INTEGRATION OF RESULTS OF MEETINGS WITH AFRICAN HEALTH OFFICIALS AND AID FIELD STAFF, AND WITH CADA REPRESENTATIVES, INTO THE DESIGN OF THE COMBATTING CHILDHOOD DISEASES PROJECT

Health Management Group, Ltd.
June 29, 1981

COMBATTING CHILDHOOD COMMUNICABLE DISEASES (CCCD) PROJECT
CONTRACT NO. AFR-0421-C-00-1023-00
PROJECT NO. 698-0421

INTREGATION OF RESULTS OF MEETINGS WITH AFRICIAN HEALTH OFFICIALS AND AID FIELD STAFF (PRODUCT 2), AND WITH CADA REPRESENTATIVES (PRODUCT 3), INTO THE DESIGN OF THE CCCD PROJECT

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I. INTRODUCTION

The objective of Project 698-0421, Combatting Childhood Communicable Diseases (CCCD), is to strengthen the capability of sub-Sahara African Countries to control selected communicable dieases in children. Major non-parasitic communicable dieases are included and, if feasible, malaria may be added to the target diseases in the future.

The work, which is the subject of this report, continues activities being carried out by Health Management Group, Ltd. in assisting the development of this project.

Two "products" are reported on here. Quoting from the contract, the contractor will:

> "(Product 2) travel to selected African countries to assist AID field missions in holding technical discussion with appropriate host-country personnel on the proposed program, and then compile a report to include recommendations to AFR/RA of how to integrate the results of these discussions into the final program design; and
>
> (Product 3) participate in meetings with the technical representatives of CADA to discuss the program details and implementation plans of the CCCD Programs, and compile a report on the results of these meetings with recommendations of the next steps required of AFR/RA to move the program forward."

When the scope of work for this contract was specified, it was anticipated that the CADA country technical meetings (Product 3) would take place around the end of April, 1981 and would have been preceded by the African country meetings scheduled for March, 1981. However, arrangements for the African meetings took longer than originally anticipated and these visits were delayed until the end of May through mid June.

Because of the change in the Administration in France, the CADA country technical meeting was also changed. The initial intent was to hold a meeting to be attended by all CADA contry representatives. This proved to be impractical and instead, individual meetings were held mid May with technical and administrative representatives in each of the European CADA countries; telephone discussions were held with the Canadians.

Orignially, the report of the work carried out was to have consisted of recommendations to AFR/RA on how to integrate the results of the discussions into the final project design and to advise on next steps required of AFR/RA to move the project forward. However, rather than making recommendations, AFR/RA requested that the contractor actively participate in the preparation of the final draft of the project paper (PP) in which the results of the meetings would be integrated.

This report of Products 2 and 3 activities complies with that request and is primarily in the form of the Project Description portion of the PP. As a result of the European and African meetings the project design has been strengthened and now deals more adequately with many concerns raised in earlier PP drafts, particularly the question of the social and demographic impacts of the project and the mechanism to ensure a high level of African involvement in the project's management. The precise language to be used in the final PP is still being worked out and this report does not include the full text releated to the resolution of the specific concerns noted above. However, the contractor was intimately involved in these matters and has made significant input in the Project Specific Analysis, the log Frame and other components of the P.P.

A number of annexes are referred to in the Project Description. Two, Annex D, the "Diarrheal Disease Control Training Course for Programme Managers" and Annex E, "Priority Areas for Operations Research in the CCCD Program" are not included in this report. Annex F, "Overview of AID Supported Health Activities in Sub-Sahara Africa Related to the Combatting of Childhood Communicable Disease (CCCD), was prepared by the Contractor to inform CADA members, WHO, UNICEF and other donors of the status of AID activities so as to assist them in preparing their own disease control plans and commitments.

Next Steps in the development of this project are the completion of the PP, hopefully in early July, 1981 and approval and funding of the project before the end of FY 1981. A meeting of the technical representatives of CADA is contemplated during September, 1981 and a second meeting in Africa to discuss implementation details with participating government personnel is scheduled for the late fall, 1981.

II. PROJECT DESCRIPTION

A. Background

Up to one-fourth of the children born each year in Africa are now dying before reaching the age of five. Many of these children can be saved if they are immunized in time and receive simple forms of treatment for the basic and most common childhood diseases. This project is designed to save the lives of these children and contribute to their improved health status.

Unlike the eradication campaigns that worked so well for smallpox this program requires building permanent national organizations to immunize all under one year olds, to treat the under five year old population for diarrhea and control other selected endemic diseases in children on a sustained basis. The goal though ambitious is attainable if sufficient resources can be mobilized, people trained and programs managed. Tackling the problem on a region-wide basis appears to be the best way to achieve this goal. This clearly calls for collaboration and coordination among the major donors to work with the individual countries and international organizations in an all-out effort that should probably span over twenty years.

CADA, a group of six donor nations banded together in early 1980, in an attempt to enhance the effectiveness of their development support to Africa seemed to be a likely and appropriate mechanism to activate this program. After several exploratory meetings involving WHO and others the CADA policy group meeting in Brussels in December 1980 announced its willingness to consider the CCCD program as one of the major CADA initiatives. The U.S., as the lead donor, was given the charge to work with the Africans and other CADA members to design and coordinate a program that will build upon and expand on the existing expanded Programme on Immunization (EPI) and diarrheal disease control (CDD) activities being undertaken at national and local levels. It is to be a total and massive effort involving the coordination of all the donors and ultimately all the countries of sub-Saharan Africa.

The draft design has been reviewed and discussed with the recipients and donors leading to the final design and the authorization of funds. The program will build on activities already supported by the individual CADA countries and other donors as well as the extensive work being done by WHO, UNICEF and by African countries themselves. This concerted action program is scheduled to begin in 1981. The design presented here covers the first eight years of this coordinated and combined effort. Much of the detail and focus is on the AID supported elements of the program, for this document also provides the justification for the Africa Bureau's request for funding this program.

The program concept has been discussed for some time and a number of actions have been taken in anticipation its implementation. WHO has done much of the pioneering work and both WHO/Geneva and WHO/AFRO have been active in sensitizing the ministries of health and government officials throughout the region regarding the actions and sacrifices that will be required to achieve the desired results.

AID began the preliminary design work for this program as early as 1979. It has also laid some of the groundwork for the future implementation through a series of small projects to help individual countries prepare to expand their immunization and other childhood disease control efforts. In 1979 and 1980 EPI specialists were sent to Burundi, Congo, Liberia, Rwanda, Somalia, Sudan and Tanzania to assess needs and to explore the interest of those governments in EPI and participating in a broader CCCD effort. Other teams went to Ghana, Ivory Coast, Mali and Togo to determine the need for and likelihood of controlling yaws.

These activities resulted in AID funding five short term projects, each providing approximately $500,000 over two years to assist with EPI operations; in Congo, Ghana, Liberia, Rwanda and Somalia. AID through its bilateral and regional mechanisms is assisting or planning to assist the following countries in programs to combat childhood communicable diseases: Burundi, Congo, Ghana, Liberia, Mauritania, Rwanda, Somalia and Zaire.

Through the Strengthening Health Delivery Systems (SHDS) project, AID is funding EPI training and demonstration areas in Cameroon, The Gambia and the Ivory Coast. Three areas are included in each country, each area comprising approximately 200,000 persons. Training and demonstration cover the cold chain system including maintenance of equipment, logistics, scheduling, record keeping, etc. As the CCCD project becomes operational, it is anticipated that the training and demonstration areas described above will be incorporated into the CCCD project.

Much of the above discussed AID supported activity as well as the other donor efforts can be viewed as forerunners to the larger CCCD program whose aim it is to integrate smaller efforts into a major coordinated approach.

B. Target Diseases

The communicable/infectious diseases which are the focus of this project directly or indirectly contribute to an estimated 75-80% of infant and childhood morbidity and mortality. Many of these diseases can be largely prevented by immunization and other relatively low cost health measures.

1. Vaccine preventable diseases. Estimates are that less than 10% of children or pregnant women in sub-Sahara Africa are now being immunized. As a result, hundreds of thousands of preventable deaths and a similar number of needlessly crippled or mentally retarded children occur each year. To alleviate this situation, which is representative of many less

developed areas, the World Health Assembly established the Expanded Programme on Immunization (EPI). Its goal is to reduce morbidity and mortality from diphtheria, pertussis (whopping cough), tetanus, measles, poliomyelitis, and tuberculosis by making immunization available to every child in the world by 1990. Other EPI goals are to promote countries self-reliance in the delivery of immunization services and to establish regional self-reliance in vaccine quality control and production. The immunization aspect of the CCCD project follows the WHO EPI guide lines and is discussed below under target population.

2. Diarrheal Disease About one of every 10 children born in developing countries dies of diarrhea before reaching the age of 5 years. In sub-Sahara Africa diarrhea causes millions of deaths each year and fills more than one-third of children's beds in hospitals. It causes malnutrition because children with diarrhea are often starved or have diminished appetites, and the food lost in the stools is not adequately replaced. Malnutrition also makes children more susceptible to diarrhea and other communicable diseases, and this creates a vicious killing cycle.

Diarrhea can be prevented by breastfeeding infants and weaning young children with nutritious food and potable fluids. Most diarrheas can be treated, preventing death and associated malnutrition, by giving the sick child an oral rehydration solution made from clean water and the right amount of salts and sugar and feeding the child as soon as possible.

Three strategies have been identified to control diarrheal diseases in infants and small children.

a. Management of acute diarrheas by preventing and/or treating dehydration. Cases of acute diarrhea from any cause and in all age groups can be treated with a single oral rehydration fluid (ORS) containing sodium chloride, sodium bicarbonate, potassium chloride and glucose. 1/ Oral administration of this solution can replace fluids and maintain hydration in most cases of even severe diarrhea. In the absence of the preferred salt/sugar mixture, potable water containing appropriate amounts of table salt and sugar have been used with some success.

