

PD-AAU-868

48378

EXTERNAL EVALUATION
of
COMBATTING CHILDHOOD
COMMUNICABLE DISEASES PROJECT
(A.I.D. Number 698-0421.12)
(CCCD)
in
MALAWI
by
WESTINGHOUSE - INSTITUTE FOR RESOURCE DEVELOPMENT
OCTOBER 1986

AID/Westinghouse Contract PDC - 1406-I-00-4062 Work Order

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LIST OF ABBREVIATIONS

A.I.D.	Agency for International Development
AIDS	Acquired Immune Deficiency Syndrome
CCCD	Combatting Childhood Communicable Diseases Project
CDC	Centers for Disease Control, U.S. Public Health Service
CDD	Control of Diarrheal Diseases
CHSU	Community Health Sciences Unit
CMS	Central Medical Stores
DPT	Diphtheria, Pertussis, and Tetanus [vaccine]
EPI	Expanded Program on Immunization
FY	Fiscal Year
GMO	Government Medical Officer
GNP	Gross National Product
GOM	Government of Malawi
GOVT	Government
IBRD	International Bank for Reconstruction and Development (World Bank)
K	Malawian Kwacha
MCH	Maternal and Child Health
MGT	Management
MOH	Ministry of Health
OPD	Outpatient Department
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
OT	Occupational Therapy
PHAM	Private Hospital Association of Malawi
PHC	Primary Health Care
PIL	Project Implementation Letter [A.I.D.]
PKT(s)	Packets
POL	Poliomyelitis
TBA	Traditional Birth Attendant
TO	Technical Officer
TT	Tetanus Toxoid
USAID	Agency for International Development
US\$	U.S. Dollars
VHW	Village Health Worker
VSO	Volunteer Services Organization
WHO	World Health Organization

ACKNOWLEDGMENTS

The Evaluation Team wishes to acknowledge the numerous individuals and organizations which contributed assistance and support to its activities in Malawi and the U.S.

The Ministry of Health (MOH) of Malawi provided hospitality and willingness to permit careful study of its programs to the team members throughout its stay in Malawi. The team was assisted greatly by the Principal Secretary, the Chief Medical Officer, Deputy Chief Medical Officer, and other senior officials in arranging its work and conducting its studies. The direct coordination of the team's activities was provided by Dr. Jean Kalilani, Deputy Chief Medical Officer, whose careful attention to the team's needs and requests was greatly appreciated.

The three CCCD coordinators gave the team a clear understanding of the activities occurring under their programs: John Chickakuda, EPI; Dr. M. Mbvundula, CDD; and Dr. J. Wirema, malaria. The special subcommittee appointed to review the draft report of the team consisted of: Dr. Kalilani, Dr. A. R. Msashi, John Chickakuda and G. Namanja. The special subcommittee provided valuable insights to the team and helped the team better understand the operation of MOH programs. During the field visits made by the team, two MOH officials accompanied the team and provided the team with an in-depth understanding of the progress and problems experienced by the Project thus far: John Chickakuda, EPI Coordinator; and Yohani Niasulu, Principal Health Coordinator. In addition, the staffs of the Northern, Central, and Southern Regional Offices of Health gave a great deal of time to assist the team in its work, as did numerous other health personnel in the district and local facilities where the team made its visits.

UNICEF and the World Health Organization provided support and participation in the work of the team during its observations. The support of Cooper Dawson, chief of UNICEF/Malawi, and Dr. S. H. Siwale, WHO Representative in Malawi, is acknowledged with gratitude. Special thanks are due to Ramesh M. Shrestha of UNICEF and Dr. S. N. Darfour of WNO for their direct involvement in the evaluation process.

The expatriate participants in CCCD/Malawi also made extensive arrangements on behalf of the team before its arrival and continued to provide all needed support throughout the visit. CDC Technical Officer Reggie Hawkins gave the team long hours of assistance, support, and encouragement during its work. CDC Regional Epidemiologist, Dr. David Heyman, provided the team with the benefit of his long experience and appreciation for the possibilities of progress in the Malawi Project. Ms. Debra Helitzer-Allen of the HealthCom Project provided insights concerning health education; and Ms. Claudette

Bailey of the Howard University Project discussed the development of training resources in Malawi with the team. Finally, USAID/Malawi Health Officer Charles R. Gurney assisted the team throughout the visit and provided important background and perspective on the CCCD/Malawi Project to the team.

The CCCD/Malawi Project office staff members assisted the team with numerous large and small tasks requiring attention and thereby made the work of the team go more smoothly during its stay in Malawi.

In AID/Washington, Ms. Wendy Roseberry provided the team with briefings and materials as well as valuable support and a perspective on the Bureau for Africa approach to managing the CCCD Project.

The Centers for Disease Control in Atlanta also provided briefings on the development of the Project and its day-to-day management. Background briefings were provided to the team by: Dr. Jean Roy, Dr. T. Stephen Jones, Dr. Ronald Waldman, Dr. Jason Weisfeld, Annie Voight, and Kathleen A. Parker. The team wishes to express its special thanks to Dennis Olsen, Supervising Public Health Advisor, who accompanied the team during the meetings in Atlanta and provided around the clock support and encouragement to the team throughout its stay in Malawi.

The team wishes to acknowledge with thanks the support of Westinghouse Health Systems in Columbia, Maryland, directed by Dr. Lillian Gibbons. The team's arrangements were prepared and managed by Ms. Mary L. Harvey, whose careful attention to many details and potential problems made possible the largely problem-free experience enjoyed by the team as it conducted these studies.

Lastly, the team sends its best wishes and encouragement to the dedicated women and men who provide health services in Malawi.

EXECUTIVE SUMMARY

This report provides findings from a Second Year Evaluation of the Combatting Childhood Communicable Diseases (CCCD) Project in Malawi conducted during a three-week period in September and October 1986. The Project was evaluated previously in June 1985 at the end of its first year of operation. The evaluation was organized by the AID/Washington Bureau for Africa, and the team of three evaluators made studies under contract with Westinghouse Health Systems in Washington, D.C., at the Centers for Disease Control in Atlanta, Georgia, and in Malawi. The team members were: Charlotte Leighton, Ph.D., Harry R. Godfrey, and Robert Emrey.

The purpose of the evaluation was to determine what progress had been made in the Project thus far and to identify problem areas requiring attention to facilitate progress in Project implementation. An additional purpose of the evaluation was to ascertain the recurring costs and prospects for sustaining activity in the CCCD services after completion of the Project.

CCCD Project in Malawi is funded for four (4) years by the Agency for International Development under a regional project for the development of services in the following areas: childhood immunizations, control of diarrheal diseases, and treatment of malaria. Four strategies are used in the Project to provide support for these services: training of personnel, health education, health information systems, and operations research. Under the terms of the Project Agreement, host country governments are encouraged to coordinate donor and local support for these services under the CCCD Project to ensure the greatest possible benefit is derived from the resources available. Technical assistance for the Project is provided under an inter-agency agreement with the Centers for Disease Control (CDC) in Atlanta, Georgia. CDC assigns a Technical Officer to be resident in-country and provides back-up support and technical resources as needed during Project implementation.

Environment and Situation Affecting CCCD Project

Three elements of the health system were examined concerning the environment and situation affecting the CCCD Project: health status and health services; project financing; and commodity procurement, distribution, and quality control of materials.

Health status and health services situation [Section 2]. Over one-third of the children in Malawi died before their fifth birthday in 1984. Fifty-seven percent (57%) of all recorded deaths in Malawi are children under five years old. Yet, children under-five account for less than 20% of the population. Health services are provided through public and private

organizations and individuals. A high priority is given to implementing a basic health services plan for primary health care (PHC) throughout the country. The CCCD Project began work in July 1984 with arrival of the Technical Officer. The first two years of project activity have seen considerable progress with many improvements in service delivery being accomplished. It is not possible at this stage of the project to demonstrate whether or not the CCCD Project has exerted an influence on lowering morbidity or mortality in the under-five age group. It is not possible also to determine the degree to which plans are being achieved in improving coverage under CCCD due to a lack of time-phased plans and schedules for the Project.

Project Financing Situation [Section 3]. Funding for the public sector in Malawi comes from government-funded budgets and from foreign assistance. The economic situation in Malawi affects the degree to which government or private individuals can sustain or increase funding to cover health services costs. The per capita income in Malawi is reported by the World Bank to be \$180, and the Government of Malawi does not expect the amount to increase significantly in real terms during the coming five years. The National Health Plan for 1986-1995 assumes no real growth in MOH budgets for the first five years, 1986-1991. The Government devoted 6 to 7 percent of its total operating budget to the health sector in recent years.

The CCCD Project Agreement provides for total project funding of \$7.4 million (K14 in 1986 prices) for the period July 1984 to March 31, 1988. The project funding estimates that 43 percent of the total funding would be used for medicines (vaccines, ORS packets, and chloroquine). Spending during the first year of implementation was lower than planned, but since June 1985 funding commitments have increased substantially.

Three principal financing problems have emerged in the first two years of the CCCD Project: (1) the MOH has not met the requirement to submit annual budget plans, beginning in April 1985; (2) USAID and the MOH have not met the requirement to conduct studies and take actions related to cost recovery; and (3) accountability for project spending is weak on the part of both USAID/Malawi and the Ministry of Health.

Commodity Procurement, Distribution and Quality Control Situation [Section 4]. Three supply networks provide materials for CCCD services: (1) antimalarial drug distribution system through the Central Medical Stores; (2) ORS distribution system through a UNICEF-developed MCH store in Blantyre; and (3) vaccine and cold chain distribution system through the EPI supplies in Lilongwe. Over the coming two years, it is expected that considerable progress will be made toward consolidating and rationalizing these logistical arrangements throughout the country. The MOH stores system is being augmented through construction of regional and national storehouses and the strengthening of the materials control and inventory systems. At this time, there are severe weaknesses in ordering, inventory control, distribution, cold chain, and bacterial sterilization arrangements involving the the CCCD services.

Project Planning, Administration, and Management [Section 5]

The CCCD Project in Malawi was designed during a country assessment conducted in late 1983 jointly by the MOH, USAID, the Centers for Disease Control. The assessment report sets out the goals and objectives to be followed in implementing the Project. The plans of operation available at present for the Project are only of limited scope, and no over-all operational plan is being prepared to guide Project activities. The Government of Malawi has an extensive set of services but is very limited in the number of personnel available to manage the health services programs. These limitations of staff have had some effect on the capacity of the MOH to implement the CCCD services. The U.S.-related agencies and contractor organizations are directed by the resident Technical Officer in Lilongwe. The Technical Officer has established a workable arrangement for managing the resources required for technical assistance. The USAID/Malawi Health Officer and related personnel of the Mission have developed a capacity to manage the financial, procurement, and personnel aspects of the Project which are under the responsibility of A.I.D. The backstopping arrangement for the Centers for Disease Control in Atlanta is working well. The Malawian Project executive management depends on a group of coordinators assigned to participate in CCCD and also several other projects in the MOH.

Note: Recommendations are provided at the conclusion of each report section, beginning with Section 5, concerning project management and administration. All recommendations are numbered to show the report section in which they are presented. For example, Recommendation 5.2 is the second recommendation in Section 5.

o Recommendations:

- 5.1. Provide for preparation of a project-wide plan and schedule of tasks, responsibilities, and resource inputs (which are needed in addition to the national plans for EPI, CDD, and malaria control, as discussed in the next section);
- 5.2. Continue to encourage active donor coordination;
- 5.3. Establish a clear, written process for budget and plan submissions from the MOH to A.I.D.; and
- 5.4. Make further progress in the development of actions regarding cost recovery provisions of the Project Agreement.

