



## I. SUMMARY AND RECOMMENDATIONS

### A. Face Sheet

See Project Paper face sheet on preceding page for basic project information.

### B. Recommendations

That A.I.D. authorize a \$2 million grant to the World Health Organization (WHO) to be earmarked specifically for the Ethiopian Smallpox Eradication Program. Of the \$2 million total, \$800,000 will be made available from FY 1976 funds and \$1.2 million from FY 1976 Interim Quarter Funds.

That A.I.D. approve a waiver of \$2 million to allow the grant funds to be used for unrestricted free world procurement. However, no grant funds will be used for the purchase of non-U.S. vehicles or for the purchase of drugs and medicinal products as provided for in Section 606C of the FAA.

### C. Description of the Project

#### 1. Project Summary to January 1, 1976

The Ethiopian Smallpox Eradication Program (ESEP), as part of a total global effort, began modestly in January 1971, approximately two years after the last start of other WHO country-level Smallpox Eradication Programs. This delay occurred because the Ethiopian Government was unable to provide sufficient numbers of trained manpower until that time. Despite these problems, the program expanded rapidly and by the end of 1974, ten million persons had been vaccinated. By late 1975, smallpox transmission had been interrupted in ten of the fourteen Ethiopian provinces.

The ESEP cost about \$1,000,000 a year in 1974 and 1975. This reflected an increased effort as the government began to realize smallpox could be eradicated from Ethiopia.

2. Project Description (January 1, 1976 through year end 1978)

The ESEP from January 1, 1976 through the end of 1978 is expected to cost about \$4,223,000, including certain local costs directly financed by the GOE. We have estimated these latter costs at some \$300,000, perhaps slightly higher.

The project will consist of the two following basic elements:

a. Administrative Element: The project headquarters in Addis Ababa is staffed by WHO experts, assisted by part-time health consultants and is under the general administration of the Ethiopian Ministry of Health. The WHO experts essentially run the program.

b. Eradication and Surveillance Teams: Two to three teams are ferried to remote areas by helicopter. Other teams reach their target groups by mule teams and by vehicles. They vaccinate in a selective manner. Experience learned from programs elsewhere, on whom and when to vaccinate, is being applied in Ethiopia. Improved vaccines and vaccination equipment have improved teams efficiencies; and improved strategies of surveillance/containment have enabled teams to achieve the desired result of eliminating smallpox without necessarily resorting to mass vaccinations. In all, about 500 to 600 people, mainly Ethiopian, are in the field, on teams or providing direct logistic support to teams. The number and composition of teams varies as conditions change.

TABLE I

Ethiopia Smallpox Eradication Program with Budget Figures:  
(By Calendar Year)

	<u>1976</u>	<u>1977</u>	<u>1978</u>
1. PERSONNEL (Financed by)			
WHO Permanent Staff (WHO)	\$ 200,000	\$ 200,000	\$ 50,000
WHO Consultants (WHO and Other Donors)	150,000	120,000	50,000
Ethiopian Personnel Costs (GOE)	120,000	120,000	60,000
2. Supplies, Equipment and Support Costs (includes supplies and equipment and support services not available locally)(WHO and AID)	237,000	145,000	57,000
3. LOCAL COSTS Includes such things as petrol, per diem of Ethiopian staff mule rental, vehicle repairs etc.) (AID)	564,000	400,000	200,000
4. HELICOPTERS			
Jan-Nov 1976 leasing 3 ) helicopters (HEW) )	737,000	570,000	143,000
Dec 76-Dec 77 leasing 2 ) helicopters (HEW and AID) )			
5. VACCINES (Other Donors)	50,000	50,000	-
TOTAL COSTS	\$ 2,058,000	\$ 1,605,000	\$ 560,000

Financing Available for Ethiopian Smallpox Eradication Program is  
estimated below:

TABLE II

WHO	\$ 612,000	(14.4%)
Ethiopia	300,000	(7.1%)
AID	2,000,000	(47.4%)
HEW	1,000,000	(23.7%)
Other Donors (Vaccines)	100,000	(2.4%)
Additional Program Costs (to be funded)	(211,000)	(5.0%)
TOTAL	\$ 4,223,000	(100.0%)

The United States will be providing \$3,000,000 or 71.1% of the estimated cost of the 1976-1978 Ethiopia program. HEW's funding will finance the cost of leasing helicopters. A.I.D. funds will finance the remainder of the helicopter leasing costs and cover foreign exchange and local costs related to the program. (See 2 and 3 under Table I above).