Oral rehydration therapy (ORT) is usually given by mothers in the home. It is also used in health centers and hospitals and reduces the need for costly intravenous fluids.

Several studies have demonstrated that when information on proper dietary practices (e.g., uninterrupted breast feedings, feeding of usual foods during diarrhea, as tolerated, and feed-in of increased amounts of food in convalescence) is given along with oral rehydration, there is a significant weight gain over

1/ The formula of ORS is NaCl-3.5g., $NaHCO_3$-2.5g., KCl-1.5b., glucose 20g. in one liter of drinking water. The salts and glucose are generally delivered in the form of a prepackaged mixture.

time. This contributes to interruption of the diarrhea-malnutrition cycle.

Antibiotics and other medication have proved to be a little value in the treatment of diarrhea, except for severe cholera and shigella and their use is not advised since it diverts health workers from the more important tasks of rehydration and dietary management.

b. Maternal and child care practices. Diarrhea related morbidity and mortality can be reduced by:

Breast feeding, uninterrupted during the first two years of life.

Proper weaning practices, starting from the fourth to sixth month, locally available weaning foods should be added to breast milk.

Care for pregnant and lactating mothers, including adequate food.

Good personal and food hygiene.

c. Improvement of water supply, sanitation and food hygiene While not a part of the CCCD program are important elements in controlling diarrheal disease. Activities directed at achieving the necessary improvements will be integrated with the CCCD program wherever possible.

The CDD aspect of the overall project will mainly emphasize regional activities, and will address the problem of supply of oral rehydration salts. Assisting countries to become self sufficient in producing oral rehydration salts will be a priority effort. Emphasis will also be placed on incorporating diarrheal disease control into primary health care.

3. Other Important Childhood Communicable Diseases. Control of malaria, by far the greatest single cause of childhood morbidity and mortality in Africa is being approached by AID and other donor through other programs.

A major thrust of these programs is the presumptive treatment of fevers with chloroquine. The effectiveness of this approach will differ from country to country and even between regions within a single country. If, however, it is determined to be an appropriate and affordable means of treatment within the existing or expanding community based system it could also be closely coordinated with or integrated into CCCD since one strategy of CCCD will utilize village health workers for dispensing materials for oral rehydration. These same workers where available could also dispense anti-malarial drugs. At the inception of the CCCD project, malaria

immunize children at the optimum ages to achieve disease control. After the system has been operating for three or more years, in those areas where coverage has been achieved, the great majority of children will be protected from the six vaccine preventable diseases.

It is also intended to immunize pregnant women against neonatal tetanus in order to prevent tetanus of the new born. All pregnant women should be immunized against tetanus as part of prenatal care. Mothers with subsequent pregnancies who are known to have received tetanus toxoid with prior pregnancies need a single booster every three years. However, since tetanus toxoid has rare side effects and medical records in many African countries are often incomplete, it is safer to immunize all pregnant women. Not adjusting for multiple births, one tetanus toxoid injection should be planned for each pregnancy. 1/ As medical records and health service coverage improve, it is likely that re-immunization of multiparous women can be reduced.

The target population for control of other communicable diseases affecting children will vary with the specific disease. For example, for yaws which is primarily endemic in Ghana, Ivory Coast, and Togo, children fifteen years and under are chiefly at risk. In 1980, the total population of these three countries was estimated at 22.2 million of which almost 50 percent are under fifteen. The aim of the yaws control program is to screen 80% of those under fifteen and to treat cases found with and contacts pencillin.

Annex B details the projected population of infants under one year and children 1 to 4 years of age in 3 sub-Sahara African countries. These countries contain over 98 percent of the total population of sub-Sahara Africa excluding the Republic of South Africa. Population estimates are given for 1980, 1985, 1990 and 2000.

The present population growth of children under five in sub-Sahara Africa is somewhat over 2.5 percent per year. 2/ This rate of growth is expected during the five year period 1981-1986, of the CCCD program. Following that, according to estimates of the University of Chicago, mortality and population growth rates are expected to decrease moderately. These trends are taken into account in the population projections used. 3/

1/ This figure assumes that some women will be known to have been recently immunized and need no injections some will only need a single booster and others will require full immunization with two doses.

2/ Population Reference Bureau, Washington, D. C.

3/ Others may disagree with this optimistic projection and forcast no drop in population growth rate for twenty years or longer. The population projections used correspond to the U.N. low variant projection. We have used this projection since it corresponds with the Population Reference Bureau figures which were used in tables comparing health indicators across sub-Sahara Africa. If the U.N. high variant projections had been used, by 1988 the discrepancy between high and low variant projections is less than 5%.

The EPI project calls for incrementally increasing the number of infants (and mothers) fully immunized, i.e., coverage, by 10 percent each year. Assuming that a 1981 population of infants under one year of 13.7 million [1] is increased by 2 1/2 percent per year for the first five years and 2 percent for the subsequent second five years corresponding to the population projections in Annex B, the following table shows the number of children to be immunized each year to achieve 100% coverage in ten years.

TABLE I Number of Children 0 to 1 Years to be Immunized Based on an Incremental Increase in Coverage by 10% per Year

YEAR	NUMBER OF CHILDREN	COVERAGE	NUMBER OF CHILDREN TO BE IMMUNIZED
1981	13,700	10%	1,370
1982	14,043	20%	2,809
1983	14,394	30%	4,318
1984	14,750	40%	5,900
1985	15,122	50%	7,561
1986	15,422	60%	9,253
1987	15,733	70%	11,103
1988	16,048	80%	12,838
1989	16,369	90%	14,732
1990	16,696	100%	16,696

The above population figures are rough estimates and merely give an indication of the order of magnitude of the task ahead. Achievement of full coverage by 1990 seems highly unlikely.

A basic question concerns the present status of EPI activities in sub-Sahara Africa. The WHO EPI medium term program for the period 1978-1983 calls for the implementation of EPI activities in 25 countries so as to provide at least 60% coverage of the target population in these countries in Africa (unnamed) by the end of 1983.

At the 1980 EPI Global Advisory Group meeting, the representative for WHO/AFRO reported that as of the end of September, 1980:

* The program is being implemented in 30 countries (Angola, Botswana Cameroon, Cape Verde, Congo, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mauritania, Mauritius, Mozambique, Nigeria, Rwanda, Sao Tome and Principe, Sierra Leone, Swaziland, Tanzania, Uganda, Upper Volta, Zambia, Zaire);

[1] This figure assumes that some women will be known to have been recently immunized and need no injection; some will only need a single booster and others will require full immunization with two doses.

* in five countries the program has been planned but not yet implemented, through lack of financial resources or for other reasons (Burundi, Chad, Equatorial Guinea, Senegal, Togo);

* in the remaining 12 countries the program is being planned.

While the WHO target for the number of African countries with EPI programs has been more than reached, the targets for immunization coverage are not being achieved on balance (although some countries, such as Gambia, are ahead of schedule). The fact that EPI activities have been established does not necessarily mean a rapid increase in the numbers actually provided with immunizations. As of Spring 1981, we estimate sub-Sahara Africa EPI coverage as not over ten percent, far below the stated WHO goal.

Given resource limitations and lack of adequate health care infrastructure on which to build and incorporate an institutionalized communicable disease control system, it is the judgment of the CCCD project design team that the WHO targets should be revised. A goal of 50% coverage for EPI is realistic by the end of the project, i.e., 1988, and close to full coverage may be achieved by the end of the 20th century. These are the goals for this project with respect to EPI. Table II shows the number of children 0 to one year of age in sub-Sahara Africa to be immunized each year, based on an incremental increase in coverage by five percent per year.

As used in this project paper, the term "coverage" refers to the percent of children fully immunized. Others use the term to refer to the percent of a population having access to immunization services. This latter definition gives an indication of services availability but does not provide a measure of immunizations actually achieved.

The contribution of the country-specific component of the AID CCCD project to coverage is discussed in the section on project outputs. As the CCCD project becomes operational and as additional information is forthcoming from various sources, and cooperation and collaboration increases, coordinated targets and implementation plans for each country can be established with some confidence. Until this is done, each donor and supporting organization will continue to provide assistance on an ad hoc basis.

D. Purpose and Strategy

There are two aspects of the program purpose. The first is to provide a regional mechanism to strengthen the African health organizations as they prepare themselves to undertake CCCD and the second is to assist them with implementing delivery of disease control services themselves. The strategy calls for a two-pronged approach; (1) the regional support project - that take advantage of the economies of scale to develop generalized solutions for the most commonly and frequently encountered program-related problems and (2) the country-specific activities that adapts and focuses on delivering services to the target populations.

TABLE II

Number of Children 0 to 1 Year of Age to be Immunized based on an incremental increase in coverage by 5% per year 1/

(000)

YEAR	NUMBER OF CHILDREN	COVERAGE	NO. OF CHILDREN TO BE IMMUNIZED
1981	13,700	10%	1,370
1982	14,043	15%	2,106
1983	14,394	20%	2,879
1984	14,750	25%	3,688
1985	15,122	30%	4,537
1986	15,422	35%	5,398
1987	15,733	40%	6,293
1988	16,048	45%	7,222
1989	16,369	50%	8,024
1990	16,696	55%	9.183
1991	17,030	60%	10,218
1992	17,371	65%	11,291
1993	17,718	70%	12,403
1994	18,072	75%	13,554
1995	18,434	80%	14,747
1996	18,802	85%	15,981
1997	19,178	90%	17,260
1998	19,562	95%	18,584
1999	19,953	100%	19,953

1/ Based on same population growth assumption as described for Table I.

In both aspects of the program there are four major project components;

a. Training

b. Data systems for Disease Surveillance, Program Management and Evaluation

c. Health Education and Promotion, and

d. Operations Research

In addition the country-specific activities will include commodities.

The regional support project encompasses all four components and applies them to solving management, logistics and operations problems the four common components. This will usually tranlate into conducting training courses for senior and mid-level management personnel, providing short term experts and other support to strengthen the national disease surveillance and evaluation capability and health education and promotional programs, and finally responding to requests to solve specific operational problems encountered during project implementation. The country-specific activities are expected to take place in essentially all countries, most of which will be assisted by donor support bilateral agreements will be entered into between countries and donors on terms which are mutually acceptible. The training will be at the national and local level and will reach further down into the ranks of the operating personnel.