CCCD Project Interventions

Project Intervention for Expanded Program of Immunizations [Section 6].
The national expanded program of immunization (EPI) has been in operation

since 1973. All of the Malawi EPI program is integrated into the maternal and child health and primary health care (MCH/PHC) network of services. Services are provided through both MOH and Private Hospital Association of Malawi (PHAM) facilities, as well as through regular outreach clinics. A national five-year plan for EPI was published for the years 1985-1989.

o Recommendations:

6.1. Needles and syringes should be provided to clinics in sufficient quantities;

6.2. A circular is needed to emphasize to clinic staff members the importance of systematic sterilization of equipment and instruments;

6.3. Plans should be accelerated to study the high rate of measles cases under 1 year of age and high rate of measles cases among vaccinees;

6.4. A new strategy is recommended to be initiated to accelerate vaccination coverage, such as through designation of a special one-time Vaccination Day country-wide;

6.5. Polio vaccine ruptures should be remedied by instituting purchase of the antigen through regular UNICEF ordering procedures; and

6.6. Discontinue use of vaccination log books.

Project Intervention for Oral Rehydration Therapy [Section 7]. The control of diarrheal diseases through use of oral rehydration therapy has made great progress during the past two years. A national plan for control of diarrheal diseases was published for the years 1985-1989. Oral rehydration is now used in all hospitals and is taught on an outpatient basis in all units of the Ministry of Health. The mothers are encouraged to use local fluids for treatment of dehydration in the home, but ORS packets are not distributed for use directly by the mother. A formula for sugar and salt solution (SSS) is being explained to mothers in clinics, which uses soft drink bottles and the bottle top as a measuring device.

o Recommendations:

7.1. Supply liter containers to all ORT units and teach mothers to prepare ORS packets (hands-on training) instead of SSS;

7.2. Train village health workers to prepare ORS and provide them with liter containers and ORS packets; and

7.3. Make ORS packets and liter containers available to communities through private shops.

Project Intervention for Malaria Treatment [Section 8]. Malaria deaths in children under five years of age more than doubled from 287 deaths reported by hospitals in 1980 to 741 in 1983. Plasmodium falciparum is recognized to be chloroquine resistant in Malawi. Since 1984, the National Malaria Control Committee has been reactivated to develop policy concerning malaria control activities. Numerous studies have been conducted in Malawi concerning chloroquine resistance and various problems associated with prophylaxis. A five-year Malaria Plan for 1986-1989 has been published.

o Recommendations:

- 8.1. Technical assistance should be sought to resolve the present problems with stock ruptures for antimalarials and other supplies;
- 8.2. Increased public awareness is needed of malaria treatment schedules through distribution of posters; and
- 8.3. Second-line antimalarial drugs should be made available to all hospitals through Central Medical Stores.

CCCD Project Strategies

Training Strategy [Section 9]. A wide variety of training arrangements is used in Malawi for both preservice and inservice training programs. A shortage of personnel at all levels of the MOH makes it necessary to double-up training and supervisory responsibilities in the same individuals. The arrangement is not always successful in achieving either good supervision or good training. Permanent training premises are now being prepared for primary health care personnel with one unit being built in each national region.

o Recommendations:

- 9.1. A CCCD training plan, including provision for systematic assessment of trainees' performance, is needed to guide project inputs (a recommendation which was made also in the 1985 CCCD Internal Project Review);
- 9.2. Additional emphasis is needed in all CCCD training on use of experiential learning in the MOH programs; and
- 9.3. Special attention is needed for training in EPI service procedures and practices.

Disease Surveillance and Health Information System Strategy [Section 10]. The health information systems of the MOH are being developed on an integrated basis, with the Health Statistics Unit as the focus for coordinating efforts in each section of the MOH. Both routine reporting and

sample surveys are conducted to develop statistical series and calibrate the measurement procedures being used. A special sentinel surveillance system was established in all districts in 1984. Twelve health facilities are participating in an interior sentinel surveillance system throughout Malawi. During the past two years and with participation of the CCCD Project, the MSU has developed a computerized data storage and analysis capability for program management information.

o Recommendations:

10.1. Inpatient information on measles and pertussis cases and deaths should be collected by age of vaccination and date of onset of disease in one hospital for each region;

10.2. Routine vaccination coverage surveys should be conducted, at most, every two years rather than annually;

10.3. Classification of neonatal tetanus should be included in the disease reporting system when revision is made;

10.4. A polio lameness survey should be conducted in 1987; and

10.5. A chief statistician should be employed by the MOH. ✓

Health Education Strategy [Section 11]. The health education activities in Malawi come under the responsibility of a health education section, which includes staff at the MOH headquarters. The Health Education Unit has presented the MOH with a proposal to establish for the first time a health education cadre within the civil service of Malawi. A proposal is also being considered to centralize all media production activities of the government, including those required by the MOH, in a newly created Communications Development Center. Such a center would have the benefit of providing strong, highly qualified specialists who could be utilized by any part of the government requiring their services. The proposal has the drawback that the MOH might not--as frequently happens in the setting of government priorities--rate sufficient leverage amongst other government agencies to get the quick response and specialized attention that its programs often require. Under CCCD, a major effort in mass media studies and production is being conducted using personnel and resources from the HealthCom Project of A.I.D. A series of formative research studies is planned in the areas of CDD and malaria treatment to determine the types and approaches to health-related messages which will be most effective for use in mass media campaigns. ✓

o Recommendations:

11.1. There should be an intensive study of the role and range of activities best suited for the health education unit, considering the availability of resources to support its staff and operations;

11.2. The HealthCom Project contractor, in cooperation with the HEU, should prepare the CCCD Health Education Work Plan, for adoption by the MOH and USAID, by mid-November 1986; ✓

11.3. The three new regional health inspectors appointed as health educators should be given special training;

11.4. The formative research and logistics study in EPI should be used as the basis for development of EPI implementation plans and donor assistance;

11.5. Coordination is needed to ensure donor support is devoted to the most needed areas of the Health Education Unit, once the reconsideration of the HEU role is completed.

Operations Research Strategy Section 12]. The operations research activities of the MOH under CCCD have been extensive and of excellent quality. Most of the emphasis to date has been on basic questions of CCCD arrangements, including studies of chloroquine resistance, knowledge-attitudes-practices related to control of diarrheal diseases, and development of approaches to malaria treatment of specialized populations. Half of the 12 studies undertaken have been completed and results of the studies have been used to update public health policies and practices.

No recommendations were made concerning operations research.

Future Development and Schedule of CCCD Project [Section 13]

The present expiration of the CCCD Project in Malawi is March 31, 1988.

o Recommendation:

13.1. It is recommended to A.I.D. that the Malawi Project be extended for an additional period of one year, making the revised Project Assistance Completion Date to be March 31, 1989. The bilateral funding levels for Project activities should continue as presently budgeted, with additional regional funds being made available as needed to continue the support of technical officer, locally-hired staff members, and their transportation, local services, and other support costs, until Project close-out.

The USAID/Malawi and the MOH have requested an additional \$900,000 in funding for CCCD/Malawi from the Child Survival Fund of A.I.D. The additional funds would be used for: (1) training of health services providers; (2) community health motivation; (3) operations research; and (4) multi-purpose

vehicles. The team is not fully persuaded that the additional funding is necessary, when considering funding from all donor sources, nor that the proposed activities fall within current MOH planning and management capacity.

o Recommendation:

13.2. It is recommended to A.I.D. that the Malawi Request for Child Survival Funding in the amount of US\$900,000 be divided into two phases, with funding approved if certain conditions are met as follows:

Phase One.

Recommended scope of funding: The local and off-shore commodity purchase elements, including the proposed additional vehicles which will probably require an extended period of time to get in-country.

Recommended conditions: Assurance that no additional management burden will be added by implementation of the work elements.

Phase Two.

Recommended scope of funding: Other requested elements not in Phase One would be included but with implementation delayed until fiscal years 1989-1990. The final formulation of the Phase Two funded activities ought to be reexamined by the MOH at the end of fiscal year 1987 to ensure that the main gaps lying outside other available funding are covered.

Recommended conditions: Assurance that: (1) no duplication of resources would occur and the main gaps in other funding sources are being covered, and (2) the MOH policy studies concerning extension of village-level services show that technical and managerial obstacles are resolved.

Long-Term Financial Viability [Section 14]

The principal recurrent, or operating, costs of the CCCD Project include the costs of salaries, medicines, transportation, equipment and supplies necessary to deliver the services each year. These regular, annual costs also include short, in-service training necessary to maintain the skills of health workers. The focus on recurrent costs for purposes of evaluating financial viability of a project is usually on the incremental, or additional, recurrent costs due to the project activity.

Given data constraints and the time available for the evaluation, it was not possible to prepare a detailed estimate of specific recurrent costs of the Project. It is also premature to estimate unit costs, such as costs per fully immunized child or costs per ORT given and per child covered per year, for the Malawi CCCD Project. Neither accurate cost data, nor appropriate current or planned coverage data, is available for that purpose. But it is possible to

present preliminary estimates that can be used for a high and low range of the annual recurrent costs. The total of the high estimate, K6.7 (US\$3.6 million), is twice that of the low estimate, K3 million (US\$1.6 million).

The high estimate is a total cost estimate for immunization, ORT, and diarrheal disease control services in Malawi. The high estimate is not limited to only the additional recurrent costs of the Project, as are the low estimates. It includes costs of both the level of services that was already being provided, as well as the increased activity due to the Project.

The estimates suggest that the MOH budget should be quite adequate during the life of the Project for funding the GOM share required by the Project Agreement. But, the amount of additional funding available to the MOH after paying CCCD costs decreases each year during the Project. Prospects for the Ministry to pay for maintaining CCCD services in the longer run, however are not promising. If the MOH budget had to pay all recurrent costs of the CCCD Project services now funded by donors, the estimates indicate that the real increase available to the MOH would have to double from K1.7 million to K3 million under the low estimate and would have to be nearly 7 times higher under the high estimate. The projected increases are unlikely in view of the current assumption in the National Health Plan that the MOH budget would be held constant in real terms.

Three financing strategies are proposed in the National Health Plan: (1) rely on donors to continue to fund a large portion of recurrent costs; (2) introduce management improvements that can reduce costs and improve efficiency; (3) implement cost recovery measures (increase fee revenues) for a limited number of services. An additional strategy, not addressed explicitly in the Plan, would be to rely more on private sector providers for provision of services.

o Recommendations:

14.1. The MOH should develop action plans for Malawian sources of financing to begin to pay an increasingly larger proportion of costs for CCCD and other basic health services that donors are now funding;

14.2. The Ministry of Health should concentrate efforts at improving staff efficiency in the field on ways in which CCCD services are delivered; and

14.3. The MOH and USAID undertake cost recovery studies aimed at feasible areas for charging of fees, such as chloroquine tablet fees. Additional studies should be conducted to better understand the long-term possibility for cost recovery in health services.

1. EVALUATION TEAM, OBJECTIVES, AND METHODOLOGY

Evaluation Team

The evaluation team consisted of Charlotte Leighton, Ph.D., economist; Harry R. Godfrey, epidemiologist; and Robert Emrey, management specialist (team leader). The team performed its studies in three locations:

- o A.I.D./Washington, Bureau for Africa, Washington, D.C., USA--24 September 1986
- o Centers for Disease Control (CDC), Atlanta, Georgia, USA--25 September 1986
- o Malawi--29 September through 16 October 1986

During the team's activities at CDC and in Malawi, they were accompanied by Dennis Olsen, CDC Supervisory Public Health Advisor, who served as a resource person, and periodically they benefited from the participation of two officials of international organizations: Ramesh M. Shrestha, Project Officer (PHC) in the Malawi office of the United Nations Children's Fund (UNICEF), and Dr. S. N. Darfour, World Health Organization (WHO), Malawi.

In addition to discussions with the Principal Secretary of Health and numerous other officials in the Ministry of Health headquarters, Lilongwe, the team travelled to all three regions (Northern, Central, and Southern) of the country. During the field travel, the team members visited service facilities and offices operating under the Ministry of Health, the Private Hospital Association of Malawi (PHAM), the Agency for International Development (USAID/Malawi), UNICEF, WHO, Peace Corps, and other health service-related organizations (see: List of People Contacted in Annex B). The Evaluation Team was accompanied during field visits by two officials of the MOH: John Chickakuda and Yohani Niasulu.

Objectives

The evaluation of the Malawi Combatting Childhood Communicable Diseases (CCCD) Project was conducted by a three-person team operating under the direction of the Agency for International Development (A.I.D.) Bureau for Africa in Washington, D.C. Three objectives were established by A.I.D.:

1. To evaluate CCCD activities in Malawi through systematic collection and analysis of data on CCCD management and operations at the central, regional, and peripheral levels.
2. To measure the extent to which CCCD activities have been integrated into the existing primary health care structure.