Estimated Disbursements of A.I.D.'s proposed \$2.0 million grant are as follows:

Table III

ESTIMATES OF AID FUNDS DISBURSEMENTS

FY 1976	\$ 374,000	
Interim Quarter	187,000	
FY 1977	826,000	
FY 1978	<u>613,000</u>	
	\$ 2,000,000	

The use of A.I.D.'s grant funds to finance local and foreign exchange costs is estimated below:

Table IV

Local Cost Financing	\$ 1,164,000	58.2%
Foreign Exchange Financing	<u>836,000</u>	<u>41.8%</u>
<u>AID GRANT: Total Financing</u>	\$ 2,000,000	100.0%

A source-origin waiver justification for A.I.D.'s grant financing is attached, since it is imperative to the success of the program that A.I.D. grant funds be used for unrestricted free world procurement.

The 1976-1978 ESEP is divided into two phases: (1) the remainder of the eradication phase expected to be completed in mid to late 1976 and (2) a surveillance phase expected to last for twenty-four additional months.

The ESEP is administered by the Ethiopian Ministry of Public Health with technical assistance from the World Health Organization. It also

relies heavily on the assistance of Ethiopian field personnel. Five full-time WHO funded experts provide basic program direction for the campaign. They are assisted by ten consultants, who come to Ethiopia periodically to work on specific aspects of the program, nine Japanese Health Corps volunteers and, most importantly, by 500 to 600 Ethiopians. One-hundred and seven of the Ethiopians are health professionals or semi-professionals (mainly the latter). They lead the smallpox eradication and surveillance teams which are the front line troops of this program. About 500 unskilled or semi-skilled Ethiopians are employed to handle logistics, drive, etc. In past years, up to fifteen U.S. Peace Corps volunteers worked with the program at any one time.

The eradication phase is being accelerated. In 1975, two helicopters were leased to take eradication teams into remote areas. The efficiency of the eradication teams is greatly improved by the helicopters which enable the teams to quickly reach remote areas. Three helicopters will be used in 1976 to accelerate the remaining eradication efforts. This will be cut back again to two helicopters by 1977.

Smallpox struck 2,727 Ethiopians in the first eight months of 1975; this was a reduction of 1,020 cases from the same period in 1974. Later figures than this are not yet available to us, but the WHO claims that the decline in cases has accelerated and that the area of Ethiopia within which smallpox is found continues to decline.

There is no doubt that vaccination of a high proportion of any population coupled with quick identification of the disease can reduce the level of smallpox very substantially within a short time. The disease only spreads to humans from humans with the disease in the active stage; thus offering a concentrated, well directed eradication program a strong chance

of success. Such programs in other countries have met success. In Bangladesh, the disease was reduced from epidemic levels to zero in about two years.

About 50% of the population of Ethiopia has now been vaccinated. Many people who have not been vaccinated have already been exposed to or have had the disease and are not susceptible to the disease and consequent spread. (The Ethiopian variety of smallpox, *Varola minor*, kills a small percentage of those Ethiopians who contract the disease, about 1% to 2%. However, non-Ethiopians are much more susceptible to this variety and perhaps 10% to 20% of those who contract the disease die.). Vaccination teams are concentrating in the central Ethiopian provinces which have the largest reservoirs of the disease.

The WHO's long and successful program experience with smallpox may be the best indicator of whether or not the Ethiopian program will be completed on time within the estimated costs. We have reviewed many documents including the documents attached to this summary project paper and discussed such prospects with Dr. Henderson, the American heading the WHO Worldwide Smallpox Eradication Program of WHO. Based on these reviews, we are of the opinion the program will be successful within the general time and monetary constraints suggested herein.

#### E. Summary Findings

The Africa and Technical Assistance Bureaus have reviewed the Ethiopian Smallpox Eradication Program and find it highly suitable for A.I.D. grant financing from regional allocations. Specifically, it provides direct benefits to neighboring countries in the region and the rest of the continent by eradicating smallpox from its last global stronghold.

It is a logical follow-on to A.I.D.'s West African smallpox and measles regional project of several years ago, and is the final stage of

the larger WHO East Africa Regional efforts to eradicate smallpox.