An additional dimension of the country-specific activities will be the provision of direct technical assistance in the form of operational advisors. In the case of the AID/CDC supported activities in this category these advisors will spend a large portion of their time (up to 60%) working with the national implementing authorities to support them in their efforts to provide disease control services to the target population. The balance of the time of these operational advisors will be devoted to conducting training programs. This will have a double advantage of giving a practical bias to the training and lessening the dependence of the staff of the national operating programs on the expatriate advisors. The manner in which the other CADA members or other donors such as DANIDA elect to provide their assistance may differ, bu the general pattern will probably be similar. In all cases countries will have the option of drawing on the regional support project for training and other types of support that it is equipped to provide.

E. Beneficiaries

Potentially two thirds of the more than sixty million children under the age of five years in sub-Sahara Africa are ultimate beneficiaries of the first eight years' CCCD activities.1/ By the end of this period it is projected that at least fifty percent of the EPI target.

1/ This figure is based on an estimated 13,700,000 births in 1980, less projected annual attrition due to childhood mortality rates (see Annex B), and takes into account the targets for disease control activities.

population (children under one year) will be fully immunized over half of the pregnant women will have been immunized against tetanus; eighty percent of the yaws endemic target population (generally children below fifteen years) will have been screened and/or treated; and over fifty percent of children under five years who have had an episode of moderate or severe diarrhea, will have received oral rehydration therapy (ORT). Until operational areas are defined, however, and the exact target population quantified, it is not possible to estimate the number of these ultimate beneficiaries with greater accuracy.

The number of more direct beneficiaries of CCCD inputs, ministries of health and health personnel, can be estimated more easily. During FY 81-85, insitutional capabilities for program planning, data collection, program evaluation, research, and health education and promotion will be enhanced in at least 4,400 senior and mid-level health staff and training and staff development for up to an estimated 15,000 lower level health workers.

F. Evaluation

Three categories of evaluation are included in this project. First is the evaluation component of disease control programs per se, Second is the evaluation of the AID CCCD project. This is covered in a separate section of the Project Paper. The third level of evaluation is designed to assess the effectiveness of the program and identify some of the probable social and economic impact.

Impact Assessment: If the program targets are met or even approached the social and economic impact will be tremendous Funds will be allocated within the project to identify and define some of these impacts and discuss their social and investment implications. It is neither intended nor within the financial means of the program to conduct in-depth research. These studies will analyze data from routine sources or sample surveys, estimate the likely effect on population growth and composition, and draw attention to some of the future investment implications and social and economic planning decisions that will need to be addressed. Their purpose will be conscious raising for country officials and donors rather than problem solving.

This task was included as part of the regional support project because it was felt that epidemiologists, operations officers and others budgeted for in the regional support project would have the most immediate access to the data and would be in the best position to schedule and plan the studies to identify trends and yield significant information on a timely basis. These studies will be designed with country collaboration and be conducted under contracts with U.S., other donor or African institutions or individual experts. They will be designed to obtain quick information. They should be relatively inexpensive and will be scheduled at various points during the life of the program.

G. Outputs

Each of the four major project components will have its own outputs some of which lend themselves more than others to quantification. The outputs of the regional support project are presented in considerable detail since their nature and content is well known and their dimensions more easily determined. The nature of the outputs desired for the country-specific activities are also reasonably well known, but their numbers are more difficult to estimate since the exact number of country-specific activities to be undertaken by the program (AID and others) during the first eight years is not at this point known. Each activity will need to be negotiated between the recipients and donors. This will be done periodically throughout the implementation of the total program. To overcome the problems of quantification, this aspect of the program is described illustratively and a model is costed out on the basis of experiences gained elsewhere in Africa and the Third World. An attempt has been made to differentiate between the urban and less accessible rural target populations, and allowances have been made for these differences in designing and estimating the needs for this part of the program. For programming purposes we have assumed twenty AID assisted country-specific activities will be operational by year eight of the program.

1. Regional Outputs

a. Training. Training was considered by WHO as well as all of the African regional health organizations and ministries of health from whom the project design team obtained input, as critical to improving the ability of sub-Sahara African countries to respond to health needs at all levels. A serious lack of African health workers with sufficient training in health planning, program management and evalaution exists, particularly in such technical and program areas as EPI and CDD. Appropriate training courses have been or are being developed by WHO and CDC.

The CCCD project will continue WHO's emphasis on developing and conducting courses as priority elements of disease control programs. During 1981-1985, CCCD will sponsor both regional and country-specific training activities and will emphasize staff development and the training of trainers for lower level health workers (see Annex C for training schedule).1/

(i) Management Training:

Forty two, two week regional training courses and seventy incountry training courses will be conducted on the control of childhood communicable diseases for approximately 4,800 senior and mid-level sub-Sahara Africa health workers. In addition, over 15,000 staff will be trained at the services delivery level.

1/ These course have been developed by CDC in consultation with WHO and are available from both organizations. The training schedule was worked out in collaboration with senior WHO EPI and CDD officials in Geneva in June, 1981.

EPI Management I (Senion Level)

First offered in 1977, this two week course teaches skills in program planning, management and evaluation to national level communicable disease control managers. Five sequenced modules are included:

- determining extent of disease problems
- determining program priorities
- setting objectives and determining strategies including the costing of options
- evaluation
- work systems

The course, with an average of 40 trainees, is presented on a regional or sub-regional basis, with several countries sending senior level personnel as participants. The curriculum is available in English, Spanish and French. Through March, 1980, the course has been conducted by WHO/CDC four times in Africa (in Algeria, Congo, Ivory Coast and Nigeria) and over 150 participants have been trained. The plan is to give this course once in English and once in French, each in 1982, 1983, and 1984 and in 1986 and 1988. Once the CCCD project is operational, WHO will look to the project to provide all senior level EPI training in sub-Shara Africa.

Over the life of the project there will be 400 persons trained in EPI Management I.

CDD Management I (Senior Level)

The first diarrheal disease control management course for forty national CDD program managers was recently given in Bangkok by WHO with the assistance of CDC.

The course was organized into seven modules as follows:

- Priorities
- Objectives and targets
- Delivery systems
- Sub-targets
- Logistics
- Evaluation
- Problem solving

The methodology used in the course is similar to that employed in the EPI courses on management and supervision.[1/]

During 1982, 1983, 1984, 1986 and 1988, one English and one French course, as detailed above, will be given, each targeted to have forty participants.

1/ See Annex D for the details of the "Diarrheal Diseases Control Training Course for Programme Managers."

During the eight year project, 400 trainees will participate in 14 CDD Management I courses.

EPI Management II (Mid-Level)

In 1980, 10 mid-level EPI courses were given in sub-Sahara Africa, four by CDC (three through SHDS in Cameroon, the Gambia and Ivory Coast, and one bilateral in Zaire) five by WHO, and one by DANIDA.

The mid-level course contains eight modules which may be presented in any order. These are:

- cold chain
- supervision
- training
- conducting vaccination sessions
- community participation
- coverage evaluation
- allocation of resources
- disease surveillance

During years 1982, 1983 and 1984, one course each in English and French will be given. In the next four years, one English and one French course will be given every two years. These courses, to be presented on a regular basis are primarily for the purpose of training state, division or provincial level EPI supervisors to provide them with the skills necessary to manage EPI programs and to train district level supervisors in their own countries.

Courses each in English and French will be given annually at the country level to tra n district supervisors, providing them with the skills to train and develop subordinate staff at the service delivery level. Five courses in each language will be given in years 1982, and 1983 and four courses in each language in years 1984 through 1988.

The regional courses will be presented over a two-week period. Country level courses will be conducted during three one-week sessions spread over the year in order to provide ample time for practical application of the material presented in the eight subject-specific modules. Staff at the service delivery level will be trained one module at a time in conjunction with monthly staff meetings. Such training can be accomplished allowing 1-2 days per module. In total, 2,800 health workers will be trained in 70 EPI mid-level management courses.

CDD Management II (Mid-Level)

To date no mid-level CDD management courses have been given. WHO and CDC have yet to develop the course curriculum but will begin the design of the course by spring, 1981. The course will be field tested in fall, 1982 and the first offering will be in FY 1983, the third project

year, when one regional course each will be given in English and French. In the subsequent six project years, two courses each will be given in English and French. The split between regional and country level courses will be one regional and two country level, in each language, per year. All told, there will be 1280 health workers trained in 32 CDD mid-level management courses.

The possibility of combining EPI and CDD management training is under consideration. This is discussed in the Technical Feasbility section of the Project Paper.

(ii) Cold Chain Technical and Managerial

The Cold Chain Unit of EPI WHO/Geneva has developed a course on vaccine handling and distribution which is generally presented in one day in conjunction with either Management I or II courses. An expanded version (four/five days) is also available for training cold chain specialists. This will be offered on an ad hoc basis, on request. In addition, twenty-four two week sub-regional courses will be conducted in French and English, four each in years 1982 through 1986 and two each in 1987 and 1988, for approximately 1,000 field level health workers on cold chain repair and maintenance in specific countries or groups of countries.

(iii) Seminars (Workshops):

Seminars/workshops will be organized in French and English as required to deal with other selected childhood communicable diseases (such as yaws, yellow fever, malaria, etc.) specific to or prevalent in a given country or sub-region.

Training for other activities will be arranged as needed. This will include developing educational materials and curricula for use in training primary care teams at district and lower levels.

Training in West and Central Africa will be coordinated with the Strengthening Health Delivery Systems (SHDS) project and other appropriate organizations. National training will be at the request of the spcific African country and in cooperation with other donors providing assistance. Wherever possible, the project will incorporate EPI, CDD and other CCCD-related training into existing institutional curricula.