3. To offer a series of recommendations to improve the expansion and delivery of CCCD services (including training, health education, and health information system development) and to accelerate their integration into the primary health care delivery structure given ever present resource constraints.

In addition to the above objectives, the evaluation team sought to assess the recurrent costs and sustainability of services in Malawi for the three CCCD interventions: immunizations, oral rehydration therapy, and malaria treatment.

Methodology

The methodology used by the evaluation team was specified in the scope of work as follows (see also the full evaluation work scope in Annex A):

- A. Study relevant reference statements at central and regional levels.
- B. Visit selected service delivery units and other health institutions in rural and urban areas of a representative number of regions of the country.
- C. Review survey data.
- D. Interview relevant project implementing persons.

During the process of the evaluation, the team analyzed published and unpublished data series. With the aid of computers of the CCCD Project and the USAID/Malawi Mission, the team performed various data analyses. These are explained in each section of the report. Whenever appropriate, the team used techniques and standards adopted and accepted by the Government of Malawi or by international bodies in each technical, managerial, and financial area of the evaluation. For example, analyses in the area of immunizations included use of standard rates and definitions adopted by the Expanded Program of Immunization (EPI) of the WHO.

First Year Program Review. In June 1985, a two-person team representing AID/Washington and the Centers for Disease Control, Atlanta, visited Malawi and conducted a first year program review of the Malawi CCCD Project. Their scope of work called for a review of the following areas:

1. Progress towards the attainment of the goals and objectives of the CCCD Project, focusing on the interventions (immunizations and diarrheal disease control and malaria treatment) and the project support strategies: training, health education/promotion, health information systems, and operational research.
2. CCCD Project management and coordination of responsibilities and efforts.
3. Project funding.
4. Technical assistance.

The report of findings and recommendations from the 1985 review was provided to this evaluation team. The 1986 evaluation process included examination of progress made in completing and implementing the recommended actions of the previous review.

Organization of this Report. The evaluation report presents the findings and recommendations from the team's studies. It is divided into 14 sections, covering the following four areas of concern:

- A. Health sector situation relevant to implementing CCCD (Sections 2-4)
- B. CCCD project operations and interventions (Sections 5-8)
- C. CCCD strategies (Sections 9-12)
- D. CCCD financial and future development considerations (Sections 13-14)

Annexes presented at the end of the report provide: evaluation work scope (Annex A), list of people contacted (Annex B), and list of documents consulted (Annex C); and additional statistical data (Annex D).

Recommendations made by the evaluation team are contained at the conclusion of each section of the report, beginning with Section 5, concerning Project Management. The recommendations are numbered as follows: the number preceding the decimal point corresponds to the section number which is the subject of the recommendation; the number following the decimal point is a serial number within the set of recommendations for that section. For example, recommendation number "10.2" is the second recommendation contained in section 10, concerning the disease surveillance and health information system.

2. HEALTH STATUS AND HEALTH SERVICES SITUATION

Morbidity and Mortality

It is estimated that one-third of the children born in Malawi die before their fifth birthday. Fifty-seven percent (57%) of all recorded deaths in Malawi are children under five years old. Yet, children under-five account for less than 20% of the population.

Primary Health Care Services

Health services are provided by a variety of public and private organizations and individuals including: government, mission and other nonprofit organizations, industry, private physicians (35), traditional healers (more than 5,000) and traditional birth attendants (more than 5,000). (According to the Malawi National Malaria Control Programme Five-Year Implementation Plan, 1985-1989, about 400 traditional healers belong to the Herbalists' Association, which maintains a loose formal link with the MOH.)

The government provides approximately 45% of all health services which were weighted heavily towards curative services until 1973 when a prevention-oriented maternal and child health (MCH) program was initiated. Prenatal and under-five (years of age) clinics were established throughout the country. The MOH maintains a good relationship with the mission-sponsored health system called PHAM (Private Hospital Association of Malawi). For example, the MOH provided them with around US\$1.3 million in 1983-1984 for salaries for Malawians plus commodities such as vaccines and medicines.

Health planning and management are in the process of being decentralized, and more responsibility in these areas is being given to the three regions and 24 districts.

A basic health services plan, developed with the assistance of WHO, calls for development of primary health care (PHC) in primary health centers, sub-centers, and health posts (as yet very limited), as well as at the community level by selected community members. These facilities and services are supervised by the district hospitals, although financial constraints limit these tasks. Health centers are considered the key to management and supervision of village-level PHC activities, and a specific five-year plan for these activities is being developed.

Curative health services are available throughout the country, and over 80% of the population has access to some form of health care. Access is defined as living within eight kilometers of a fixed health facility. Forty-five Malawian registered physicians (1983) along with approximately the

76 expatriate physicians and 215 clinical officers (Malawians) staff the public and private hospitals. Most health facilities lack adequate staff and are limited in the services they can offer. Equipment, training, and supplies, including medications, are often lacking. There is one doctor for 50,000 people; one hospital bed for nine hundred people, and 4.68 Kwacha (US\$2.46) budgeted for each Malawian for health care in 1986.

This demonstrates the severe shortages of health manpower, facilities, and finances which hampered execution of the first health plan for 1965-1969 and the second health plan for 1973-1988. Shortages will continue to be a major constraint to execution of the present ten-year National Health Plan for 1986-1995.

CCCD Project Events

After the CCCD Project Agreement was signed in June 1984, the technical officer arrived the following month. The field epidemiologist assigned to the East and Southern Africa Region was already based in Malawi from February 1984. Project vehicles (4) arrived eight months after the technical officer. But, needles and syringes which were ordered for EPI well over one year ago have not yet arrived.

During the past two years the MOH, reinforced by CCCD, has made considerable progress:

- o National five-year malaria, EPI, and CDD plans were developed for 1986 through 1989;
- o Over 2,000 health personnel received PHC training;
- o ORT units were established in all hospitals (44);
- o Twelve operational research protocols were reviewed, approved, and funded--half of which have been completed;
- o Special sentinel survey to study age distribution and vaccination status of measles cases completed and protocol to verify and study results underway;
- o Health education services are being reinforced through a special mass media project;
- o Use of I.V. solutions has decreased nearly 7-fold from 1983 to 1986 in Kamuzu Central Hospital, where oral rehydration therapy first started in Malawi;
- o Primary health care services are being extended throughout the country;

TABLE 2.1. Health Manpower (Staff at Post), Malawi, 1984

<u>Staff Category</u>	<u>MOH 1984</u>	<u>PHAM 1984</u>	<u>Other</u>	<u>Total</u>
Medical Officer	84	33	4	121
Clinical Officer	178	17	20	215
Medical Assistant	351	115	162	628
Registered Nurse/M	367	128	26	521
Enrolled Nurse/M	919	449	260	1628
Dentist	8	3	1	12
Dental Technician	7	14	6	27
Dental Assistant	9	--	--	9
Pharmacist	9	3	--	12
Pharmacy Technician	1	--	--	1
Pharmacy Assistant	32	9	1	42
Laboratory Technician	25	14	4	43
Laboratory Assistant	55	32	9	96
Radiographer	9	3	12	24
X-Ray Assistant	8	3	1	12
Health Inspector	70	0	19	89
Health Assistant	169	--	24	193
Physio/OT	6	--	--	6
Other Establishments	<u>1916</u>	<u>310</u>	<u>227</u>	<u>2453</u>
Total Establishments	4223	133 1123	776	6132

Source: National Health Plan, April 1986

TABLE 2.2. Health Facilities, Malawi, 1984

<u>Category</u>	<u>Number</u>
Central Hospitals	2*
General Hospital	1
District Hospitals	22
Mental Hospital	1
Private Hospitals	20
Primary Health Centers (Government)	19
Primary Health Centers (PHAM)	19
Dispensaries	456
Maternities	94

*Note: One central hospital in the Southern Region, one in the Central Region which serves the Northern Region as well.

Source: National Health Plan, April 1986.

- o Health information system (HIS) was improved with initiation of sentinel surveillance and computerization of the system;
- o Malaria studies were conducted; policies and strategies were developed; and treatment and prophylaxis services were improved and expanded in the public sector;
- o Study of PHC involvement in community for malaria control being implemented in 4 study cells of 20,000 total population. This study will be used later on to evaluate ORT.

Notwithstanding the increase and quality of primary health care services described in this document, it cannot be demonstrated whether or not the CCCD Project has exerted an influence on lowering morbidity and/or mortality in the under-five age group in just two years. Prior to CCCD, it is interesting to note that the number of paralytic cases of polio (through hospital reporting) decreased from 282 (2.9 per 10,000 children under-5) in 1973 to 11 cases (0.1 per 10,000 children under-5) in 1984.

At the current rate of time required to compile the MOH annual statistical report, CCCD's two-year influence on morbidity and mortality will be measurable in November 1988. (The 1984 annual report is not yet available.) However, with CCCD and Volunteer Services Organization (VSO) assistance in computerization of the MOH Statistical Unit this year, timely quarterly and annual morbidity, mortality, and service delivery reports will greatly facilitate comparing 1983 and 1984 CCCD/PHC data with 1986 data. Both should be available early next year (1987). Examples of computerized HIS data which are now being tracked are given in Tables 2.3 through 2.14.

TABLE 2.3. Polio Cases, as Provided through Hospital Reporting System, Malawi, 1973-1984

<u>Year</u>	<u>Total Poliomyelitis Reported all Ages</u>	<u>Projected Population Under 5 Years</u>	<u>Rate per 10,000 Children Under 5 Years</u>
1973	282	968,781	2.9
1974	109	997,844	1.1
1975	95	1,027,779	0.9
1976	40	1,058,613	0.4
1977	31	1,090,372	0.3
1978	60	1,125,202	0.8
1979	116	1,161,208	1.0
1980	70	1,198,367	0.6
1981	204	1,236,715	1.6
1982	35	1,276,289	0.3
1983	34	1,317,130	0.3
1984	11	1,359,278	0.1

Source: Malawi Health Information System

TABLE 2.4. DPT Immunizations for Under Fives, Malawi, 1980-1985

<u>Year</u>	<u>1st Dose</u>	<u>3rd Dose</u>	<u>1st Dose -3rd Dose</u>
1980	297,123	135,934	161,190
1981	301,560	175,884	125,676
1982	267,785	179,225	88,560
1983	277,618	212,649	64,969
1984	254,162	183,576	70,586
1985	257,416	172,416	85,000

TABLE 2.5. DPT Immunizations for Under Ones Compared to All Under-Fives, Malawi, 1980-1985

<u>Year</u>	<u>Under 1</u>	<u>Total</u>	<u>Over 1</u>
1980	564,274	681,429	117,155
1981	637,662	718,237	80,575
1982	596,233	671,510	75,277
1983	684,314	737,503	53,189
1984	623,548	664,241	40,693
1985	618,394	653,814	35,420

TABLE 2.6. DPT Immunizations Comparing 1st Dose and 3rd Dose for Children Under-One and Birth Cohort, Malawi, 1980-1985

<u>Year</u>	<u>1st Dose</u>	<u>3rd Dose</u>	<u>1st Dose -3rd Dose</u>	<u>Birth Cohort</u>	<u>Cohort -Doses</u>
1980	266,596	103,112	163,484	331,909	65,340
1981	235,770	131,714	154,056	341,851	56,081
1982	250,071	142,607	107,464	351,799	101,728
1983	235,464	188,072	77,392	357,394	92,430
1984	242,619	167,080	75,539	369,284	126,665
1985	246,383	159,659	86,724	381,175	134,792

TABLE 2.7. Measles Immunizations Given to Under Ones and Birth Cohort, Malawi, 1980-1985

<u>Year</u>	<u>Under 1</u>	<u>Total</u>	<u>Over 1</u>	<u>Birth Cohort</u>	<u>Cohort -Doses</u>
1980	98,708	132,440	33,732	331,909	233,201
1981	143,508	176,006	32,498	341,851	198,343
1982	169,781	200,449	30,668	352,799	182,018
1983	174,490	200,965	26,475	357,894	183,404
1984	157,052	178,407	21,355	369,284	212,232
1985	151,398	169,874	18,476	381,175	229,777

