and a vector control will be carried out by villagers using traps and insecticide impregnated screens.

For both onchocerciasis and human trypanosomiasis, all aspects of the adopted strategies will be undertaken through a program of training and redistribution of personnel at all levels.

Epidemiological surveillance activities will be conducted and maintained by both fixed health facilities and regionally-based mobile teams. All activities will be supervised by the National Coordinator, responsible to the Directorate for the Control of Transmissible Diseases (DCMT), in collaboration with regional health directors.

The training of personnel, public information and education, the strengthening of the existing infrastructure and the assumption of responsibility for the functioning of the project will be essential to the success of these activities.

The estimated five-year cost (1992-1996) of these activities is 647,261,771 F CFA (six hundred forty-seven million, two hundred sixty-one thousand, seven hundred seventy-one francs CFA) or US \$2,247,436 (1 US \$ = 288 Fracs CFA).

2. MALI

The onchocerciasis control operations undertaken by the OCP in Mali affect two distinct areas:

- (1) the western extension area, where operations began in 1985-86, and [which] are still in the active [larviciding] stage.
- (2) the original program area, where operations began in 1975.

The epidemiological data relating to onchocerciasis before that date [1975] shows that the disease was highly endemic, with onchocercal blindness rates of about 12 percent. In this zone, which includes about two fifths of the area of the country (with a population of 3,800,778), and which possesses great natural potential for socioeconomic development, the success of OCP has been such that the consolidation and surveillance activities of the control program will in future be directed by the Ministry of Public Health and Social Affairs. These activities will be integrated into the national public health system, which is based mainly on decentralized local agencies. At this level, all social and health services are provided through the District health centers.

At present, transmission of the disease has been brought under control in a large part of the area. However, vector reinfestation has occurred in the Kati, Bougouni, Kolondieba and Yanfolila districts, where the epidemiological data are less encouraging and warrant the introduction of ivermectin treatment. Once begun the treatment will need to be repeated each year.

The success of the OCP is threatened by the fact that African human trypanosomiasis and other curable blinding diseases remain present in the oncho-controlled areas.

The strategy of surveillance and control of onchocerciasis will include:

- passive detection [of onchocerciasis] and treatment (with ivermectin) through the permanent services at the district health centers.
- active detection and treatment through simple epidemiological skin-snip surveys, followed by mass ivermectin treatment if necessary.
- monitoring of indicator villages every three years.

Trypanosomiasis surveillance and control will be conducted by passive detection and treatment at the district health centers, and entomological and medical surveys using parasitological and immunological techniques.

Measures to deal with other blinding diseases will be based on decentralization of the following services:

- ophthalmological care,
- detection and treatment of simple eye ailments at the health centers,
- treatment of complex eye infections by the mobile surgical teams.

All these activities will be carried out by trained generalist staff at the health centers, supervised and supported by the coordination unit of the Division of Epidemiology and Prevention (DEP) of the National Directorate of Public Health.

Further training of the existing staff, and improvements both in resources (logistical support and technical equipment) and the mode of operation are essential for the effective implementation of the Devolution Plan.

The estimated cost of the proposed five-year project is 811,365,395 (eight hundred eleven million, three hundred sixty-five thousand, three hundred ninety-five) CFA francs or US \$2,704,551 (1 US \$ = 300 CFA).

3. NIGER

The OCP started its operations in Niger in 1975. The present epidemiological situation is such that residual surveillance and control activities pertaining to the disease can, in the context of devolution, be integrated with those of other communicable diseases covered by the Ministry of Public Health, particularly leprosy.

Before the beginning of vector control, onchocerciasis was a real public health problem in the region of Niger covered by the Program, and an obstacle to socioeconomic development.

The epidemiological situation for leprosy in the zone includes 400 patients being treated by monotherapy.

The onchocerciasis surveillance strategy will include the detection of new cases by means of a large-scale basis skin-snip survey and the preparation of a detailed epidemiological map, followed possibly by ivermectin treatment.

Leprosy surveillance strategy will consist of active screening of the target populations. Follow-up surveys will also be conducted.