The number of these seminars/workshops will reflect demand and ability of project staff to provide assistance. An estimate is for a total of ten during the life of the project.

The training component is the largest and perhaps the most crucial element in the entire program. To successfully implement this component will require the assignment of responsibility at several different levels. The content and teaching methodology will be based on the WHO/CDC model and experience. Careful attention will be paid to getting feedback from the evaluations and results from operations research to introduce changes that will make the training more relevant and effective. The responsibility for making sure this occurs will rest with CDC, who will serve as the implementing agent for the project.

Of equal importance to the effectiveness of the training is the selection of participants, scheduling and conducting of the instructions itself and continued communication and follow-up with those who pass through the courses. It is hoped that WHO/AFRO, who has had a great deal of experience in this area, will accept the primary responsibility for this aspect of the program. The stationing of a resident CCCD trainer/coordinator in Brazzaville is designed to ease the staff burden of this function on WHO/AFRO and facilitate communication and cooperation between the CADA members, WHO/AFRO headquarters and its member states.

To assure a practical bias and operational orientation to the courses, instructors will be selected on the basis of their field experience as well as their technical knowledge. While much of the expertise will be drawn from CDC Atlanta and other CADA countries willing to make their experts available, a large part of the training will be carried out by the three African based CDC epidemiologists and the operations officers engaged in ongoing country-specific activities. In the latter case we have estimated that 40% of their time will be spent on the regional aspects of the program. Each case will need to be negotiated and the division of time agreed upon at the time the individual country agreements are drawn up. CDC will be responsible for mobilizing and providing the teaching manpower and making the necessary arrangements to assure their timely availability.

b. Data Systems for Disease Surveillance, Program Management and Evaluation

The USAID project will add to WHO sponsored initiatives to strengthen national capabilities to collect relevant health data for disease surveillance and for the planning, conducting and evaluating of communicable disease programs in a minimum of 20 countries.

The project will also provide short term epidemiological assistance in generating and revising national EPI and CDD plans. The CDC staff who will implement the project at the regional level have participated in demonstration, planning, and training exercises for EPI in Burundi, Cameroon, Central African Republic, Congo, Gabon, The Gambia, Ghana, Ivory Coast, Rwanda, Sudan, Somalia and Zaire.

Diarrheal control programs are primarily in the planning stages and the bulk of activities early on will involve short-term data collection and program planning. Development of CCCD activities to fight diseases other than EPI related and diarrhea will depend upon request from African countries during 1981-1988.

To carry out this project component, CDC will post three epidemiologists in Africa, geographically dispersed, for example, one each at OCEAC, OCCGE and in South East Africa.[1] These staff will split their time between regional communicable disease control organizations; individual country counterpart training and disease control activities; outbreak investigations; research; and regional training. In addition, two Atlanta based epidemiologists will back up the field personnel.

Activities in this component will be carried out at all levels of the health care system as follows:

Central level - In addition to formal training courses previously described, where there is a CDC country resident operations officer, that individual will work with a national counterpart to provide day to day long term technical assistance and on-the-job training. Although posted in one country, CDC personnel will be expected to serve more than the country in which they are resident.

Both long and short term training will be offered. The short-term training will consist of sending national communicable disease control managers of countries where there are AID bilateral CCCD projects to CDC, Atlanta, for a three week Epidemologic Intelligence Surveillance (EIS) course. Over the life of the project, managers from 15 countries are expected to take the EIS course. Average cost for transportation and living expenses for those attending the course in 1981 will be around $4,000.

Most countries where AID has supported health care have had personnel trained at the graduate level in epidemiology and biostatistics under AID sponsorship. The CCCD project does not intend to offer graduate level training except in those few instances where there is insufficient skill level in a country to allow for the development of self-sufficiency in communicable disease control.

Supplementing the above activities at the central level, CDC, at least annually, will make available personnel to conduct evaluations of country data systems for disease control with the aim of making recommendations for improvement. These evaluations, which will require two weeks on the average, will be initially restricted to countries having AID bilateral projects.

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[1] OCEAC - Organization for coordination and cooperation in the struggle against Endemic Diseases(Central Africa).

[2] OCCGE - Organization for coordination and cooperation in the struggle against Endemic Diseases (West Africa).

As part of the overall effort to build up African expertise and increase the exchange and transfer of knowledge within the region, AID would channel funds WHO/AFRO to cover the costs of African experts to participate as members of these evaluation teams. This Technical Cooperation between Developing Countries (TCDC) approach will be introduced into all the components of the program whenever this technique appears feasible and warranted.

Regional level (in country) - Support at the state, provincial or regional level in countries will consist of short term technical assistance from CDC personnel, opportunity to attend a one-week basic course in epidemiology and disease surveillance (to be developed by CDC) and training in the management courses described.

District, health center and community levels - CDC will develop training materials to be used at these levels.

c. Health Education and Promotion

The ultimate success of the CCCD program will depend upon its acceptance by those who are the targets of disease control services. Although infants and small children make up the bulk of the target group, in fact it is the mothers who are the key decision makers with respect to health matters.

A needs assessment points up two major problems.

First, how to motivate country officials, health and otherwise, to place high priority on implementing communicable disease control programs.

Second, how to motivate full utilization of available CCCD services. Part of this problem is to identify and overcome resistances which lead to non-utilization and drop-outs by potential service recipients. Equally important is working with and through community groups and particularly with mothers and others who influence decisions affecting health related behavior.

The scope of products and services to obtain program support and ensure utilization and compliance include:

- Production and use of health promotion materials
- Developing community acceptance and participation in promoting CCCD services and activities by:
  - formal education in health establishments and schools
  - informal adult and child education - mother to mother,etc.
  - treating the sick and providing preventive care
  - getting community participation in sanitation and potable water development.
  - working through community organizations such as local councils, health committees, etc.

To develop the health education/promotion component of the CCCD project, a contract will be let to obtain the services of a health educator. This individual will have the responsibility of developing and managing this project component under the direction of AID in collaboration with CDC. Four months will be allowed to design the component content and work plan.

Early on, the health educator will consult with other CADA member health specialists as well as with those from WHO and UNICEF and will visit African health education/promotion specialists to assess needs and appropriate interventions firsthand.

Several CADA members, the United Kingdom in particular, have special expertise in health education and promotion in African countries. The CADA mechanism will provide a means of using this expertise in the CCCD program.

To assist the health educator, U.S. and African institutions and individual specialists will be contracted. They will provide short-term technical assistance to both the regional project and country specific activities. Use of Peace Corps volunteers will also be explored.

d. Operations Research (OR)

The CCCD project does not plan to undertake basic research since this is outside the purview of the project. It will however conduct and assist others to conduct studies on health services and operations, cost effectiveness studies and controlled field trials of various interventions; so as to provide answers to specific questions posed by those responsible for carrying out communicable disease control activities.

In conducting operations research on EPI, CCCD will coordinate activities with the WHO EPI units in Geneva and Brazzaville. Research activities will be the direct responsibility of host country ministries of health and to the maximum extent possible carried out by national health officials and African institutions.

In the area of diarrheal disease control, CCCD will emphasize and support field studies in child care practices, in the use of prevention and improved methods of treatment and in assessing the effectiveness of oral rehydration therapy.

An important research focus will be to test the effectiveness of community based systems for presumptive therapy for malaria. Area specific research will be done before malaria control is added as a target disease to any of the country-specific activities.

Annex E lists priority areas for research in the CCCD program as identified by CDC staff in February 1981. While these areas appear to address important need-to-know items, selection of specific research activities

will require a screening process. It is recommended that for low cost studies, i.e., these under $5,000, countries in consultation with the assigned CDC operations officer and CDC regional epidemiologist will submit a research protocol and funding request to the Operations Research Working Group of the Advisory Council. The Working Group will decide on which research activities to fund. Requests for funding of studies costing more than $5,000 would be screened by the Working Group and submitted to the Advisory Council for approval.

Most research projects are expected to be small-scale, time-limited and low cost: under $5,000. Some extensive field trials or formal operational reserach projects involving modeling and mathematical analysis and synthesis may be expensive: $50,000 or more. An average cost of $10,000 per research project has been estimated by CDC. Assuming a research budget of $200,000 per year, during the last seven years of the project, an average of 20 research projects will be conducted annually. In many instances the same study may be carried out in more than one locality; this would be considered as multiple projects.

To coordinate, advise on the conduct of CCCD research and provide technical assistance with research, CDC will appoint an Atlanta based epidemiologist half time, as the responsible individual. This epidemiologist will be assisted by CDC African field personnel and short term consultants. Collaboration with African research specialists will be emphasized. Research activities will increase as the CCCD country programs grow in number. For planning purposes, it is assumed that CDC field personnel and short term consultants collectively will spend two person years annually on research activities. These are added to the CDC half-time reserach manager.

Policy with respect to selection of appropriate areas for study will be established by the CCCD Advisory Council. The Working Group for OR will set guide lines with respect to priorities and procedures. To a considerable degree, funds will be made available to individual countries to conduct or activities, assisted where necessary by CCCD project personnel.

2. Country-Specific Outputs

The target for the CCCD program is to increase immunization and other childhood communicable disease control activities incrementally by five percent each year so as to approach close to 100% coverage of the target population in twenty years.

How close an individual country will come to the theoretical 100% coverage depends on a number of factors such as the extent and rate of development of its health infrastructure and how much it is willing to spend to reach the most inaccessible segment of the population. Even with a sustained twenty year effort the probability is that people living in very remote areas will not be touched by the program. It is recognized that achievement will be uneven since immunization and diarrheal and other disease control activities can only grow at a rate parallel to the expanding national capabilities.

a. Donor - Recipient Country Relationships

The exact relationship between the regional aspects of the program and the bilateral country-specific efforts supported by CADA members, as well as by other donor organizations such as DANIDA, will need to be worked out on a country by country basis as the CCCD program develops. This is primarily a reflection of different levels of resources and of health services development in various countries, together with traditional donor-country relationships.