TABLE 2.8. Polio Immunizations Comparing 1st Dose and 3rd Dose for Children Under One and Birth Cohort, Malawi, 1984-1985

<u>Year</u>	<u>1st Dose</u>	<u>3rd Dose</u>	<u>1st Dose - 3rd Dose</u>	<u>Birth Cohort</u>	<u>Cohort -Doses</u>
1984	243,015	168,417	74,598	369,284	126,269
1985	232,135	143,189	88,946	381,175	149,040

TABLE 2.9. Measles Cases (Outpatients) Among Children Under-5, Malawi, 1978-1984

<u>Year</u>	<u>Cases</u>
1978	246,511
1979	195,644
1980	162,686
1981	84,610
1982	104,921
1983	150,248
1984	58,984 (Not Complete)

TABLE 2.10. Measles Cases (Inpatients) Among Children Under 5, Malawi, 1978-1984

<u>Year</u>	<u>Cases</u>
1978	23,048
1979	14,527
1980	14,035
1981	10,974
1982	12,464
1983	16,236
1984	7,924 (Not Complete)

TABLE 2.11. Diarrhea Cases (Inpatients) Among Children Under 5, Malawi, 1978-1984

<u>Year</u>	<u>Under 1</u>	<u>Deaths</u>	<u>1 and Over</u>
1978	5,688	424	5,214
1979	9,248	523	8,715
1980	3,026	218	2,808
1981	4,864	341	4,523
1982	4,708	316	4,392
1983	7,812	534	7,278
1984	7,135	476	6,659

TABLE 2.12. Malaria Cases (Inpatients) Among Children Under 5, Malawi, 1978-1984

<u>Year</u>	<u>Cases</u>	<u>Deaths</u>
1978	6,694	363
1979	23,237	715
1980	5,899	287
1981	10,705	451
1982	10,240	436
1983	16,585	741
1984	15,685	589

TABLE 2.13. Top 10 Causes of Outpatient Attendance, Malawi, Jan-March 1986

<u>Cause</u>	<u>Cases</u>	<u>Rate per 10,000</u>
1. Malaria	983,512	1351
2. Symptoms Referable to Respiratory System	503,604	692
3. Symptoms Referable to Abdomen and Gastro-intestinal Tract	211,857	291
4. Conditions of the Skin	191,269	263
5. Other Diarrheal Diseases	166,681	229
6. Inflammatory Diseases of the Eye	148,160	204
7. Traumatic Conditions	137,336	189
8. Venereal Disease	78,509	108
9. Symptoms Referable to Limbs and Joints	71,373	98
10. Hookworm and Other Helminthiasis	59,999	82

TABLE 2.14. Monthly CDD Sentinel* Surveillance Report, April 1986

<u>Variable</u>	<u>Cases</u>	<u>Percent (%)</u>
Total Cases	2,607	
Cases By Age		
Under 1 Year	1,377	52.82
1 to 4 Years	1,230	47.18
Treatment (More than 1 Response Possible)		
S.S.S.	783	30.03
Other Fluid	484	18.57
None	1,365	52.36
Breast Feeding		
Yes	1,871	71.77
Stop	122	4.68
No	614	23.55
Status of Dehydration		
Mild	1,753	67.24
Moderate	791	30.34
Severe	63	2.42
Referred or Admitted		
Yes	170	6.52
No	2,437	93.48

*Note: Sentinel health centers in April 1986 were as follows: Chinteche, Bolero, Khombedza, Kamuzu Central Hospital, Kapili, Chitowo, St. Lukes, Ndirande, South Lunzu, Neno, Kulanje, and Muona.

3. PROJECT FINANCING SITUATION

Introduction

There are two major sources of financing for the public health sector in Malawi: the government-funded operating budget of the Ministry of Health, which pays for the Ministry's salaries, medicines, and general administrative and operating expenses; and foreign assistance, which funds both operating and development costs of the public health sector. The Ministry's budget also receives a small amount of revenue from fees charged at the three regional hospitals and from fees for antenatal and maternity services provided at hospitals and health centers. ✓

The pattern of donor assistance in the health sector in Malawi is typically to cover most of the non-salary operating costs of projects, as well as capital equipment, training, research, and technical assistance costs. Funding by USAID bilateral and regional sources for the CCCD project in Malawi follows this pattern. The other principal donor for CCCD services, UNICEF, also covers recurrent costs by providing the total national supply of vaccines and ORS packets, as well as the majority of chloroquine tablets in Malawi.

The private health sector, operated principally through church sponsored organizations, is represented by the Private Hospital Association of Malawi (PHAM). PHAM includes both hospitals and health centers, provides an estimated 50 percent of the health services in Malawi, and is fully integrated in the delivery of CCCD services. In FY 1986 PHAM received 54 percent of its funding from the Ministry of Health for payment of salaries for the 2,900 Malawian staff working in PHAM health units. The Ministry also provides vaccines and some essential medicines to PHAM free of charge. PHAM operations are also financed through consumer fees for services and medicines (37 percent); contributions, primarily from foreign sources, for salaries of the 150 expatriate staff (6 percent); and domestic and foreign donations (3 percent). 90%

A second source of private financing briefly existed, under which villages were responsible for compensation of village health workers (VHWs) in three pilot zones where the MOH had initiated experiments with village level primary health care following the WHO Alma Ata model. The concept of compensating VHWs has been dropped, though a voluntary village level primary health program now exists in 13 districts, with indirect involvement in promoting the use of CCCD services.

The traditional health sector, represented by more than 5000 traditional healers and over 5000 traditional birth attendants, is funded through in-kind contributions and cash fees from consumers. This sector is not involved in CCCD services.

For purposes of evaluating financing for CCCD services during the project period, 1984-1988, the following discussion concentrates on review and analysis of financing for the CCCD project by the Government of Malawi and by USAID and UNICEF. With respect to evaluating long term financial viability of CCCD services, however, Section 14 extends this analysis to include consideration of the role of other donors, private sector providers, and consumers in financing CCCD services to help cover recurrent costs that the government is unlikely to be able to fund.

General Economic Context

Both GOM and foreign assistance funding of health services in Malawi must be understood in the context of the country's general economic situation. The overall economic context and the public budget situation provide a means to judge whether the government will be able to fund increases in the Ministry of Health's budget to cover the costs of serving a larger population each year and to cover any additional project costs. The economic situation also helps indicate possible changes in per capita income, which can help provide a preliminary indication about whether people are likely to be able to afford fees to pay for health services.

During the 1970's, Malawi had one of the highest real economic growth rates, 5.9 percent from 1973-1979, among Sub-Saharan African countries. From 1980 to 1984, however, annual average GNP growth rates of .7 percent did not keep pace with an average population growth rate over 3 percent. Consequently, per capita income in Malawi, \$180, as reported in the World Bank's 1986 World Development Report, is now well below the average, \$210, for comparable low income economies. According to the Government of Malawi's (GOM) 1985 Economic Report, per capita income is not expected to improve significantly in real terms over the next five years.

The principal causes of the economic decline in 1979 and the early 1980s are attributed to the increase in oil prices in 1979 and 1980; deteriorating terms of trade for Malawi's principal export crops of tobacco, tea, and sugar; loss of major transportation routes through Mozambique, estimated to cost the economy about \$50 million per year; and increased government borrowing at high commercial interest rates. The government initiated several short-term economic stabilization measures to counter these difficulties and is now participating in a third structural adjustment loan with the IBRD. By 1984, GNP was estimated at \$1 billion, an amount equivalent in real terms to the 1979 level.

Since 1984, the economy has improved, and the highest growth rate since 1978 is expected for 1986. Over the next five years the economy is expected to grow at real annual average rates of 3.6 percent. With an estimated population growth rate of 3.2 percent, this economic growth rate means per capita income will increase in real terms by less than 1 percent during this period. To achieve the growth rates predicted for the next five years and to meet requirements of the structural adjustment loan will require that Malawi: (1) receive a large inflow of foreign resources; (2) restrain the growth of

the government's recurrent budget expenditures to 1.5 percent; (3) give priority to repayment of the government's debt; and (4) maintain tight controls on foreign exchange.

In this context, the need for substantial amounts of foreign assistance can be also expected to continue for the health sector, particularly for items such as medicines that, if purchased by the government, require scarce foreign exchange. These financial constraints also mean that the ability of the GOM to fund increases in health sector costs is likely to be limited. With only very small growth predicted for average per capita income, the potential for raising substantial revenue for the health system through fees is also likely to be limited over the next five years.

Financing Issues for the Health Sector and the CCCD Project

In light of the general economic situation, the National Health Plan for 1986-1995 assumes no real growth in the Ministry of Health's budget for the first five years, 1986-1991. It is thus important that any health sector investments not place an increasing burden on the national budget. The CCCD project, by integrating delivery of immunization, diarrheal disease and malarial control services within the existing health service delivery system, has been designed with these budget constraints in mind.

In spite of this effort to avoid the additional costs that would be associated with establishing an entirely new or separate service delivery mechanism, there are several important issues with respect to the financial viability of CCCD services. First, projected constraints on the MOH's budget make it necessary to assess carefully the ability of the MOH to support even modest additional recurrent costs to sustain the planned CCCD service levels in the long run. Second, the Ministry's policy commitment to funding the priority services represented by CCCD requires analysis in light of competing pressures for funding other activities in the MOH budget. Third, longer term requirements for financing the health sector in Malawi are likely to mean the Ministry will need to make adjustments in the current fee policy. Finally, problems in budget planning and financial management need to be addressed if available Ministry resources are to be used most effectively.

The following part of this discussion reviews data relevant to these issues as they apply to the financing situation during the project period. Section 14 addresses longer term financial viability.

Government Health Spending

The government has devoted 6 to 7 percent of its total operating budget to the health sector in recent years. As Table 3.1 shows, the Ministry of Health has received the fourth largest share of funding for all ministries in the past two years. Public debt charges are expected to absorb nearly the highest single proportion, 38 percent, of total estimated government recurrent budget expenditures in FY 1986.

TABLE 3.1. Government of Malawi's Recurrent Budget Expenditures for Health and Other Ministries, FY 1986 and FY 1987
(Funding amounts in thousands of Kwacha)

	<u>1985/1986</u>		<u>1986/1987</u>	
	<u>Amount</u>	<u>% of Total</u>	<u>Amount</u>	<u>% of Total</u>
Ministry of Health	36,753	7%	35,201	6%
Ministry of Education	46,447	9%	51,248	9%
Ministries of Police and Defense	68,290	13%	67,340	12%
Ministry of Works	25,220	5%	25,962	5%
Ministry of Agriculture	23,363	4%	25,516	5%
Public Debt Charges	191,792	37%	208,238	38%
All other	<u>131,751</u>	<u>25%</u>	<u>133,513</u>	<u>24%</u>
TOTAL	523,616	100%	547,018	100%

SOURCE: Government of Malawi, Approved Estimates of Expenditure on Revenue Account for the Financial Year 1986/87.

While remaining a fairly constant share of total government recurrent expenditures over the past decade, the Ministry of Health's budget has shown consistent growth in absolute and in real terms. MOH recurrent budget expenditures in the current fiscal year, 1986/1987, are expected to be 35.2 million Kwacha (\$18.5 million). This amount is five times greater, in absolute terms, than expenditures a decade ago and nearly twice the 1976 level in constant terms. In contrast to many other Sub-Saharan African country health financing situations, MOH recurrent budget expenditures in Malawi have grown, on average, 5 percent annually in real terms since 1980. Growth in the Ministry's recurrent expenditures since FY 1984 has, however, been due less to authorized increases than to overspending the initial budget allocation. This pattern is also expected for the current year. Estimates of FY 1987 spending, K35.2 million, in the printed budget are now expected to reach K40 million by the end of the year.

When population growth rates are taken into account, real per capita spending by the Ministry has increased by an annual average of 2 percent during the same period. In FY 1986, the MOH will spend an estimated 4.68 Kwacha (\$2.46) per capita. This amount is, in real terms, almost one-third higher than the 1976 per capita level of 3.62 Kwacha (\$1.91). If future spending remains constant in real terms as the National Health Plan assumes, however, per capita spending will decline to K3.99 (\$2.10) by 1991. Table 3.2 presents details of these trends.