All these surveillance activities will be conducted by the mobile teams based at Niamey and Tillabery and supervised by a National Coordinator responsible to the Epidemiological Surveillance and Prevention Division of the Directorate of Health and Mobile Medicine.

To carry out these activities successfully, personnel training, the strengthening of existing facilities and the assumption of responsibility for the functioning of the project are necessary. Its cost is estimated at 497,616,061 (four hundred ninety-seven million, six hundred sixteen thousand, sixty-one) CFA francs, or US \$1,658,720.

4. COTE D'IVOIRE

As regards to onchocerciasis, Cote d'Ivoire presents three epidemiological patterns:

- The savannah region of the northern and central parts of the country, where the most serious form of onchocerciasis was to be found, were included in the OCP in 1974,
- In certain central and southern regions, victims of deforestation, the same epidemiological aspect appeared, which starting in 1979, necessitated the extension of OCP activities,
- In the forest zone to the extreme south, forest onchocerciasis, which is not very blinding, predominates and this zone is not covered by OCP's activities.

After 15 years of uninterrupted vector control, transmission has been stopped in the northern zone. Larviciding will cease in 1991. It is up to Cote d'Ivoire to put in place the residual activities regarding epidemiological surveillance and treatment of new cases. The activities will be integrated into the already operational mycobacterial control programs and the activities of the sanitation sectors of the rural health sectors. Twenty rural health sectors out of the total of 26 in Cote d'Ivoire are concerned with these activities. In each sector, some formerly hyperendemic villages will be selected as indicators and inspections organized there annually by a national team. With regard to screening and treatment of possible onchocerciasis patients, it is entrusted to personnel of the rural health sectors and they should be retrained and equipped for that purpose.

In the extension zone, where OCP will continue its [larviciding] activities for a few more years, and in the forest zone, the only activity that can be envisaged by the national health authorities is the treatment of onchocerciasis patients with ivermectin. The whole of onchocerciasis surveillance and control activities is supervised by the National Coordinator, Assistant Director of the Major Endemic Diseases, who is placed under the authority of the Director of Public Health and Population.

To carry out these activities successfully, it is necessary to equip the National Coordinator's office for the collection of epidemiological data, provide the mobile teams of the rural health sectors with field-visit and sample taking equipment, and train the medical, para-medical and community health workers for the duties they will carry out as part of the surveillance of

onchocerciasis. External funding is necessary for the operating costs for five years excluding staff salaries.

The cost of the program is estimated at 389,500,000 (three hundred eighty-nine million, five hundred thousand) CFA francs, i.e., US \$1,370,000.

6. TOGO

The operations of the OCP have been going on in the initial area of Togo since 1977 and the epidemiological situation is such that it is planned to integrate this major disease's surveillance and control activities into the primary health care system after it has been strengthened and into the programs that have been prepared already for leprosy and tuberculosis control.

At the time the [vector control] program was started, the studies conducted showed that onchocerciasis was a public health problem and even an obstacle to socioeconomic development. Transmission has been interrupted at present in a large part of the initial area.

A mass ivermectin campaign has been instituted in certain zones.

The mycobacterioses (leprosy and tuberculosis) have a known epidemiological situation and their program has been prepared.

Onchocerciasis surveillance and treatment will be active and passive. The leprosy and tuberculosis surveillance strategy will be based on active and passive screening by bacilloscopy and the treatment applied will be polychemotherapy.

The bulk of devolution activities will be carried out by all the structures of the health pyramid, but mainly by the mobile team based at Kara and supervised by the coordinator who is responsible to the epidemiological Division of the General Directorate of Public Health.

Personnel training, strengthening of resources (logistics, technical, equipment, facilities) and operating costs are indispensable for the implementation and success of the devolution process. The estimated cost of the plan is 797,708,670 (seven hundred ninety-seven million, seven hundred eight thousand, six hundred and seventy) CFA francs, or US \$2,659,029.

5. GHANA

The OCP began its control operations in Ghana in 1974, in what is now called the original program area in northern Ghana, covering the present-day upper east, upper west and northern regions. In 1988, the control activities were further extended southward to cover the southern extension area. In the devolution exercise about to begin, however, only the original program area is involved.