Important factors to be assessed in considering donor support for a specific country for CCCD activities are:

- Country need for assistance
- Country request to participate in the CCCD program
- Level of country commitment to CCCD and primary health care
- Ability of country to carry out and maintain CCCD activities. This involves availability to resources, supplies, appropriate staff, necessary infrastructure, etc., and the willingness to commit these to CCCD.
- Previous country performance on health programs
- Technical feasibility - access to population, etc.
- Relationship of contemplated CCCD activities to WHO, UNICEF or other donor activities
- Relationship of CCCD to national health policy and impact on existing health care activities
- Availability of donor support and donor choice for specific country assistance, and
- Adequate baseline health data for program planning and management. This includes the willingness of countries to permit appropriate data collection.
- Countries willingness to monitor demographic and other impact of disease control activities so that they can plan for the future.

It is likely that donors will set minimum conditions to be met before assistance is provided to support CCCD activities. These are expected to vary, on a country by country and donor by donor basis.

In all countries considered for CADA support, there should be a realistic assessment of the timing of donor phaseout and country takeover of CCCD responsibilities.

All countries supported by CADA will be expected to participate to some degree in providing costs, staff and other requirements of the CCCD program. In the more affluent countries this participation might also include provision of housing for expatriate experts, facilities for training, vehicles, fuel, etc. The poorer countries will require some form of time-phased budget support to augment their own contributions for local and recurrent costs

The outputs of this part of the program will consist of (a) a number of countries with incrementally increasing, nationally operating activities directed at combating childhood communicable dieseases; (b) donor/host country coordination to help link host-country needs with donor capabilities (WHO/AFRO and the CADA mechanism itself are expected to be the main catalytic agent to foster this development); and (c) the establishment action plans which integrate CCCD into national primary care programs.

b. Operating CCCD Activities

Annex F summarizes the AID supported health activities related to CCCD that are known to be going on or planned in the near future within the region of sub-Sahara Africa. Others CADA members are prefering similar lists. To these will be added information for UNICEF, WHO and other donors. In this way it is hoped that as the CCCD program evolves, the many communicable control disease activities can be coordinated and brought into close association with the CCCD program and benefit from the regional support project and other services offered by the program.

One of the principles underlying the CCCD program design is to the maximum extent possible to work with and build upon what already exists. In many cases a start has already been made and general agreements have been reached between the host governments and the donors. In these cases the existing activities are described in this paper as a matter of fact, but future expansions and the methods of financing them are still conjecture at this point. In other cases no specific agreements between the potentially participating governments have been reached, but based on general expressions of interest it is reasonable to assume that agreements will be reached and actual operating programs begun during the five year life of this phase of the CCCD program.

It is expected that discussions and implementation planning between CADA members and individual African countries will begin as early as the end of 1981 and continue throughout the life of the project. This should result in new country-specific activities being added each year. For planning purposes we have assumed that there will be 20 country-specific activities operating and supported by the CCCD program by 1985. Although the details for each country-specific activity will be negotiated

by the concerned parties it is expected that all will have a number of common elements and will follow patterns already set by those activities that are already underway.

The training of operating personnel at the local level is expected to be one of the elements in the various country-specific activities that will be closely tied to the teaching concepts that guide senior and mid-level training conducted at the regional and sub-regional levels. The supervisors will be given instruction in teaching techniques at the time of their training and will be expected upon their return to provide in-country training to the operating personnel at the local level. This will be done in conjunction with the normal supervisory visits. Drawing on the experience gained in the SHDS supported Gambia project which was evaluated in November 1980, a training protocol is being developed. Supervisors will be provided with "mini training modules" appropriate for use during their regular visits to field staff. Supervisor/trainers will be urged to schedule their field visits rather than having them occur on an ad hoc basis. The objectives will be to visit each field post at least once per quarter and allow sufficient time for interaction between the supervisor and the staff. In most instances one working day should be sufficient to accomplish the training and supervisory objectives.

To help understand how the country-specific activities and the regional project fit together four models are presented to illustrate how the CCCD program might work under differing circumstances. It is recognized that these activities vary greatly ranging from small elements of a country's overall health program, carried on with little or no outside assistance, to major efforts supported by international or bilateral donors. While each country situation will differ there are usually three main variables that will determine how the CCCD program can best be applied and adapted to a particular given situation. First, when planning for activities at the country level particular attention will be paid to where the country and, more specifically, the health sector is on the spectrum of development, second, the degree to which EPI/CDD activities are already integrated into the regular health care system; and third, the various arrangements that exist between the host country and the principal donors with respect to project implementation.

The aim of the country-specific activity part of the CCCD program is to be flexible enough to provide assistance that can relate and strengthen what is presently going on and do so in a manner that is compatible with existing bilateral, multilateral or regional arrangements. To aid in the understanding of how the country-specific activities of the program can work, four models are presented to illustrate likely patterns that may emerge as the CCCD program moves into the implementation phase.

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Model 1:

This model would apply to countries where little in the area of EPI or CDD was currently going on. Im most instances these would be the poorer countries that lack the resources and trained manpower to undertake and sustain major national immunization efforts. The initial CCCD country-specific response to these situations would probably be on a limited scale focusing on urban based or area specific programs. These programs could be expanded gradually as conditions allowed. Since recurrent cost constrainets would be a significant factor this model would need to include clear plans for sharing the burden of operating expenses and an indication of the duration of such commitments by the donor.

Model 2:

The second model would apply to countries where very little was going on in the area of EPI and CDD even though they had or were planning major bilateral health programs. In a number of countries in this situation various funding mechanisms such as the AID supported Accelerated Impact Project (AIP) and three demonstration areas of the SHDS regional project have been used to get EPI activities started prior to the completion of the design of the broader CCCD effort. These activities have usually been short term undertakings or pilot projects to deliver services to a limited target area and allow for a buildup of organizational competence and experience while a more extensive long term activity is being planned. It is planned to have these broader bilateral programs absorb and integrate the start-up of EPI and CDD programs into the countries regular on-going health delivery system. Under this model countries and donors would be encouraged to maintain their planned schedules or perhaps even accelerate them, for integrating the EPI and CDD elements into broader health programs. Through training and operational research the regional project can be expected to assist in the transition. Once EPI and CDD activities are integrated into national health programs to CCCD regional project could continue to be used to support those elements over the duration of the CCCD program.

Model 3:

The third model could apply to countries where short term EPI and CDD activities similar to those described in Model 2 have been initiated but where no long term bilateral commitments for continued health programs have been made. Under these circumstances it is envisaged that a longer term country-specific activity could be negotiated under the CCCD umbrella by AID or one of the other CADA members with the host country to build upon the earlier efforts and provide continued support to the EPI and CDD elements of the countries' national health care system.

Model 4:

In countries which already have substantial bilateral programs that include EPI and CDD elements, it is anticipated that these programs would continue on a bilateral basis. However, because of the services and facilities offered through the CCCD regional project, it is possible that the host country and their donors may wish to modify their agreements and reporgram some of the funds to take advantage of what is offered through the CCCD program. Under this model implementation of existing bilateral programs could be accelerated by increased training, research, and other supporting activity at the regional level.

These four models are meant to be illustrative and are by no means exhaustive. Variations and combinations of these models will be worked out during negotiations, and it is understood that each country and donor will have preferred stules of operation which it will wish to incorporate into the specific agreements. The main purpose in citing these hypothetical examples is to underscore the intent and desire to keep this element of the program flexible, in order to have the CCCD program address the needs of countries in varying circumstances and be responsive to different needs.

c. Country-Specific Coordinating Plans

As each country-specific agreement is worked out careful attention will be paid to laying out an effective means of coordinating the efforts of all the donors and interested parties within the country. Each agreement should include a specific plan for coordination. In this regard the following aspects will be considered:

(i) Relationship of the national implementing authority to the CCCD Regional Project:

Each country-specific agreement will need to "spell out" as precisely as possible what it expects to receive from the regional project and when these inputs are needed. The plan should also address the manner in which continued communication between the regional project and the country specific activity will occur. Each participating country will need to budget sufficient funds to permit the country-specific activity to take full advantage of what the regional project has to offer. This would include funds for such items as per diem and travel costs for trainees that are not covered under the regional project or salaries or researchers working on a regionally funded, country-specific research task. To facilitate this coordination the regional project periodically will publish an information pamphlet describing what can be provided regionally as well as other pertinent information. Another element that will need to be clearly defined at the outset is the amount of time the AID funded operations officers will be expected to spend outside a given country conducting or evaluating the regional training courses. This also should be spelled out in the "Coodination Plan."

(ii) Relationship between bilateral missions and the regional project

While this issue will need to be addressed by all the CADA and associated donors, it is discussed in this paper with specific reference to AID and the USAID overseas missions.

This is an extremely important and potentially sensitive issue and one in which any areas of confusion or uncertainty should be clarieifed and solved at the earliest stage.

The intent of the regionally funded country-specific activities is to help countries desiring to expand their immunization, diarrhea control and other locally important childhood diseases programs. This help can be provided in a variety of ways and within the overall ground rules can be tailored to meet the specific needs of the country. The ability to remain flexible is essential for the success of this element of the program.

As part of the project design process drafts of the PP were sent to U.S. African field missions and discussions were held with mission personnel and with African country representatives in West, Central and East Africa, as well as with WHO/ Geneva, WHO/AFRO, UNICEF and the other CADA members. Since the design process included actual involvement of both potential participating countries and donors, it is believed that the USAID missions will now be able to establish a continuing dialogue to work out the most effective means of interfacing the CCCD program with ongoing or planned national and bilateral health projects.

As explained above there are a number of different ways (or models) to bring about this interface, and each case will need to be worked out and tailored to fit the particular situation. The role of the file missions in prject implementation will also differ depending on the model being followed. It is hoped that having USAID missions involved at the design stage will result in making the CCCD effort fully supportive of bilateral programs and that this will facilitates future health program coordination.

(iii) Relationship of AID supported regional projects to the CCD program

The CCCD program will build upon the work that has already been accomplished under the SHDS project. It is expected that training facilities established under SHDS will be used to the maximum extent possible for the training being carried out under the CCCD program.