TABLE 3.2. Historical Trends in Ministry of Health Recurrent Budget Expenditures
(Funding amounts in thousands of Kwacha)

Budget Year	Total Government Recurrent Expenditures (Current prices)	Annual Percent Change in Ministry of Health Recurrent Budget			Total Expenditures in Constant 1986 Prices	Ministry of Health Expenditures		
		Total Expenditures (Current prices)	As Percent of Total Government Budget	Total Expenditures in Constant 1986 Prices		Total in Current Prices	Total in Constant Prices	Per Capita in Constant Prices
1976/77	93,643	7,083	7.6%	19,914	3.62	11%		
1977/78	108,277	7,761	7.2%	20,260	3.57	10%	2%	-1%
1978/79	140,433	10,326	7.4%	22,286	3.81	33%	10%	7%
1979/80	173,047	12,083	7.0%	25,625	4.25	17%	15%	12%
1980/81	207,649	14,980	7.2%	26,210	4.21	24%	2%	-1%
1981/82	273,020	18,723	6.9%	30,246	4.71	25%	15%	12%
1982/83	278,367	17,422	6.3%	26,204	3.96	-7%	-13%	-16%
1983/84	315,283	21,599	6.9%	29,957	4.33	24%	14%	11%
1984/85	416,786	28,031	6.7%	35,858	5.08	30%	20%	16%
1985/86	523,616	36,753	7.0%	40,428	5.55	31%	13%	9%
1986/87	547,018	35,201	6.4%	35,201	4.68	-4%	-13%	-16%
Average For 1981-1987	365,963	24,673	6.8%	32,015	4.65	18%	5%	2%

SOURCES: Government of Malawi, Approved Estimates of Expenditure on Revenue Account for the Financial Year 1986/87; World Bank, Staff Appraisal Report Malawi Family Health Project, June 1986 For FY1976/77-1983/84.

Constant prices calculated from World Bank, Staff Appraisal Report Malawi Family Health Project, June 1986.

NOTE: 1985/86 and 1986/87 are the estimated actual expenditures in the FY 1986/87 budget on Revenue Account. Prior years are actual expenditures.

The Government also provides funding to the health sector through its Development Account budget, which funds both the capital and operating costs of projects. Estimated GOM expenditures for this fiscal year in the development budget are K1 million (\$US 530,000). Corresponding donor funding amounts in the Development Account are an estimated K9.4 million (\$US4.9 million).

Financing for the CCCD Project

The Project Agreement. The financing provisions of the Project Agreement provided for total project funding of \$7.4 million (K14 million in 1986 prices) for the period July 1984 - March 31, 1988. The Agreement specified total funding amounts for the government of Malawi and for the USAID grant. Although UNICEF is not a signatory to the Agreement, the Project Agreement budget also included funding amounts for UNICEF to indicate the major source of other donor support to CCCD services.

cccd
x MCH
x ??
UNICEF?

The Agreement includes several important provisions that affect financing by the Government of Malawi. Under the Agreement, GOM funds can be made available in currency or in kind from its own resources or those of other donors. The document also specifies that the GOM agrees to finance, in the third and fourth year of the project, the operating costs associated with the vehicles purchased by the project.

Further, the Agreement requires, as a condition precedent, that the GOM submit, after April 1985, annual project work plans and budgets which at a minimum set forth the amount of GOM funds to be provided to the project during the year, estimates for the succeeding fiscal year, and expenditures for the prior fiscal year. Finally, a special covenant requires that the GOM actively contribute to efforts made by the project to identify methods to recover at least a portion of the costs of the CCCD services, including the collection of user fees, and to implement methods it has studied and approved.

Table 3.3 presents the distribution of funding amounts by item and source as estimated in the Project Agreement. These estimates indicated that 43 percent of the total funding would be used for medicines (vaccines, ORS packets, and chloroquine). Supplies and equipment and technical assistance received the next largest shares, 20 percent each. The UNICEF contribution, at 31 percent of the total, represented the largest funding source, with USAID bilateral funding at 19 percent. According to the Agreement, funding from the Government of Malawi represented 28 percent of the total.

Of total funding estimates in the Project Agreement, the immunization (EPI) component represented the greatest share (34 percent) and diarrrheal disease control the smallest (9 percent). As Table 3.4 shows, the malaria, CHSU and project management components each represented 15-18 percent of the total funding level.

First and Second Years of Implementation. Spending during the first year of implementation was lower than planned in the Project Agreement. According

to the first year internal evaluation conducted in June 1985, USAID had committed \$231,650 of the bilateral funds, 32 percent of funds estimated for the first year in the Project Agreement; the GOM had spent an estimated \$204,077, 55 percent of its estimated amount for FY1985. The Malawi CCCD project is not unusual in experiencing a slower than estimated start up and factors associated with procurement and administrative issues underlying this lag are discussed in Chapter 5.

Since June 1985 funding commitments have increased substantially. Table 3.5 summarizes the annual funding estimates, by source, as included in the Project Agreement and during the implementation period. This data indicates that each of the financing sources have spent or committed funds at, or slightly above, the total estimated in the Project Agreement for the first two years.

Table 3.5 also indicates planned spending for the remaining years of the project. Neither USAID nor the MOH have developed specific budget plans for spending the remaining project funds. Thus, amounts given for the two USAID sources of funds and the GOM simply represent the balance of uncommitted funds available, based on totals included in the Project Agreement. With respect to USAID bilateral funding, the CDC technical officer and MOH staff have developed estimates of \$150,000 for laboratory equipment and office space for the CHSU field units. These funds will not be obligated until the field units are in place.

Amounts for planned spending by UNICEF reflect UNICEF'S current funding plan for the next five years. These include, for the two remaining years of the CCCD project, increases in purchases of vaccines, needles and syringes to take account of recent policy changes for daily immunizations and for improvements in sterilization practices. UNICEF plans will thus make available an estimated additional \$624,000 to CCCD services than originally planned in the Project Agreement.

There have been several shifts in spending of USAID funds from those planned in the Project Agreement. A separate accounting of USAID spending for research, training, transportation, office and medical supplies and equipment, and other items (i.e., by object class) was not readily available. But verbal information indicates that the major shift made with respect to the USAID regional funding was to increase funding for administrative and office support beyond that originally planned. In addition, though some bilateral money may have been used for short term technical assistance early in the project, no regional funds have apparently been used yet for short term technical assistance. A total of \$252,000 was included in regional funding in the Agreement for that purpose.

With respect to USAID bilateral funds, the changes with the most important funding implications are a reduction in the number of refrigerators from 60 to 48 and a reduction in the number of vehicles provided and currently planned. Four vehicles have been purchased and 6 more have been ordered, compared with 16 vehicles originally planned. In addition, USAID officially reprogrammed bilateral spending to include \$100,000 for concerted health education

**TABLE 3.3. Summary of Funding, By Item and Source, for Malawi CCCD Project, 1984-1988,
As Estimated in the Project Agreement
(Funding amounts in US \$)**

<u>Project Item</u>	<u>USAID Bilateral</u>	<u>USAID Regional</u>	<u>Gov't. of Malawi</u>	<u>Other Donors (UNICEF/SCF)</u>	<u>TOTAL</u>	<u>Percent of Total</u>
1. SALARIES (LOCAL)						
EPI						
DDC						
MALARIA						
PHC						
CHSU						
PROJECT			15,000		15,000	
SUBTOTAL			15,000		15,000	0.2%
<hr/>						
2. TRANSPORTATION						
Vehicles (16)	390,000	10,000	73,001		473,001	
Bicycles	58,500		4,500		63,000	
SUBTOTAL	448,500	10,000	77,501		536,001	7%
<hr/>						
3. MEDICINES						
Vaccines				1,776,000	1,776,000	
ORS packets				510,000	510,000	
Chloroquine			888,000		888,000	
SUBTOTAL			888,000	2,286,000	3,174,000	43%
<hr/>						
4. SUPPLIES/EQUIPMENT						
Service delivery:						
Cold chain equip and fuel	170,700		117,000		287,700	
Vaccination suppl	13,800		12,000		25,800	
Vaccination cards	71,400		140,600		212,000	
Subtotal	255,900		269,600		525,500	7%
Administration:						
Information syst.	96,500				96,500	
Office supplies	91,700	20,000	15,300		127,000	
Offices (in kind)			720,000		720,000	
Subtotal	188,200	20,000	735,300		943,500	13%
SUBTOTAL	444,100	20,000	1,004,900		1,469,000	20%
<hr/>						
5. TECH. ASSISTANCE						
Long term		1,260,000			1,260,000	
Short term		252,000			252,000	
SUBTOTAL		1,512,000			1,512,000	20%
<hr/>						
6. TRAINING	316,000	10,000	81,000		407,000	5%
7. OPERATIONS RESEARCH	100,000	80,000			180,000	2%
8. CONTINGENCY	114,500				114,500	2%
<hr/>						
TOTAL	1,423,100	1,632,000	2,066,401	2,286,000	7,407,501	100%
PERCENT OF TOTAL	19%	22%	28%	31%	100%	

**TABLE 3.4. Summary of Funding, By Project Component,
For Malawi CCCD Project, 1984-1988
(Funding amounts in US \$)**

<u>Project Component</u>	<u>Project Agreement</u>	
	<u>Total Funding</u>	<u>Percent of Total</u>
EPI	2,490,375	34%
CDD	692,875	9%
Malaria	1,126,875	15%
PHC	548,938	7%
CHSU	1,331,063	18%
Project Management	1,102,875	15%
Contingency	<u>114,500</u>	<u>2%</u>
TOTAL	7,407,501	100%

activities through HealthCom and to reallocate funds among the three project components. Table 3.6 summarizes these changes.

Although these changes suggest that slightly different percentages of funding are now devoted to the different components, in reality, transportation, training and equipment supplied with bilateral funds generally occurs simultaneously for all three. The decision to attribute a given purchase to these accounts is thus often necessarily arbitrary and separate identification of funding by program component can be misleading.

With respect to the Government of Malawi's actual and planned contribution to the CCCD project, amounts shown in Table 3.5 should be regarded as provisional estimates. The Ministry of Health's budget office has not established a separate accounting mechanism for expenditures related to the project. The first year evaluation team also had to estimate the government's contribution for the same reason.

The estimates of GOM spending presented here are based on two important provisions in the Project Agreement. Since donor funding can be counted as part of the GOM contribution, the estimate includes \$238,000 for chloroquine and vaccination cards provided by UNICEF and not otherwise included in Table 3.5 as UNICEF funding for the project. In addition, the Project Agreement budget included a total of \$720,000 for in-kind office space provided by the Ministry. Since this has clearly been available, 60 percent of this amount, (\$432,000) has been included in the estimate for the 27 months of the project to date.

**TABLE 3.5. Comparison of Annual Funding Estimates,
by Source, For Malawi CCD Project, 1984-1988,
in the Project Agreement and in the Implementation Period
(Funding amounts in US \$)**

<u>Project Agreement</u>					
<u>Source of Funding</u>	<u>FY1985</u>	<u>FY1986</u>	<u>FY1987</u>	<u>FY1988</u>	<u>Total</u>
USAID BILATERAL	728,487	291,271	352,721	50,621	1,423,100
USAID REGIONAL	438,000	404,000	400,000	390,000	1,632,000
GOV'T. OF MALAWI	374,300	425,300	566,300	700,501	2,066,401
UNICEF & SCF	513,000	561,000	583,000	629,000	2,286,000
TOTAL	2,053,787	1,681,571	1,902,021	1,770,122	7,407,501

<u>Implementation Period</u>					
<u>Source of Funding</u>	<u>Actual*</u> <u>FY84-FY86</u>	<u>Planned**</u> <u>FY-86-FY88</u>	<u>Total</u>	<u>Actual as % of Pro.Ag.</u> <u>FY84-FY86</u>	<u>FY84-FY88</u>
USAID BILATERAL	1,011,437	411,663	1,423,100	99%	71%
USAID REGIONAL	993,609	638,391	1,632,000	118%	61%
GOV'T. OF MALAWI	771,818	1,294,583	2,066,401	97%	37%
UNICEF	1,044,873	1,865,000	2,909,873	97%	46%
TOTAL	3,821,737	4,209,637	8,031,374	102%	52%

*Amounts in this column represent actual expenditures plus commitments made through 9/30/86, based on data provided by USAID/Malawi, CDC Project Management office, and UNICEF/ Malawi. Amounts for the GOM are estimates made by the consulting team.