Prior to OCP control operations, the epidemiological data showed that the original program area was highly endemic for the savannah blinding type of onchocerciasis. About a third of the population was afflicted by the disease, with a blinding rate reaching 10% in certain communities. The area contained some of the worst affected localities, such as villages in the Sissili/Kulpawn area and along the Black Volta, where prevalence rates reached 70% or more. Nakong, on the Sissili River, for instance, had a prevalence rate of 100% in adults. The disease created serious obstacles to the socio-economic advancement of much of the highly endemic area.

Following intervention efforts by the OCP, significant control of onchocerciasis in the program area has been achieved. However, a number of "black spot" areas have remained problematic. Those include the Sissili/Kulpawn area and the Bui area on the Black Volta where residual transmission still occurs, due to a combination of factors such as a high CMFL [community microfilarial load] and high ATP [annual transmission potential] in the past, occurrence of insecticide resistance and reinvasion by the flies.

In the Devolution Plan of Ghana, the chief aims are to sustain the gains so far achieved, to prevent recrudescence of the disease and to overcome the problems posed by the "black spot" areas. The devolution activities will be closely integrated into the PHC [primary health care] program, fully involving community participation. Apart from surveillance and control of onchocerciasis, the devolution plan envisages the inclusion of the control of three other diseases of public health importance endemic in the programme area. These are leprosy, yaws (to be eradicated by 1995), and Guinea worm (to be eradicated by 1993). Their inclusion in the devolution program is fully justified by the fact that, like onchocerciasis, they present distinct skin manifestations which lend themselves to easy differential diagnosis. They also constitute problems for the socio-economic development.

In the Devolution Plan three Polyvalent Teams [PTs], a Monitoring Team and an Evaluation Team are to be set up in order to ensure

the effective execution of the plan. The PTs will provide technical resources and backings to all stages of the devolution activities, including the large-scale survey to be carried out once every three years. The Monitoring Team will assess and ensure the smooth implementation of all aspects of the institutional arrangements to be put in place. Finally, the Evaluation Team will carry out, in the third and fifth year of the program epidemiological and parasitological surveys to evaluate the progress and the achievement of the Devolution Plan.

High priorities in the Devolution Plan are also accorded to the training of health personnel of all levels to cope with the integrated control program and the strengthening of the health facilities within the program area.

For the successful implementation of the Devolution Plan, the estimated cost for the first five years is 936,000,000 (nine hundred thirty-six million) cedis or US \$2,840,000.

7. BENIN

The activities of the Onchocerciasis Control Program in Benin cover two distinct zones:

- (1) The initial area, where the operations started in 1978, is in the northern part of the country. It is the zone that concerns devolution.
- (2) The southern extension areas, where the operations began in 1988 and are still in the active phase under the responsibility of the OCP.

Before the beginning of vector control, onchocerciasis constituted a priority public health problem to Benin. Today, the transmission is being brought under control in the Northern zone through larviciding.

Ivermectin treatment trials have been started in this [northern] zone.

The epidemiological situation of the other endemic diseases with which onchocerciasis control will be combined calls for the taking of appropriate actions to reduce their effects on the population.

The onchocerciasis surveillance strategy will comprise active and passive screening of new cases, a mapping of the disease, and necessary interventions. As regards the other endemic diseases, i.e., malaria, bilharzia, dracunculosis, leprosy, African human trypanosomiasis, sexually transmitted diseases (STDs/AIDS), cerebro-spinal meningitis, and the target diseases of the Expanded Program on Immunization (EPI), the surveillance strategy will be based on the strengthening of actions already in progress by bringing into play resources required within the framework of this devolution plan.

All of the activities will be carried out by a group of personnel found in the appropriate health facilities, right from the central level (Ministry of Public Health) to the most peripheral level through the intermediate facilities, i.e., the Technical Intervention Units (TIUs) of the Departmental Directorates of Health of Borgou and Actora.

Personnel training, strengthening of health facilities and health education of the populations concerned are necessary for the successful implementation of this program. The total cost of the project is 838,000.000 (eight hundred thirty-eight million) francs CFA, i.e., US \$ 2,940,350.