It is further expected that "Objective 3" of the SHDS project, i.e., EPI demonstration and training and disease surveillance, will be absored into the CCCD program after December 1982 when the current SHDS effort is scheduled to be concluded. This absorption would also include

bringing in the CDC epidemiologist and operations officer positions which are now part of the SHDS project, although the nature of their assignment and possibly their physical location may be changed to fit the priorities and needs of the CCCD program. These details and the timing of the transition will be worked out as the implementation discussions with the Africans move forward. This dialogue is expected to begin immediately following project authorization, i.e., then fall of 1981. Meanwhile the CCCD budget has been constructed to allow for the inclusion of these positions.

(iv) Role of other regional health organizations and inter-country cooperation:

The active role expected to be played by WHO/AFRO has been dealt with in some detail elsewhere in the paper. In addition to WHO/AFRO there are a number of African based groups who can play an important part in improving the overall level of coordination and achieve a mutually beneficial level of cooperation at both the national and regional levels. Regional organizations such as the West African Health Secretariat, SHDS, OCCGE, and OCEAC can play a similar role. Donor countries, acting singly or in concerted action, can also serve to encourage CCCD coordination. Finally, and most importantly, African countries themselves can assist one another with technical cooperation to strengthen their own health systems by exchanging information and expertise.

(v) TCDC as a means of achieving coordination

"Technical Cooperation Among Developing Countries (TCDC)" can take the form of sharing resources such as training facilities, technical cooperation and assistance, exchange of scientific reports and studies, multinational participation in field trials (as in the Kolda Department study in Senegal) and in joint conferences concerned with scientific and operational aspects of CCCD. It is expected that WHO/AFRO, Brazzaville will play a significant role in stimulating this coordination, collaboration and cooperation.

Project funds will be made available to WHO/AFRO to finance this type of activity, especially as it relates to training and evaluation and the exchange of experts among African nations. In the case of some of the more affluent countries such as Nigeria it is hoped that arrangements can be worked out to allow their participation in the project's regional support activities on the same basis as the poorer nations in return for their willingness to support TCDC aspects of the program as their contribution to the CCCD effort.

d. Integrating CCCD with Primary Health Care

To the extent feasible, communicable disease control programs will be incorporated into developing primary health (PHC) systems in Africa. The goal of primary health care, as established by WHO, is to have by the year 2000 the following basic health care components provided to all persons throughout the world promotion of proper nutrition and an adequate supply of safe

water; basic sanitation; maternal and child health services, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; education concerning prevalent health problems and promotion of methods for preventing and controlling them; and appropriate treatment for common disease and injuries.

CCCD services will be initiated through existing health services or primary health care systems to the extent they exist, or using curative facilities on an interim basis where necessary. Although not part of this program, it is noted that a functioning health delivery system and infrastructure is an essential part of a successful long range program to combat childhood communicable diseases and expand primary health care coverage. In recognition of this, it was agreed in the November, 1980 CADA technical working group meeting that CADA members should take every opportunity to encourage the development of health infrastructure so as to enhance the abilities of the participating countries to achieve the CCCD objectives.

The delivery of oral rehydration solutions (ORS) by all levels of health care providers may be possible to accomplish in a relatively short time. However, due to the technical difficulties inherent with immunization activities (record keeping, different dosage schedules for different vaccines, cold chain maintenance, the need for parenteral injections, etc.), it will be difficult if not impossible to have provision of immunizations routinely available at most peripheral rural health units. Therefore, it will required operational and health services research to develop acceptable, cost effective and affordable methods to provide immunizations to hard to reach population groups.

During the initial phase of the CCCD program, it is expected that several of the basic components of PHC will be established in many of the developing health care systems in sub-Sahara Africa.

e. Procedure for Initiating or expanding a country-specific activity

In cooperation with WHO it is hoped to be able to continue the practice of using joint host country. WHO/AFRO and donor teams to help determine the need for and reasibility of beginning new country-specific activities or expanding an existing program. This would usually involve sending in a team, or in some cases a single individual, to collaborate with Ministry of Health personnel in carrying out a needs assessment and other activities which would lead to the development of a CCCD program that could be integrated into the existing system. One of the criteria for providing country-specific assistance would be an assessment of the cost effectiveness of the proposed activity with respect to reduction of disease prevalence and morbidity and mortality and the financial ability of the host country to sustain the program over the long run. The duration and phasing out of donor assistance would be specifically addressed in all the country-specific agreements.

ANNEXES

A Sub-Sahara Africa- Selected Demographic Data

B Number of Children Under Age Five Years in Selected Sub-Sahara African Countries

C Training Schedule and Costs

F Overview of AID Supported Health Activities in Sub-Sahara Africa Related to the Combatting of Childhood Communicable Diseases (CCCD)

G Meetings Held and Individuals Seen in Conduct of Scope of Work

* Annexes D and E, referred to in the text are not included in this report

ANNEX A - Sub-Sahara Africa-Selected Demographic Data 1/

COUNTRIES	Estimated Population Mid-1980 (million)	Birth Rate	Rate of Nat Increase (annual %)	Inf. Mort. Rate	Population 0 to 15 (%)	Total Fertility Rate
ANGOLA	6.7	48	2.4	203	44	6.4
BENIN	3.6	49	3.0	149	46	6.7
BOTSWANA	0.3	51	3.4	97	50	6.5
BURUNDI	4.5	47	2.7	140	44	6.3
CAMEROON	8.5	42	2.3	157	41	5.7
CAPE VERDE	0.3	28	1.8	105	36	3.0
CENTRAL AFRICA	2.8	42	2.2	190	41	5.5
CHAD	4.5	44	2.3	165	42	5.9
COMOROS	0.3	40	2.2	148	43	5.2
DJIBOUTI	0.4	48	2.5	132	46	6.6
EQUATORIAL GUINEA	0.4	42	2.3	165	42	5.7
ETHIOPIA	32.6	50	2.5	162	45	6.7
GABON	0.6	33	1.1	178	33	4.5
GAMBIA	0.6	48	2.4	217	41	6.4
GHANA	11.7	48	3.1	115	47	6.7
GUINEA	5.0	46	2.5	175	44	6.2
GUINEA BISSAU	0.6	41	1.8	208	39	5.5
IVORY COAST	8.0	48	2.9	154	45	6.7
KENYA	15.9	53	3.9	83	50	8.1
LESOTHO	1.3	40	2.4	111	40	5.4
LIBERIA	1.9	50	3.2	148	48	6.7
MADAGASCAR	8.7	45	2.6	102	43	6.1
MALAWI	6.1	51	3.2	142	44	7.0
MALI	6.5	49	2.7	190	48	6.7
MAURITANIA	1.6	50	2.8	187	42	6.9
MAURITIUS	0.9	27	2.0	35	37	3.1
MOZAMBIQUE	10.3	45	2.6	148	45	6.1
NAMIBIA	1.0	44	2.9	142	44	5.9
NIGER	5.5	51	2.9	200	47	7.1
NIGERIA	77.1	50	3.2	150	47	6.9
REUNION	0.5	26	1.9	36	38	2.8
RWANDA	5.1	50	3.0	127	47	6.9
SAO TOME & PRINCIPE	0.1	45	3.4	64	43	6.0
SENEGAL	5.7	48	2.6	160	44	6.5
SEYCHELLES	0.1	26	1.8	43	42	4.5
SIERRA LEONE	3.5	46	2.6	136	41	6.4
SOMALIA	3.6	48	2.8	177	44	6.1
SUDAN	18.7	48	3.1	141	44	6.6
SWAZILAND	0.6	47	2.8	168	48	6.4
TANZANIA	18.6	47	3.1	125	46	6.5
TOGO	2.5	49	3.0	163	46	6.7
UGANDA	13.7	45	3.0	120	45	6.1
UPPER VOLTA	6.9	48	2.6	182	44	6.5
ZAIRE	28.9	46	2.8	160	45	6.1
ZAMBIA	5.8	49	3.2	144	46	6.9
ZIMBABWE	7.4	47	3.4	129	47	6.6
CONGO	1.6	45	2.6	180	43	6.0
TOTAL	348.1					

1/ Source, 1980 World Population Data Sheet, Population Reference Bureau,

ANNEX B Number of Children Under Age Five Years in Selected Sub-Sahara African Countries

COUNTRIES	Estimated No. of Children Under Age One Year (000)				Estimated No. of Children 1 - 4 Years (000)			
	1980	1985	1990	2000	1980	1985	1990	2000
ANGOLA	309	351	386	396	1062	1237	1407	1579
BENIN	143	169	198	216	504	578	680	815
BOTSWANA	33	39	42	50	116	136	154	190
BURUNDI	167	191	212	236	588	665	742	864
CAMEROON	249	300	329	396	885	1062	1201	1492
CAPE VERDE	9	9	9	9	31	32	33	32
CENTRAL AFRICA REPUBLIC	75	85	96	115	273	314	348	421
CHAD	151	166	176	181	532	587	635	684
COMOROS	15	15	18	24	57	60	69	90
CONGO	53	56	66	83	202	226	252	314
DJIBOUTI N.A.								
EQUATORIAL GUINEA	11	12	13	14	37	42	47	54
ETHIOPIA	1300	1422	1584	1806	4505	5095	5686	6686
GABON N.A.								
GAMBIA	20	22	24	26	73	79	87	97
GHANA	504	561	572	567	1674	1914	2107	2251
GUINEA	243	276	307	345	850	968	1123	1413
GUINEA - BISSAU	19	22	23	25	71	78	85	95
IVORY COAST	303	345	410	507	1165	1294	1464	1838
KENYA	717	768	806	993	2485	2836	3101	3701
LESOTHO	47	43	37	40	167	170	176	157
LIBERIA	65	67	72	90	238	261	282	341
MADAGASCAR	437	459	494	596	1517	1683	1849	2208
MALAWI	248	283	311	355	830	874	1108	1316
MALI	270	299	329	375	929	1053	1176	1358
MAURITANIA	49	53	62	71	181	202	230	274
MAURITIUS	21	22	23	22	74	76	83	85
MOZAMBIQUE	399	421	428	458	1396	1541	1632	1769
NIGER	239	281	320	370	810	956	1111	1361
NIGERIA	2985	3309	3611	4069	10423	11786	13133	15294
REUNION	14	14	14	14	49	48	49	53
RWANDA	207	247	288	323	726	849	995	1206
SAO TOME & PRINCIPE N.A.								
SENEGAL	231	269	304	335	798	924	1063	1250
SEYCHELLS N.A.								
SIERRA LEONE	128	144	153	176	439	501	559	654
SOMALIA	181	207	211	227	579	687	767	847
SUDAN	708	805	910	1105	2564	2938	3335	4136
SWAZILAND	23	26	28	29	81	94	103	107
TANZANIA	765	829	905	1090	2689	3031	3364	4052
TOGO	110	128	148	167	381	444	517	626
UGANDA	527	564	601	707	1870	2092	2284	2679
UPPER VOLTA	223	266	304	326	823	930	1057	1227
ZAIRE	1072	1150	1200	1289	3808	4205	4507	4920
ZAMBIA	265	303	342	418	916	1074	1234	1541
ZIMBABWE	355	406	433	500	1163	1398	1505	1911
TOTAL	13683	15404	16799	19141	48562	55020	61340	72009