Finally, since all available evidence suggests that the MOH has been paying fuel, training, and the salary cost included in the Project Agreement budget, the estimates include amounts for these activities, prorated for the length of project to date. It is these latter amounts, totalling \$101,401 (K192,662 in 1986 prices) that would have actually been spent from the MOH's recurrent budget for FYs 1984-1986. Though actual records of these expenditures were not separately accounted for, it is reasonable to assume equivalent amounts have been spent due to program activities observed. There is no evidence that CCCD project activities have been delayed due to unwillingness or inability on the part of MOH to pay amounts included for the GOM in the Project Agreement budget. Based on these estimates, the MOH has contributed 97 percent of the amount expected for FYs 1985 and 1986 in the Project Agreement.

Problems Encountered. Three principal financing problems have emerged in the first two years of the CCCD project.

First, the Ministry has not met the condition precedent in the Project Agreement that required submission of annual budget plans, beginning in April 1985. Neither have USAID/Malawi and the MOH, to the team's knowledge, agreed in writing that this condition be waived, as provided for in the Agreement.

Second, neither USAID nor the MOH have met the conditions required by the special covenant in the Project Agreement for conducting studies and actions related to cost recovery. The AID/Washington office took a preliminary step by contracting for a study of the recurrent costs of the project, based on data available for the first 9 months. USAID/Malawi has made no apparent effort to make use of this study in the past year and no attempt to relate any estimated costs to possible fees to finance them, as required in the Project Agreement.

Third, accountability for project spending is weak on the part of both USAID/Malawi and the Ministry of Health. On USAID's part, accountability has been weakened by transferring responsibility for managing, monitoring, and planning project expenditures to the CDC technical officer. In addition, USAID has taken no apparent steps to follow up on or provide guidance to the MOH regarding requirements for accounting for the GOM share of project costs. The recent A.I.D. audit conducted in July 1986 in 6 countries with CCCD projects, including Malawi, also noted the general failure of USAID missions to monitor host government contributions.

On the part of the MOH, there is no means by which its contributions can currently be accounted for on a accurate basis. Although they provided assurance in June 1985 that a system would be implemented, that system is not in place 15 months later. Current plans in the Ministry are to include the CCCD project in the Development Account budget, along with other donor assisted projects that require local contributions. Other changes underway in presenting and accounting for MOH budget expenditures should also facilitate the identification of expenditures relevant to CCCD services. These changes are to take place effective with the FY 1987 Development and Revenue Account budgets.

**TABLE 3.6. Changes in USAID Bilateral Funding for Malawi
CCCD Project, 1984-1988
(Funding amounts in US\$)**

<u>Project Component</u>	<u>Project Agreement</u>		<u>Amended Project Agreement</u>	
	<u>USAID Bilateral Funding</u>	<u>Percent of Total</u>	<u>USAID Bilateral Funding</u>	<u>Percent of Total</u>
EPI	371,450	26%	331,650	23%
DDC	125,550	9%	155,550	11%
MALARIA	145,550	10%	160,350	11%
PHC	211,675	15%	291,675	20%
CHSU	405,625	29%	340,125	24%
PROJECT MGT.	48,750	3%	48,750	3%
CONTINGENCY	114,500	8%	0	
HEALTH COMM	<u>0</u>	<u> </u>	<u>100,000</u>	<u>7%</u>
TOTAL	1,423,100	100%	1,428,100	100%

SOURCES: Project Agreement and PIL Number 9, August 11, 1986.

Section 5 includes recommendations for resolving problems related to submission of annual budget and work plans and management of project funds. Section 14 includes recommendations related to cost recovery.

4. COMMODITY PROCUREMENT, DISTRIBUTION AND QUALITY CONTROL SITUATION*

There are three independent supply networks in use to provide materials for CCCD services. Each of the supply networks arose in response to a particular need in Malawi for special inventory control, handling, and distribution. In this section, a summary assessment is given of the present situation and problems in the procurement, distribution, and quality control of commodities for CCCD services.

Antimalarial Drug Distribution System

The primary responsibility for procurement, storage, and distribution of all medical supplies, except EPI supplies, lies exclusively with the Central Medical Stores (CMS). The Central Medical Stores is now a Treasury-funded department within the Ministry of Health, endowed with a revolving capital fund and intended to operate on a no-profit, no-loss basis.

The Central Medical Store purchases (centrally) through international tender all medical supplies, except EPI supplies. Antimalarial drugs required for all health facilities in Malawi form a significant proportion of the CMS imports. As malaria is one of the leading causes of morbidity reported in all health facilities, a timely supply of all antimalarial drugs is crucial. The procurement lead time normally ranges from a minimum of 7 months to a maximum of 14 months. A local firm, Sterling Products, Inc., also produces some pharmaceuticals, but nevertheless most orders go to overseas companies. Antimalarial drugs are also sold over the counter at a few hundred groceries, but due to high cost most public consumption comes from the government (free) supply through the health facilities. Such drugs are also distributed through PHAM clinics, for which patients may or may not be charged depending upon the source of supply.

Storage is currently undertaken in only one warehouse at Blantyre. Due to several constraints there is no use of minimum/maximum stock levels, classification of inventory, preset buffer stock, or any other form of stock control. At district level, district hospitals are responsible for all requisitions for the health centers including those run by other agencies (PHAM, local govt, etc). District hospitals submit their requirements for a six month period to the CMS. This request is then processed, which normally could take up to another six months depending upon other factors such as stock availability, transport, etc. Once the stock reaches a district hospital, the distribution from district hospital to the peripheral units is done when transport is available.

*This section is based on a special analysis prepared for the CCCD evaluation team by Ramesh M. Shrestha, UNICEF/Malawi, in October 1986.

Health centers submit their requirements on a monthly basis to the district hospital, and these are supplied to the health centers during the monthly supervision visit by the district hospital staff. When the district hospital stock is exhausted, usually due to lack of stock at the CMS, the health centers suffer. This system of requisition is followed for all supplies. In certain cases a communication gap exists. For example, in a health center visited by the team, there was no stove for sterilization. All sterilization was done on firewood. It was later learned that a request was never made to the GMO for supplying a stove. The supervisory staff when visiting this health center somehow could not trace this problem.

In many instances there is no relationship between the demand and supply. The health centers request certain quantities of each drug. The decision as to what quantity to supply rests solely with the GMO and the district hospital pharmacist. For example, in another health center visited by the team, there was no chloroquine at the time of this team's visit. The GMO, with good intentions, decides which health center should receive what quantity, and the quantity may or may not have relevance to what was requested.

In the past, whenever personnel with a vehicle from a district hospital happened to visit Blantyre they were able to get their supplies. In this way the lead-time was short. However, this practice has been discouraged and finally stopped for understandable reasons. There soon will be two more stores available, one each at Lilongwe and Mzuzu. It is expected that upon the completion of these regional medical stores both the stock keeping as well as the distribution system will improve to a great extent.

ORS Distribution System

Parallel to the CMS store there also exists an MCH store which receives supplies from UNICEF and other agencies. The warehouse of this store is also in Blantyre. The MCH Store supplies and distributes all MCH supplies for all MCH clinics, which includes chloroquine for antenatal clinic, ORS (mixture for 1 liter) for all health facilities, high potency vitamin A for under five clinic, etc. These items are only an indirect cost to the program in the sense that these are not procured by the government.

The relevance of MCH distribution here is mostly to the ORS packets and to a less extent to other supplies, especially chloroquine. The source of ORS packets is limited only to the UNICEF supplied packets. No ORS packets are commercially sold, though serious consideration is being given to the possibility of local production. The supply of ORS packets through MCH clinics has dramatically increased over the past few years. The current supply is probably the maximum the system can absorb under the existing distribution and training system. The ORS packets are not given away to the mothers, thereby limiting the use of ORS packets to a considerable extent. All health facilities the team visited have enough of the packets in stock. A regular monthly supply of the packets was evident also from our discussion with the peripheral staff. Following table indicates the packets distributed through the MCH network over the past three years:

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<u>Year</u>	<u>Quantity of ORS pkts.</u>
1984	235,750
1985	610,000
1986	1,500,000

As mentioned earlier the present constraints are the limited distribution of ORS packets, availability of containers, as well as insufficient training. Many mothers are unable to use ORS packets because of the lack of containers. Mothers bring their children suffering from diarrhea to the health facilities, but they do not carry with them containers or at least an appropriate (large enough) one. Mothers return home to get containers. Many mothers in this process do not return to the clinic. Hence, the child receives only a limited amount of ORS solution during the mother's stay at the health centers.

It was observed by the team that the ORS program has definitely made some positive impact. Many health workers including Government Medical Officers confirmed a sharp decline in the use of intravenous rehydration therapy. In two district hospitals the team visited, there were two ORT corners, one for OPD and one for inpatient. With further improvement in the communications and the training of relevant health workers, additional impact of this program could be felt.

Geographically ORS distribution has covered all health facilities in the country, which provides a strong base for further development of the program. One of the constraints noted in the field is the space allocated for the ORT corner in certain health centers. In one of the centers observed ORT service is offered in a dispensary where all outpatients are directed for their medical supplies. In some others this service is offered outside at the back of the building. However, these constraints could be easily remedied with good, regular supervision.

Local Production of ORS. At the time of the evaluation, there was no production of ORS packets in Malawi. Discussions have been held between Sterling Products and the CDD Committee of the Ministry of Health concerning the possibility of commercial production and sale of ORS packets in Malawi. The Committee is considering giving its approval for the commercial production and sale of ORS packets in the country. The Committee would place requirements as to quality, packet size, distribution, and promotional arrangements for the ORS products. During the most recent discussions with the ORS Committee, Sterling officials said that the proposed retail product would be 59 Tambala per packet. This discussion took place before the recent devaluation of the Kwacha (100 Tambala) from 1.78 to 2.02 to the US\$1. It appears to the team that any such distribution under the proposed pricing arrangement, if and when approved by the Ministry of Health, would have little or no impact in the areas of Malawi having major diarrhea and dehydration caseloads. No other efforts are underway to develop local production of ORS or to subsidize costs of ingredients or packaging materials in a local product.

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Vaccine and Cold Chain Distribution System

The distribution of vaccine, cold chain equipment and other EPI supplies is the third independent supply distribution network. The central store for EPI supplies is located in Lilongwe. This is certainly a positive point in the sense that the storekeeper (and other store staff) have easier access to the central ministry staff, which is essential for an efficient distribution of supplies.

Vaccine Supply. Malawi EPI program is using six antigens to immunize mothers to prevent neonatal tetanus and children against tuberculosis, tetanus, measles, diphtheria, pertussis and poliomyelitis. Currently five types of vaccines are imported; they are DPT, BCG, TT, measles and polio. All vaccines required for the program are supplied by UNICEF. The cost of polio vaccine is reimbursed by the Rotary International as part of Rotary's agreement to support Malawi's campaign against polio. A review of vaccine supply and consumption by the program over the past few years indicated a dramatic increase in the supply. The following numbers of vials support this statement:

<u>Vaccine</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
BCG	19,400	46,100	59,300	55,000	60,000
DPT	35,500	75,000	28,900	42,000	66,000
Measles	30,600	68,900	15,000	37,000	66,000
TT	--	29,500	12,500	32,000	66,000
Polio	--	10,000	10,000	12,000	92,800

(All vaccine vials are 20 doses, except measles which is a 10-dose vial.)

The sharp change in projected vaccine consumption in 1986 compared to the previous years is largely due to the change in the field strategy. Until April this year all clinics were offering weekly immunization services. As a part of Africa Immunization Year celebration Malawi began daily immunization schedules in April 1986. Until early this year vaccine requirements were calculated by considering projected coverage of target population with various antigens, wastage factor and a reserve stock. Since the program moved from weekly to daily immunization schedule, a higher wastage is expected. Hence, it is expected that each clinic will have to open at least one vial of each of the vaccine per working day. Thus, the vaccine requirement is estimated by considering number of working days plus number of clinics. This method of vaccine estimation projected an annual requirement of about 135,000 vials of each vaccine. The first lot of vaccine based upon this estimation arrived in the country in July 1986. The program will require another few months to establish a vaccine utilization pattern for each health center/district. Vaccine ordering will be adjusted accordingly.