## II. Project Background and Justification

### A. Background

In spite of readily available technology and the cost-effective means for stopping smallpox, it was determined in the 1960's that smallpox could not be eradicated globally in the foreseeable future under existing schemes of operation. In this context, WHO proposed a revised strategy in which smallpox could be eradicated from the globe over a ten year period. During the World Health Assembly of 1965, a resolution for establishment and implementing an International Smallpox Eradication Program by WHO was approved. The program was actually launched in 1966-67. During this nine year intervening period a total of \$63.1 million has been expended on the WHO Smallpox Eradication Program and other supportive efforts, according to WHO records.<sup>1/</sup>

Major contributors were the United States, the Soviet Union and Sweden. The U.S. portion consisted of a contribution from HEW to WHO and loan of staff in Southeast Asia to assist the surveillance program there. Also, A.I.D. financed a Smallpox Eradication-Measles Control Program in Central and West Africa which was coordinated with the WHO Program. The total effect of all these efforts resulted in the eradication of smallpox in twenty Central and West African countries and in Southeast Asia. The only country remaining where the disease still exists is Ethiopia.<sup>2/</sup>

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<sup>1/</sup> "International Assistance - Global Smallpox Program", World Health Organization.

<sup>2/</sup> "Smallpox Surveillance in Ethiopia", Ministry of Public Health, Ethiopia, August 1975, page 10.

With the goal of eradicating smallpox from the globe so near at hand, WHO developed a strategy for the eradication of smallpox in Ethiopia by the end of 1976.<sup>3/</sup> This plan entails a massive step-up in smallpox eradication activities this year and intensified follow-up surveillance activities over the next two or three years. This includes an increase in personnel at all levels; increased supplies and commodities; and increased use of helicopters in a concentrated time frame. The costs of undertaking this increased activity in Ethiopia would result in the previously mentioned estimated deficit of approximately \$3.2 million over the next three years if no donor assistance was forthcoming.

The remaining Worldwide Smallpox Eradication Program activities of WHO, including the Ethiopia program, are expected to cost some \$15.4 million from Jan. 1, 1976 through the end of 1978. As of Feb. 1, 1976, WHO had either from its own resources or from donor sources firm funding for \$9.5 million of the estimated Worldwide program costs. The proposed USG funding of \$3.0 million will reduce the worldwide shortfall to \$2.9 million. An expected contribution by Denmark of \$600,000 to be earmarked for the South Asia surveillance efforts will reduce the overall shortfall to \$2.3 million.

WHO expects that other donors will subsequently provide funds to finance the remaining shortfall, and it is also prepared to reallocate its scarce budgetary resources to finance the remaining shortfall, if such be necessary, since the program is so close to success.

#### B. Technical Feasibility

Through the initial work of Jenner a century ago and subsequent related efforts, a cost-effective and easily affordable technology for

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<sup>3/</sup> "Smallpox Surveillance", World Health Organization, Weekly Epidem Rec., September 19, 1975, pages 4 and 5.

eradication of smallpox from the globe is available. A vaccine which provides long lasting immunity from the disease as well as methodology for effective mass administration is fully accepted. The fact that there are no non-human vectors or carriers of the disease nor human carriers of the disease other than those with active cases make it feasible to eradicate the disease through immunization campaigns. Added to this, the fact the humans with the infectious stage of the disease must transmit the disease directly to another susceptible human being for the disease to spread, abets the control and eradication of smallpox through immunization (vaccinations) of susceptibles. An individual with the disease either dies from the disease or recovers and in either case the virus dies, if it has not been transmitted to another human being during the limited (two-week) infectious stage of the disease. This latter fact has enabled smallpox eradication experts to develop in recent years immunization programs which can target especially susceptible populations, a method which is a great improvement over indiscriminate mass immunization campaigns of the past and has helped the programs achieve their recent successes.

Once the disease has been eradicated from an area, there will be no new cases unless an individual with the disease in an infectious stage comes from outside the area and has contact with susceptibles in the area during the infectious stage of the disease. This event has become less and less likely as both the incidence of the disease is reduced and the numbers of people immunized increases. Testimonials to the efficacy of the WHO programs are from the experience in eradicating the disease in India, practically all of Africa, all of Asia (including most recently Bangladesh) and in the developed countries of the world. Most of this,

particularly in LDCs has been accomplished in less than a decade.

The major constraints to the successful implementation of this plan on schedule in Ethiopia, other than financial, is that in-country hostilities may impair access to some of the endemic areas. In spite of this constraint, we are not overly concerned because of the following:

a. By history and record WHO has been able to operate effectively in hostile areas. Recent correspondence from USAID Ethiopia suggests that despite difficulties, the eradication teams are reaching susceptible populations in remote areas which are troubled by security problems.

b. Given the fact that smallpox has now been confined to a few areas in Ethiopia, we believe the project will be delayed for only a few months at most.

c. There are presently less than 50 villages in four provinces where active cases of smallpox are being reported. Most or all of these areas are accessible at some time to eradication teams, and for areas which may prove to be inaccessible, the disease can be prevented from spreading to eradicated areas by containment and may then die out naturally.