1/ Source, "Illustrative Functional Projections 1975-2000", Community and Family Study Center, The University of Chicago, 1979. Base data was primarily obtained from the World Bank and the Population Reference Bureau. In developing projects, a cohort women aged 15-49 was taken from each country and age specific fertility rates were applied. This gives the number of births in a given year. Next, survival ratios from model life tables (Coale and Demeng) were applied to the births to derive the figures for surviving births.

ANNEX C TRAINING SCHEDULE AND COSTS
(costs in 000 U.S. $)

	1982		1983		1984		1985		1986		1987		1988		Total	
	$	C 1/	$	C	$	C	$	C	$	C	$	C	$	C		
A. EPI Management																
1. EPI Management I	160	2	160	2	160	2	-	-	160	2	-	-	160	2	800	10
2. " Management II (Regional)	160	2	160	2	160	2	-	-	160	2	-	-	160	2	800	10
3. " Management II (In-Country)	300	10	300	10	240	8	240	8	240	8	240	8	240	8	1800	60
4. " Cold Chain	200	4	200	4	200	4	200	4	200	4	100	2	100	2	1200	24
B. CDD Management																
1. CDD Management I	160	2	160	2	160	2	-	-	160	2	-	-	160	2	800	10
2. CDD Management II (Regional)	-	-	160	2	160	2	160	2	160	2	160	2	160	2	960	12
3. CDD Management II (In-Country)	-	-	-	-	120	4	120	4	120	4	120	4	120	4	600	20
Other Workshops/Seminars	50	1	50	1	100	2	100	2	100	2	50	1	50	1	500	10
Total	1030	21	1190	23	1300	26	820	20	1300	26	670	17	1150	23	7460	156

1/ Number of Courses

MISSING PAGE

NO. Annex D & E

ANNEX F

OVERVIEW OF AID SUPPORTED HEALTH ACTIVITIES IN SUB-SAHARA AFRICA RELATED TO THE COMBATTING OF CHILDHOOD COMMUNICABLE DISEASES (CCCD)

This paper presents in tabular form and brief narrative summaries an overview of AID supported health projects in sub-Sahara Africa that involve immunization and other activities to control diarrhea and childhood communicable diseases. Also included are primary care and rural health development projects since in most instances these are or will incorporate communicable disease control.

The information provided has been extracted from AID files and from a draft report prepared by the American Public Health Association under contract to AID entitled "Tracking Report on AID Supported Primary Health Care Projects, Volume III-Africa," dated December, 1980. These data have been updated from from a series of cable responses provided by USAID field missions.

The tracking report is expected to be updated periodically and the full report or more complete information on a particular program can be made available upon request by contacting the Office of Regional Affairs, Bureau of Africa, Room 3325, Agency for International Development, Department of State, Washington, D.C. 20523.

April, 1981

USAID ACTIVITES IN COMBATTING CHILDHOOD COMMUNICABLE DISEASES
AND ASSISTANCE IN RURAL HEALTH SERVICES AND
PRIMARY HEALTH CARE DEVELOPMENT
IN SUB-SAHARA AFRICA

COUNTRY	PROJECT NAME AND NUMBER[1]	PROJECT DATES	FUNDING LEVEL AND SOURCE	LOCATION	REMARKS
Botswana	Health Serices Development No. 633-0078	FY 1978-1981 with probable extension to 1983	US $5.5 Million HG[2] $1.7 Million Other donors	Nation Wide	Basically a project to develop primary health care through training of various category of health workers. No CCCD activities identified.
Burundi	Expanded program on Immunization (EPI)	3/81-3/83	US $0.5 Million	Nation Wide	Full program support including EPI expert to establish and/or improve various aspects of the program including cold chain logistics, vaccine procurement, distribution and control, immunization scheduling, equipment maintenance and repair, data and evaluation. Vehicles, commodities and cold chain equipment are provided.
Congo	EPI	3/81-3/83	US $0.5 Million	Nation Wide	Full program support as in Burundi
Central African Republic	Ouham Province Rural Health Project No. 676-0002	9/7	US $2.0 Million	Ouham Province	Project was designed to strengthen management capability and to extend basic health services to a rural area. Project had only limited success. No CCCD activities identified.
Ghana	Management of Rural Health Services No. 590-068	1/75-10/79	US $1.3 Million	Nation Wide	Project established a national health planning unit and developed a primary care strategy for the country. A follow on project to deliver rural health services including CCCD activities is contemplated.

COUNTRY	PROJECT NAME AND NUMBER	PROJECT DATES	FUNDING LEVEL AND SOURCE	LOCATION	REMARKS
Ghana	Yaws and yellow fever control No. 698-0410.25	1/81-12/82	US $0.50 Million	Nation Wide	Technical aid and commodities are provided. This project very likely will develop into a national EPI project.
Guinea	Maternal and Child Health	1/81-12/82	US $0.46 Million	Nation Wide	Project includes EPI activities on a limited basis in the context of an MCH project. Consultations on EPI and commodities are provided.
Kenya	Kitui Primary Care Project No. 615-0185	FY 1979-81	US $0.413 Million HG $0.275 Million	Kitui District	Project comprised of four mobile health units serving remote areas with antenatal care, immunization and simple curative care.
	Kibwezi Rural Health Scheme No. 615-0179	FY 1979-81	US $0.816 Million	Makindu District at Kibwezi	An experimental primary care project emphasizing training of village health workers. Major funding of EPI in Kenya is being provided by Denmark
Lesotho	Rural Health Development Project No. 690-0058	1978-1983	US $3.254 Million HG $0.454 Million	Nation Wide	A two phased project, first to improve MOH planning and health manpower development, second to deliver health services. No specific CCCD activities are identified.
Liberia	EPI		US $0.500 Million	Nation Wide	Full program support as in Burundi.
Mali	Rural Health Services Development No. 688-0208	FY 1979-83	US $3.890 Million HG $0.870 Million	Mopti and Kayes Regions	Pilot projects to develop model of rural health care for Mali. No specific CCCD activities identified.

COUNTRY	PROJECT NAME AND NUMBER	PROJECT DATES	FUNDING LEVEL AND SOURCE	LOCATION	REMARKS
Mauritania	Rural Medical Assistance No. 682-0202	FY 1979-83	US $1.93 Million HG $0.224 Million	Tarza Region	Project will develop and test a model of rural health outreach by community health workers.
	EPI	3/80-3/82	US $0.4 Million	Nation Wide	Full program support as in Burundi.
Niger	Public Health Services No. 683-0214	6/78-3/81	US $1.47 Million	Diffa Department	Project trains health workers, establishes vehicle and medical equipment repair, provides services of sanitary engineers and other health care specialists.
	Rural Health Improvement No. 683-0208	1/78-12/82 extension to 12/84 expected)	US $14.029 Million	Nation Wide	Provides general support for training all categories of rural health workers, building of rural health facilities, provision of commodities including vaccines and cold chain equipment. Incorporation of CCCD activities is anticipated.
Rwanda	EPI	8/80-8/82	US $0.5 Million	Nation wide	Full program support as in Burundi.
Senegal	Rural Health Services Development No. 685-0210	7/77-12/83	US $3.3 Million HG $1.6 Million	Sine Saloum	Project serves 225,000 rural inhabitants. Recently redesigned, project will focus on infants, children and pregnant women and will emphasize CCCD activities including immunization and diarrhea control.

COUNTRY	PROJECT NAME AND NUMBER	PROJECT DATES	FUNDING LEVEL AND SOURCE	LOCATION	REMARKS
Somalia	EPI	8/79-8/81	US $0.2 Million	Nation Wide	Provides commodity support, vehicles, etc.
Sudan	Northern Sudan Primary Health Care Project No. 650-0011	FY 1979-82	US $5.8 Million Af. Dev. Bank $8.0 Million HG $0.89 Million	Four provinces in northern Sudan.	Project aims to implement the national primary care programs in four of Sudan's poorest provinces. Specific CCCD activitites have not been indentified.
	Southern Primary Health Care Project No. 650-0019	FY 1979-83	US $3.2 Million HG $1.3 Million	Southern Region	This is related to the above project and extends coverage to the Southern Region. The US is also contemplating a third project, Health Sector Support, for which $32.0 million has been requested over five years (1980-85) to augment the Government of Sudan's health programs.
Tanzania	Hanang Ujamaa Village Public Health Program No. 621-0138	FY 1977-1979	US $0.499 Million	Hanang District	This model primary health care project focuses on village organization to support first aid boxes, village leaders (health educators) and village health workers. Communicable disease prevention at the village level is stressed.
	Tanzania School Health Program No. 621-0150	FY 1980-83	US $5.7 Million	Dodoma and Singida States	In eighty schools, a standardized program of health instruction, health services and nutrition and environmental improvements are being implemented. Health records, including immunization are emphasized.