Every child visiting a health clinic will be screened for his immunization record and offered appropriate service. Many clinics are, however, implementing this strategy are plagued by various constraints. Main constraints affecting delivery of daily immunization services are: inadequate

staff, supplies, fuel for cold chain, as well as working space in certain health centers. In one of the district hospitals the team visited, immunization services were given in a common injection room where all outpatients are referred for injections. Sterilization of needles and syringes for immunization were done with needles and syringes used for other injections. This combination saves kerosene but increases the chances of abscess at the site of immunization.

Returning again to the supply issue, none of the health facilities have adequate supplies for implementation of one needle one syringe per child immunization, per the directive issued earlier this year. ((

All vaccines upon arrival (by air) are stored in a central walk-in cold room situated in Lilongwe. Adjacent to the cold room is the central store for other supplies which stocks needles, syringes, refrigerator spare parts, other cold chain equipment, etc. The three regions send their request periodically to this store for the supply of vaccine. Normally these requests are expected to be quarterly but due to several reasons, requests as well as responses are more frequent. The vaccines from the center to the two regions (north & south) are sent by air while for the central region vaccines are transferred in cold boxes (the central region and national vaccine stores are located on common premises). From the regional vaccine stores, the vaccines are supplied to districts on a monthly basis. There is no set pattern of this supply. These are either carried by supervisors from the region to the district every month during their supervisory visits, or the district staff are sent to collect the vaccine, depending upon the urgency. Except for polio vaccine, there were no shortages of other vaccines in the field. Only one health center visited was out of stock of all vaccine but polio.

Vaccines are sent to the outreach clinic from each of the health centers on a weekly basis in vaccine carriers. The number of weekly outreach clinics depends upon the catchment area. During the team's visit a maximum of four weekly outreach clinic were found. None of the cold chain stores were using the "cold chain monitoring" cards.

Cold Chain Distribution System. Cold chain maintenance in Malawi is accomplished by use of special facilities and equipment from initial receipt in-country through to the most distant vaccination sites. In the Kamuzu International Airport where vaccines are sometimes temporarily stored, a cold room is available belonging to the airport authority. At the central level the Ministry of Health has a walk-in cold room. This walk-in cold room is supported by four freezers which could be converted into refrigerators to store certain vaccines in case of emergencies. Currently these are used for making ice packs. This cold room has a back-up support of a diesel-powered generator which was required to be put into operation only once last year. The electric power supply in Lilongwe has been consistently good.

Below the central level there are three regional vaccine stores. These stores have three to four deep freezers (mostly ice lining type). These are used for storing polio and measles vaccines. Some of these freezers are converted into refrigerators for storing BCG, DPT & TT vaccines. All central

vaccine stores also have two to three refrigerators, which are used as back up equipment. All of this cold chain equipment is electric powered. All diluents are stored at ambient temperature. Vaccine stock books are maintained in separate registers for separate vaccines contained in different freezers and refrigerators. Each of the freezers and refrigerators also have their own temperature chart maintained with the help of vaccine thermometer. The vaccine monitor card is stored in these units, but they are not being utilized.

At the district level, all district hospitals have one or two refrigerators with a big freezer compartment. All of these are electric and kerosene powered. The maintenance of temperature chart and the vaccine stock is similar to the regional store. At the district level, the maintenance of temperature becomes less impressive in the sense that some refrigerators showed a consistent temperature of more than 10 degrees C. Some of these faults seem to be due to heavy ice formation in the deep freezer compartments.

The supply of electricity was reported to be good in all districts where service was available. Whenever a cut in power supply is planned, a warning is issued (by district branch of Electricity Corporation of Malawi) in writing giving enough time for the staff to prepare for any action needed. Each of the district offices also has a number of (between three to six) big cold/ice boxes, and a number of vaccine carriers, with appropriate ice packs. Many of these vaccine carriers observed in the field have cracks and hence may need replacement. The next lot of vaccine carrier (same model), which is expected at the end of this year (as part of 1986 UNICEF assistance to EPI), should be able to replace all damaged units as well as provide some reserve units.

Other EPI Supply Distribution. All other supplies like needles, syringes, sterilizers, cotton, alcohol, stoves, etc. required for all health centers are stocked at the district hospital. The district hospitals are also authorized to procure additional supplies locally. All spare parts required for cold chain equipment are stored at the district hospital. Each district also has a cold chain mechanic based at the hospital to provide all cold chain technical support. None of the health centers stock any spare parts, including wicks and chimney glasses. The situation leaves the program vulnerable to equipment failures. A breakdown in communication can easily create a problem. For example, in a health center visited by the team there was no stove for sterilization. When this situation was discussed with the GHO it was realized that the health center never had requested a stove. There were a number of supervisory visits from the hospital but somehow this problem was never communicated. This was a clear example of weak communication.

Most health centers also do not have sterilizers. A tray is used in most health centers to boil the equipment requiring sterilization. In a few health centers, a constant boiling of needles and syringes was observed whereby used needles were thrown into the tray of boiling water. A good stock of sterilizers at district hospitals should help to overcome this acute shortage of sterilization equipment. No timers were used in the health facilities to note the length of boiling time.

Fuels and Power Supply. All district hospitals are supplied with electric power wherever available. In absence of electric power kerosene is the most commonly used power source. Some health centers also have electricity. The electric power supply is reported to be quite good. In case of power failure, all refrigerators in districts are convertible to kerosene power. At the health centers, many kerosene powered refrigerators are in use. In such places lack of kerosene has been reported as a major problem. The budget for kerosene is allocated and supplied from district hospitals to all health centers. Many health centers observed do not have a stock of kerosene. A few units of butane-powered refrigerators are also in use. The supply of butane is even more erratic than kerosene. The team found that a large-size deep freezer in Michinji has been unused for over a year due to lack of gas supply. L

Recently, the Industrial Gas Company has been encouraging the Ministry toward wide-scale use of gas. This certainly is attractive in the sense that if a constant gas supply could be maintained, the problems inherent with kerosene-powered equipment would be solved. At the request of the Ministry, UNICEF supplied 80 gas conversion kits to convert kerosene refrigerators to gas and also supplied 50 gas/electric refrigerators recently for use at health centers. The gas depots are available only in the Central and Southern regions. This equipment is appropriate for use only in places close to depots.

5. PROJECT PLANNING, ADMINISTRATION, AND MANAGEMENT

The CCCD/Malawi project management activities cover a wide range of tasks carried-out by numerous individuals in Malawi and in the U.S. This section considers the adequacy of those management activities, and provides some recommendations for strengthening the arrangement under which they are conducted.

Project Country Assessment

The present CCCD Project activities were developed on the basis of a special country assessment prepared in Malawi jointly by the MOH, USAID, and the Centers for Disease Control in September and October 1983.

The assessment presented an excellent technical analysis and carefully specified objectives and targets. A total of 12 objectives and targets were proposed to be completed by the end of 1987 (or 4 years of project operations). All of the recommendations and resource estimates in the assessment were developed for the purpose of achieving the target levels within the project period. Ambitious goals and targets were proposed in the assessment also for reduction of morbidity and mortality among the target populations within the planned four (4) years of CCCD Project operations, but these morbidity and mortality goals were not incorporated into the Project Agreement.

Carefully reasoned programs of work were prepared in the assessment, which could later be developed further as greater understanding of needs and obstacles became available. The assessment established clearly the need for and feasibility of developing the three CCCD interventions (EPI, CDD, and malaria services) in the Malawian context. Major emphasis in the assessment was given to strengthening MOH capacity in epidemiology (including major emphasis on the Community Health Sciences Unit) and health information systems. Relatively less emphasis and depth of analysis were provided in the assessment to identify underlying problems and needed actions in the CCCD strategies for training and health education.

The expatriate post of Technical Officer was proposed in the assessment as the main in-country operations coordinator, operating under the Centers for Disease Control. The existing or expected future MOH coordinators in EPI, CDD, and malaria services were determined to be the best focal points for MOH operation of the CCCD project.

No management analysis was provided in the assessment to establish the feasibility and required processes for effective project management. The assessment left numerous critical management issues unanalyzed: the

arrangements which would be required to organize and manage the CCCD/Malawi project; how elements requiring action by USAID/Malawi (such as procurement, financial transactions, and personnel) could be accomplished in view of their lack of staff; how the multiplicity of international organizations and donor agencies already active in programs for EPI, CDD, and malaria could be coordinated and successfully be kept apprised of each other's actions; or how the overburdened headquarters, regional, and district managers of the MOH could be made available to direct CCCD activities.

Plans of Operation

The Malawi CCCD Project activities cover a wide range of resources and requirements for planned action. The Evaluation Team found, as did the Project Review in 1985, that there exists little in the way of plans of operation and budgets to guide and control project work. The numerous cooperating and participating agencies which must be kept apprised of project activities makes it a necessity that such arrangements be documented and scheduled with care. A one-year plan of operations and budget is required as a condition of the A.I.D. funding grant of the Project, and careful management of the numerous elements in the Project would demand also a quarterly detailed schedule of actions. The actions being taken by WHO and UNICEF in the same arenas of work as those covered by CCCD should also be considered in such plans.

Three types of plans of operation were found to be in use by the Malawi Project:

1. Project tracking arrangements developed on an annual basis to establish the need for inputs by CDC/Atlanta. These basically are CDC internal annual reports of progress and reviews of problems needing attention;
2. MOH policies and plans for the coming five (5) years of activity in the CCCD services, giving targets and objectives for the services provided under the government's programs, prepared with CCCD participation and assistance during 1985 and 1986; and
3. Project component plans showing the intended activities during the life of the project for the various strategies. The only example of this type of plan is the preliminary, draft plan for health education, but in its present form this plan lacks information concerning resource commitments, schedules, or assigned responsibilities so is only partially illustrative of the type of plans of operation discussed here.

None of the three types of plans provides a complete picture of the planned activities in the specific parts of the Project. No over-all operational plan is being prepared to show annual and quarterly activities for the full scope of the Project.

Capacity of Government Management

Severe personnel constraints make it very difficult for Government of Malawi managers to be available for direct involvement in all parts of the MOH program on a continuous basis. The structure for extension and development of the service system at the regional level, below the headquarters, is dependent on a few individuals having very little transportation support or regular contact with fellow management colleagues.

The regional structure has been studied by the MOH several times in the last few years in an attempt to provide the strongest supervisory support to the field that is possible given the lack of staff members. The next stage in development of that process was taking place at the time of the Evaluation Team's visit with the designation of people who eventually will become the nucleus for a new regional directorate. This new regional directorate would build on the existing public health inspector supervisory system. The regions would each add a physician regional management position, having authority to supervise district hospitals and other units and provide rapid solution to district problems. This arrangement apparently will be implemented in phases over the next year, and the Evaluation Team saw the new arrangement as a valuable contribution to solving some continuing problems facing local service providers.

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The logistics situation, including delivery of materials and supervision of activities in field units, is not working adequately and the MOH is taking a number of actions to deal with these problems. Using funding from the World Bank and other agencies, a number of steps were taken already to solve problems related to ruptures in supply of antigens, syringes, oral rehydration materials, and other materials required in the CCCD Project. New regional stores and stock control systems are also being prepared to further strengthen this service.

U.S. Administration and Support

The administration and support required to permit smooth implementation of the CCCD Project in Malawi requires involvement of numerous U.S. Government and U.S. contractor organizations: the USAID/Malawi Health Officer, USAID/Malawi financial and personnel officers, Peace Corps/Malawi, U.S. contractor for health education--HealthCom, USAID/Regional financial and procurement officers in Nairobi, CDC/Regional epidemiology specialist, CDC/Atlanta supervising public health officers and resource specialists, and AID/Washington regional health and procurement officials. The complexity of achieving perfect management of these many agencies and individuals makes it a near-certainty that occasional difficulties will arise in arranging the U.S. resource inputs to the Project.