### C. Economic Feasibility

When one considers the accomplishments of the global Smallpox Eradication Program, eradication of the disease worldwide except in Ethiopia in less than a decade with a relatively modest amount of funds, the conclusion must be that this is one of the most outstanding successful demonstrations of a large scale public health campaign in history. In terms of cost savings and reduction in mortality and morbidity from this disease, the social and economic returns from investments in this program are enormous. The projected cost savings in the U.S. alone, as a result

of eradicating smallpox from the globe, would amount to approximately \$154 million annually, based on 1968 dollar calculations.<sup>4/</sup>

If we do a similar exercise and translate this type of calculation on a global basis, countless millions of dollars could be saved annually (or more importantly, be diverted to other services) as a result of global eradication of the disease. Considered from another angle, the investment of even more than the \$4.2 million now thought necessary over the next few years in Ethiopia for eradication of the disease (the lone country with the disease in the world), plus assurance that eradication has in fact taken place, would result in countless millions of dollars in cost savings. This latter does not include costs of suffering, disabilities and deaths due to unavoidable complications associated with smallpox immunizations. For instance, in 1968 nine deaths, plus 153 major complications resulted from smallpox vaccinations in the U.S. alone.

### III. Implementation Planning

WHO in conjunction with world-wide experts, has conceived over the years various methods to control and eradicate smallpox which are successful even in remote areas in developing countries. They have established methods of working within the governmental and social constraints of diverse underdeveloped countries. Our analysis of the Ethiopian program consequently has settled in on a few basic questions. Does the Government of Ethiopia support the program? The answer is a strong "yes" since almost all the field personnel are Ethiopian. Does the program operate efficiently? The methodologies developed elsewhere, with great success, are being applied in Ethiopia. We have no reason

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<sup>4/</sup> "Cost associated with the protection of the United States against Smallpox, World Health Organization, WHO/SE/72.45"

to believe that Ethiopia is so unique as to negate the successful replication of one or more of the methods which achieved success all around the world.<sup>5/</sup>

A.I.D.'s grant funds would be provided to the WHO and earmarked for the Ethiopia program. The funds would be expended about in line with the following schedule. The WHO Worldwide Smallpox Eradication Program is headed by Dr. Henderson, an American medical doctor whose salary is paid by HEW's Communicable Disease Center. (Annex A) There has been a close association of CDC personnel with the WHO smallpox programs. The CDC and A.I.D. public health experts are supportive of the goals of the WHO smallpox programs and are confident that they will continue to be successful.

We expect the program to achieve the following targets:

- A. \$800,000 Grant Agreement Executed - April 1976
- B. \$1,200,000 increase in grant - Executed August 1976
- C. Eradication Phase completed - November 1976
- D. Approximately half of grant funds expended - July 1977
- E. All funds expended and surveillance phase completed -  
September 1978
- F. International Commission certifies worldwide elimination  
of smallpox - late 1978, early 1979

#### IV. Project Issues

If eradication and surveillance teams cannot enter or work effectively in areas with security problems the program's progress could be delayed and its costs could increase. This possibility has been given close

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<sup>5/</sup> "Active Search Operations for Smallpox - An Ethiopian Experience",  
World Health Organization, WHO/SE/73.50

scrutiny and addressed in part in the technical feasibility section of this paper. USAID Ethiopia has carefully considered the effects of local resistance efforts (social, religious, political, etc.) and has advised us that usually local resisters do not interfere with the eradication/surveillance teams. We also know that the areas infested with smallpox have been radically reduced and even in such areas many people have natural or acquired resistance to the disease. The worst case estimate of both USAID and WHO is that eradication could be delayed by a few months and WHO, in fact, has already allowed for that possibility by now assuming that eradication will be reached in late 1976 rather than mid 1976. If this extended target eradication date is reached we believe that both the financing and target dates for eradication and completion of surveillance noted herein are realistic.

There is no firm way to assess probabilities that the dates won't be reached. However by assessing the costs of the program against expected benefits it would seem entirely likely that a level of expenditures far in excess of what is projected now, a worst case situation almost totally discounted by those close to the program, would still be economically sound because worldwide benefits from eradication of this disease could amount to hundreds of millions a year.

Proj. No. 6980 394  
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SECRETARY

APR 6 1976

**ACTION MEMORANDUM FOR THE ADMINISTRATOR**

**THRU:** ES

**FROM:** AA/AFR, Stanley S. Scott *SS*

**Problem:** Approval of the attached Project Paper (PP) and Procurement Source Waiver for the Smallpox Eradication Program, Project Number 698-11-510-394, the total cost of which is \$2 million for the life of the project.