COUNTRY	PROJECT NAME AND NUMBER	PROJECT DATES	FUNDING LEVEL AND SOURCE	LOCATION	REMARKS
Zaire	Health Systems Development No. 660-1980	1978-1980	US $0.675 Million HG $0.44 Million	Kinshasa, Kongolo and Maluku	This project, designed to improve Zaire's capability to plan and implement health programs, had only limited success. However, AID has an endemic disease control project underway which includes an EPI component. Use of oral rehydration salts in diarrheal disease control will be stressed in two projects which are scheduled to be implemented over four or five years. These are the Basic Family Health Services project (No. 660-0067) to begin in 1981 and the Area Nutrition Improvement project (No. 660-0079) to begin in 1982.
20 Central and West African Countries	Strengthening of Health Delivery Systems in Central and West Africa (SHDS)	Phase I 9/77 Phase II 1/78-12/82	US $20.00 Million WHO		The broad goal of this project is to increase the capability of 20 countries in this region to plan and manage their health delivery systems emphasizing a primary health care strategy. The 20 countries participating are Benin, Cameroon, Central African Republic, Chad, Congo, Guinea, Guinea Bissua, Gabon, Gambia, Ghana, Ivory Coast, Liberia, Mali, Mauritania, Niger, Senegal, Sierra Leone, Togo and Upper Volta. A major objective of the program is to improve regional and national disease surveillance and health information systems. Demonstrations and training with respect to EPI are carried out

COUNTRY	PROJECT NAME AND NUMBER	PROJECT DATES	FUNDING LEVEL AND SOURCE	LOCATION	REMARKS
20 Central and West African Countries					in three countries: Cameroon, the Gambia and Ivory Coast. The US, through Center for disease Control, is providing EPI management training. In 1981, the US will provide approximately 1.3 million doses of measles vaccine, divided among 14 countries: Benin, Cameroon, Central African Republic, Congo, Gambia, Ghana, Guinea, Ivory Coast, Mali, Niger, Senegal, Sierra Leone, Togo and Upper Volta. In 1982, measles vaccine will continue to be supplied these countries and Congo will commence receiving aid to start an EPI program.

1. Refers to USAID Project Name and Number.

2. HG refers to Host Government.

Addendum - May 1981

COUNTRY	PROJECT NAME AND NUMBER	PROJECT DATES	FUNDING LEVEL AND SOURCE	LOCATION	REMARKS
Swaziland	Rural Water Borne Disease Control 645-0087	FY 79-84	U.S. $3.2 million	Nation-wide	Emphasis on bilharzia and other water borne disease. Snail control and mass treat ment campaigns, health educa tion.
Swaziland	Health Manpower Training 645-0062	FY 77-82	U.S. $4.3 million	Nation-wide	Institutionalizing nursing a other paramedical programs. Establishing locally=staffed health services support syst
Liberia	Primary Health Care	FY 81-85	U.S. $10.0 million (planned)	Nation-wide	National Primary Health Care project now under design.
Ghana	Primary Health Care Support	FY 82-85	U.S. $15.6 million	Nation-wide	To be designed.

ANNEX G

Meetings Held and Individuals Seen in Conduct of Scope of Work

Product 2 - African Countries, May 24 - June 10, 1981

Senegal

Ministry of Health
- Dr. Sek, Health Center Director, Pikine Project
- Dr. Jancloes, Belgian Consultant, Pikine Project
- Dr. Abdoul Amadou Ba, Director of Connunicable Diseases (including immunizations)
- Dr. Helies, French Consultant to Dr. Ba
- Dr. Bernard Diop, Chief of Infectious Diseases, University Medical School and Designated Director, Diarrheal Disease Control

U.S. Personnel
- Mr. Andrew Agle, CDC operations officer
- Dr. Michael White, Health, Population and Nutrition Officer, USAID Mission
- Mr. San Rea, Program Officer, USAID Mission
- R. David Shear, Mission Director, USAID

Other
- Dr. Elom, WHO Country Coordinator, Senegal
- Mr. de Bonnecorse, Director FAC, Sengal
- Mr. Chaplain, Deputy Director FAC, Senegal
- Mr. James Moore, UNICEF Representative for Mauritania and Guinea and Director Senegal Office
- Mr. John Spring, UNICEF Representative for Gambia and Sierrra Leone
- Mr. Enrique Enriumendo, Representative for Guinea Bissau and Cape Vert
- Mrs. Tonia Malek, WHO Nutritionist

Togo

Ministry of Health
- Dr. Tchasseu Karsa, Chief, Division of Epidemiology and director of EPI
- Dr. Agbodji B.A.Liason, Maternal and Child Health and Head of Diarrheal Disease Control
- Dr. T. M. Houenessou-Houangbe, Director General of Health Services

U.S. Personnel
- Ms. Marilyn Johnson, U.S. Ambassador to Togo
- Mr. Robert Ritchie, Deputy USAID Mission Director
- Mr. John Nelson, CDC Operations Officer, Covering Ghana and Togo
- Dr. James C. Sommemann, Health and Nutrition Officer USAID Mission
- Mr. Sol Sherman, USAID Mission, Program Officer

Other
- M.P. Claudot, Head of FAC Mission

Ivory Coast

Ministry of Health
- Mr. Lazeni Coulibaly, Minister of Health
- Mr. Lenissougui Coulibaly, Director of Cabinet
- Dr. Coffi Emou, Director, Institute of Hygiene and Chief of EPI

U.S. Personnel
- Mr. Gordon Evans, USAID Director, REDSO West
- Mr. William Bair, Population Officer, REDSO West
- Dr. George Jones, Health and Nutrition Officer, REDSO West
- Dr. David French, Boston University, Contractor, Director of SHDS Project

Other
- Mr. A Sangowawa, Cirector of Agriculture and Rural Development (including health), African Development Bank (ADB)
- Dr. B. Teoume-Lessane, Health Expert, ADB
- Mr. Joseph Carter, Health Expert, ADB
- Mr. Abdul J. Mohamed, Chief, Health and Education Division ADB
- Mr. Abdulaziz D. Herzi, Principal Architect Health and Education Division, ADB
- Dr. Louis Atayi, WHO Country Coordinator, Ivory Coast
- Mr. Ahmed Mostedaoui, Regional Director, UNICEF
- Mr. Mukaley Mwilambwe, Zone Coordinator, UNICEF
- Mr. Phillip David, Regional Counseillor, UNICEF

Kenya

Ministry of Health
- Dr. Angir, Head, EPI
- Mr. Henrick Olesen, DANIDA, Assigned to EPI Unit

U.S. Personnel
- Dr. Anita Mackie, Health, Nutrition and Agriculture, USAID, REDSO East

Other
- Dr. E.M. Nordberg, Medical Director, African Medical and Research Foundation (AMREF)
- Mr. Douglas Lackey, Director of Operations, AMREF
- Dr. C.H. Wood, Surgeon, AMREF
- Dr. Norman Scotney, Director, Health Education, AMREF
- Dr. Z. Islam, Regional Epidemiologist, Sub-region II WHO/AFRO
- Mr. Christodoulou. Assistant Epidemiologist, Sub-region II, WHO/AFRO

Sudan

Ministry of Health
- Dr. Abdel Hamid El Said, Director EPI
- Dr. Bakri Ahmed, Deputy Director EPI
- Dr. Kamal Ahmed Mohamed, Director Division of Nutrition

U.S. Personnel
- Ms. Joyce Jett, Assistant Health Officer, USAID Mission
- Mr. Robert Freidline, Program Officer, USAID Mission
- Dr. C. A. Markarian, Chief of Party, Medical Service Consultants, Primary Health Care Project

Other
- Dr. Jean-Marc Olive, WHO Medical Officer, Epidemiologist, EPI, Assigned to Sudan
- Mr. Abdul Gadir El Cid, WHO Central Operations Officer, WHO, Assigned to Sudan

Product 3 - CADA County Representatives and WHO/Geneva
May 11-23 and June 16,17, 1981

United Kingdom

Oversea Development Administration
Mr. John Kerby, Regional Officer for Southern Africa
Mr. Roy Cowling, African Desk Officer
Dr. Alan Nicholson, Health Officer

U.S. Personnel
Mr. Gibson Lanpher, Political Section, U.S. Embassy, London

Other
Professor David Morley, Institute of Child Health, London
Mr. Duncan Guthrie, Communication Specialist, Institute of Child Health, London

Belgium

Administration of Cooperation and Development (ACD)
Mr. Raoul Van Landuyt, Senior Officer and Director, CADA Relations
Dr. R. Eeckles, Professor of Pediatrics, University of Lueven and Consultant ACD
Dr. G. Mahout, Medical Development

U.S. Personnel
Mr. Jack Aubert, Political Section, U.S. Embassy, Brussels

Other
Dr. Albert Godart, Professor of Anthropology, University of Brussels

Federal Republic of Germany

Ministry for Economic Cooperation
Dr. H. Gordel, Social Sector Officer
Dr. W. Pulst, Population and Nutrition Officer
Dr. R. Haas, Southern Africa Department

U.S. Personnel
Mr. Steven Valdez, Economic Section, American Embassy, Bonn
Mr. Allen Greenberg, Economic Counselor, American Embassy, Bonn

Other
Dr. R. Korte, Head of Division of Health, Population Development and Nutrition, German Agency for Technical Cooperation, Ltd.

WHO/Geneva

Dr. J. Keja, Deputy Director, EPI
Mr. J. S. Lloyd, Technical Officer, EPI
Dr. S. Ofosu-amah, Medical Officer, EPI
Dr. M. Merson, Program Manager, CDD
Mr. R. Hogan, Operations Officer, CDD
Dr. S. Litsios, Scientist, Malaria Program
Dr. R. H. Morrow, Tropical Diseases Program