**Discussion:** The proposed contribution to the World Health Organization (WHO) smallpox eradication program is designed to help eliminate smallpox in Ethiopia, with other direct benefits to neighboring countries and the rest of the world by hopefully eradicating the disease from its last global stronghold. It is a logical follow-on to A.I.D.'s West African Smallpox and Measles project of several years ago, and the final stage of the larger WHO effort in East Africa.

On March 22, 1976, pursuant to your approval, the Congress was notified of our intent to provide funds for the project. If we have received no objection by April 6, 1976, we can then make final preparations for the signing of a Grant with WHO. In the interim, it is necessary that you approve the attached PP and the Waiver so that we can process the necessary funding documents and initiate dialogue with WHO concerning Grant terms. We have requested a waiver as the entire \$2 million will be used for goods and services to be procured from Free World sources other than the U.S.

Regarding a signing ceremony and media coverage, we have been working closely with OPA and other Offices. Our communications indicate that a signing could take place in Washington on ~~either~~ April 26 ~~or 27~~, 1976 with Dr. D. A. Henderson, Chief, Smallpox Eradication Unit, WHO, Geneva, and Assistant Secretary of Health, Theodore Cooper, Department of Health Education and Welfare.

Recommendations:

1) That you approve the attached Project Paper for the Smallpox Eradication Program and that you sign the attached Procurement source waiver.

Approved DP

Disapproved \_\_\_\_\_  
Date 8 11 76

2) That you agree to a signing ceremony on April 26.

Approved DP

Disapproved \_\_\_\_\_

Most convenient time: 3:30 p.m.

AFR/RA:JDKraus:mcl:3/30/76

Clearances:

AFR/RA:EDConroy ED Date: 3/31/76

AFR/DP:RGHuesmann RG Date: 4/1/76

AA/TA:CFarrar CF Date: 3/31/76

AA/PPC:PBirnbaum AS Date: 4/1/76

PROCUREMENT SOURCE WAIVER  
DRAFTED: James D. Kraus, AFR/RA  
INITIALED: jdk  
WAIVER CONTROL NO.: AFR/RA 76-1

ACTION MEMORANDUM FOR THE ADMINISTRATOR

THRU: ES

FROM: AA/AFR, Stanley S. Scott *SS*

Problem: Request for procurement source waiver from Geographic Code 000 (U.S. only), to Geographic Code 899 (Free World)

- (a) Cooperating Agency: World Health Organization (WHO)
- (b) Authorizing Document: AID Grant to WHO for Smallpox Eradication
- (c) Project: Africa Regional Smallpox Eradication Program
- (d) Description of Goods and Services: Commodities, supplies and services needed to implement the Smallpox Eradication Program (See Discussion), except drug products and pharmaceutical products which if procured will be procured in accordance with Section 606(c) of the Foreign Assistance Act.
- (e) Approximate Value:  
\$1,160,000 of Ethiopian source goods and services  
\$840,000 of foreign source (Free World) goods and services
- (f) Probable Sources:  
\$1,160,000 from Ethiopia (goods and services) \$700,000 from Canada (Helicopter lease fees) \$140,000 for miscellaneous goods and services (Free World other than U.S. or Ethiopia)
- (g) Source Waivers Granted for Commodity and Services Procurement

Discussion: Goods and services procurement under the Smallpox Eradication Program includes the leasing of helicopters, fuel and consumable purchases in support of the helicopters and other miscellaneous supplies and salary and support costs of local and expatriate personnel.

Primary Justification: This WHO administered international effort to eradicate smallpox from Ethiopia has been in operation since 1971 as part of a region-wide effort commenced by WHO earlier. The program has, therefore, well-established sources of supply of goods and services that are in keeping with its multilateral nature. This program must maintain its established momentum if it is to achieve its objective in Ethiopia, the last country in the world reporting active cases, by the end of 1976. In fact, the program has been accelerated to assure that this goal can be achieved.

Disruptions of the established procurement patterns by imposing A.I.D. source/origin limitations on this international effort might set back this goal thereby exposing people to the disease who might otherwise be protected. By providing the flexibility sought herein in the source and origin of the goods and services to be procured with A.I.D. funds achievement of the objective of the program will be enhanced.

The foreign policy benefits to be obtained by the United States being a predominant donor to the final effort to eradicate active cases of smallpox are readily apparent.

Recommendation: For the reasons stated above, I recommend that you conclude that exclusion of procurement from the sources requested above would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program.

APPROVED: \_\_\_\_\_

DISAPPROVED: \_\_\_\_\_

DATE: \_\_\_\_\_

Clearances: GC/AFR:SRTisa SRT  
/SER/COM:JShollenberger(draft)