The key operational position for the project is the Technical Officer (TO) at the project office in Lilongwe. The TO, assigned to the project by the Centers for Disease Control, has in reality both technical and managerial roles in the CCCD Project. The TO is responsible ultimately for making

certain that all these participating U.S. Government agencies and contractors are aware of their duties and meet project time schedules. The TO is not responsible for coordinating the CCCD activities with those of other donors. It is likely that the TO will difficulties in achieving Project objectives in the event that the numerous other donors operating in the Malawi health sector are not fully aware of the upcoming work steps, requirements, and objectives for CCCD services. Therefore, ultimately, management of technical assistance to the CCCD Project in Malawi rests on the shoulders of the TO, and much of the possibility for strengthening over-all project management will be found in the actions taken by the TO. The Evaluation Team concluded that the management role of the TO is probably more critical to project success than any specific technical or scientific advice he may give. In the last analysis, the TO must be seen by the U.S. agencies and contractors listed above as manager of the Malawi project technical assistance.

The Evaluation Team found that the TO had achieved considerable success in directing the input of U.S. agencies and contractors. The TO developed a clear understanding early in the project of the requirements which each participating Project group would need to meet and provided leadership to ensure that these contributions were made as needed. The TO has been tireless in pursuing the accomplishment of project tasks and overcoming obstacles arising from Malawian circumstances or inadequacies in U.S. Government and contractor procedures.

Two other key points of administration and support were examined in detail by the Evaluation Team: (1) USAID/Malawi and (2) CDC/Atlanta. USAID/Malawi support was examined in the light of present requirements and the upcoming activities of the Project. The progress made in pursuit of the many project objectives has been quite impressive given the lack of supporting services available to the USAID Health Officer from the few USAID/Malawi officers in-post at the time the project began. Substantial delays in procurement and other USAID support caused a number of CCCD Project tasks, such as distribution of needles and syringes, to fall behind during the first one and one-half years of the Project in Malawi. Now that the USAID/Malawi mission has received additional staff support for its many programs, the CCCD Project can expect to receive additional support that it needs for the accomplishment of the Project activities.

To improve the financial accountability and management of the Project, USAID/Malawi should provide guidance to the MOH regarding the precise means of accounting expected for the GOM contribution for the remaining years of the Project. It should also provide funding and/or manpower assistance in developing and maintaining the agreed upon system. In addition, USAID should either assume the responsibility for planning, implementing, and evaluating the bilateral project budget or provide periodic short-term technical assistance with project funds to the CDC project coordinator to carry-out this function.

The CDC/Atlanta supervisory support has been especially strong during the life of the project, although it is clear that the distance between Atlanta and Malawi made it difficult sometimes to ensure that support can be made

available exactly when needed. The arrangement used to support the Project has undergone several changes over the last two years in attempt to strengthen the support given to the local project personnel. The present arrangement, involving monthly reporting from Lilongwe to Atlanta and written and telephonic discussion of upcoming needs and problems between the Technical Officer in Lilongwe and the Supervising Public Health Advisor in Atlanta appear to be working fairly well at this time. The lack of a full project plan of operations, as discussed above, makes it difficult for the Atlanta supervisory function to operate at its best. The lead-time required to complete arrangements for support services is such that a project plan would greatly improve the type of back-up support available.

Country Project Executive Management

The personnel assigned to participate in the Project, as coordinators and as participants in the three MOH committees (EPI, CDD, and malaria) are highly committed professionals, whose qualifications and experience permit them to handle an extremely heavy load of difficult work with great skill. The Malawi project executive management consists of several MOH senior officials, who also have several other assignments and responsibilities. The Project Coordinator and the intervention coordinators for EPI, CDD, and malaria, are highly dedicated professionals who have a keen understanding of the requirements for providing effective programs in the CCCD services. The operating structure of CCCD requires that these coordinators and the TO maintain frequent communications to ensure that plans and potential problems are well-known. The lack of additional MOH personnel assigned full-time to follow-up on the policies and decisions of the coordinators within the CCCD Project leads to occasional difficulties and lapses in progress. The MOH has assigned one such person for follow-up and is considering the assignment of additional personnel to such duties in the CCCD services.

Recommendations

5.1. The TO should strengthen the management process under which the Project operates by assisting the Project Coordinator in preparing a project-wide plan and schedule for tasks, responsibilities, and resource inputs which covers the life of the project and provides quarterly targets. The activities of all participating groups, including HealthCom and the Peace Corps, should be discussed thoroughly with those groups and their tasks and targets should be made a definite part of the plans.

5.2. With the upcoming addition of personnel funded by UNICEF to EPI, it is important that the involvement of CCCD be clear to all participating organizations and individuals. The TO is encouraged to continue with efforts to strengthen donor coordination to ensure that gaps in resource inputs or duplications of participation do not develop to the detriment of the project objectives.

5.3. Written agreements between USAID and the MOH regarding the submission of budget and work plans should be made as soon as possible, probably in the form of a Project Implementation Letter (PIL). This agreement should maintain the requirement for submitting these plans. In the longer run, the developing of such budgets in conjunction with work plans will make it possible to link resource requirements to meet current or planned service delivery targets and budgeted amounts. It will be possible to match expenditures to program objectives for planning and evaluation purposes necessary to sustain the program effectively.

5.4. It is USAID's responsibility under the Project Agreement to initiate the actions regarding cost recovery provisions of the Agreement. USAID should do this with full participation by the MOH in determining issues relevant to financing the Malawi program. Section 14 of this report provides some suggestions for carrying-out these steps.

6. PROJECT INTERVENTION FOR EXPANDED PROGRAM ON IMMUNIZATION

Background

A WHO mission in 1973 assisted the Government of Malawi in preparing a 15-year National Health Plan, recommending immediate implementation of routine, organized immunization activities. Five years later (1978), 50% of the under-five (years of age) population was being seen at under-five clinics and the number of vaccination sites increased from 200 to 850.

The level of achievement in terms of vaccination coverage was variable and still low because of insufficient cold chain equipment and knowledge of vaccine management. Furthermore, while smallpox, BCG and DPT were being provided through external assistance, polio and measles vaccines were until then being purchased from the Ministry's meager resources and were often out of stock. However, a 65% coverage of BCG and 30% coverage of 3rd DPT were attained.

A country-wide measles mass campaign was launched in 1978, after being tried in three districts. In 1980, another country-wide mass campaign was launched against poliomyelitis. In 1980, these two campaigns, aimed at children less than 23 months of age, were running concurrently, leading to a successful 84% coverage for measles by March 1981 and 80% coverage for polio by July 1983.

In 1983, activities were fully integrated in the MCH delivery system; transport and cold chain facilities improved, and the logistics of vaccines (DPT, polio, measles, BCG) and other supplies also improved. Following a neonatal tetanus survey in April 1983, which revealed a neonatal tetanus mortality rate of 12 per 1,000 live births, tetanus toxoid vaccine was introduced for pregnant mothers attending antenatal clinics throughout the country. Vaccination sites (under-five clinics) were increased to 1075, out of which 406 were static and 669 were outreach, by December 1983.

Policies and Management

EPI/Malawi is fully integrated within the MCH/PHC network, and immunization activities will continue to be carried out together with weight and growth monitoring, health/nutrition education, and early treatment at clinics. Apart from scheduled clinics, contact made with a health facility for any reason will be used for the purpose of immunization. In principle, immunization services are carried out at fixed facilities daily and outreach posts weekly.

At the central level, the EPI program is managed by the Chief Clinical

Officer, who is responsible to the Assistant Chief Medical Officer (MCH). At the regional level, a Senior Public Health Nurse is responsible for MCH activities, including EPI. At the district level, two MCH coordinators have been appointed, one either a Senior Medical Assistant or Health Assistant and the other either a Staff Nurse/Midwife or Enrolled Nurse/Midwife to supervise the maternal aspects of MCH, including tetanus toxoid vaccinations to pregnant women.

Immunization Strategy and Schedules

EPI/Malawi's strategy is to have each newborn immunized against all six EPI diseases before attaining the age of 12 months and ensuring that women receive 2 doses of tetanus toxoid during pregnancy, using the following schedule:

BCG	at birth or 1st attendance
1st DPT	6 weeks of age
1st polio	6 weeks of age
2nd DPT	10 weeks of age
2nd polio	10 weeks of age
3rd DPT	14 weeks of age
3rd polio	14 weeks of age
Measles	9 months of age
Tetanus Toxoid	2 doses during pregnancy and a booster after 3 years for subsequent pregnancies

WHO's recommendation of vaccinating sick children was adopted last year.

EPI Objectives

By 1989, EPI/Malawi is to increase coverage of fully immunized children from an estimated 55% in 1984 to 80% in 1989 in order to reduce morbidity and mortality by:

- 50% Measles (morbidity and mortality)
- 75% Polio (morbidity)
- 50% Neonatal Tetanus (mortality)

Other objectives are to establish morbidity and mortality baselines for pertussis, childhood tuberculosis, and diphtheria; and to make vaccinations available at all fixed and outreach facilities.

Vaccination Practices

Honoring the Africa Immunization Year celebration, EPI/Malawi embarked on a policy of daily immunization services in all MCH clinics. In principle, every child visiting a health clinic is screened for immunization needs and

vaccinated accordingly. A large number of clinics are having difficulties implementing this policy. Major constraints to delivering daily immunization services in all clinics are: inadequate staff, supplies, and working space. Sterilization procedures are not always adequate. Occasionally, treatment rooms are used for vaccination rooms, where needles and syringes used for various injections are put in the same sterilizer. No health facility which the team visited had adequate supplies of needles and syringes. Abscesses at needle entry sites were reported in some clinics among vaccinees. The importance of using sterile injection equipment cannot be too strongly emphasized in view of the very real threat of AIDS transmission as well as transmission of other diseases through use of unsterile vaccination equipment.

The supply of vaccines from central stores to regions to districts and to clinics during the past year was generally good. There were occasional polio stock ruptures at all levels due to a complex arrangement of supplying polio vaccines through UNICEF. It would be preferable for UNICEF to order polio vaccines in the same way as the other vaccines and then simply be reimbursed by Rotary.

Conservation of vaccines is good at the central, regional, and district levels. The central level freezer unit was repaired and a back-up generator was installed as was recommended by the first-year review team. At the peripheral level where often times electricity is either not available or not reliable, the same old problems that are found throughout Africa where kerosene refrigerators are used are also found in Malawi; clinics run out of kerosene, the kerosene is of poor quality, refrigerators not properly maintained and any number of other problems that make the conservation of vaccines unreliable at some clinics. Until all vaccines are made totally heat stable or until a reliable source of energy is made available for refrigeration equipment, the cold-chain problem will continue to plague immunization programs throughout the developing countries.

The team observed the introduction of vaccination log books in some of the clinics. Suffice to say that vaccination log books for recording names of children, names of parents, addresses, etc., are inappropriate in clinic situations where staff are overworked. More important duties are neglected in order to maintain a vaccination log book which in almost all cases is never used for the purpose intended. If staff do not have time to maintain a log book, they also do not have time to search for children who have not completed their vaccination requirements. If vaccination cards are lost, it is more efficient to record history of vaccination status from the mothers on a new card and administer or readminister those vaccinations that are in doubt.

Over one million vaccination cards were printed by UNICEF for EPI/Malawi. Should the policy of administering one dose of polio to newborns be adopted, clinic personnel can write "polio" in the same square where BCG (at birth) is written and the date of administration recorded for BCG would serve as well for polio.

Vaccination Coverage

With nearly 400 fixed and over 700 outreach vaccination sites, EPI/Malawi can provide vaccinations to 80% of the target population. (Population within five-mile radius.) (See: Table 6.1, below, and Annex D.) Vaccination coverage, however, has declined from 55% fully vaccinated in 1982 to 35% in 1985.

TABLE 6.1. Coverage Surveys for Immunizations, Malawi

Part A:

<u>Date</u>	<u>Area</u>	<u>Children</u>		<u>Card</u>	<u>BC</u>	<u>DP</u> <u>T1</u>	<u>DP</u> <u>T2</u>	<u>DP</u> <u>T3</u>	<u>POL</u> <u>1</u>	<u>POL</u> <u>2</u>	<u>POL</u> <u>3</u>	<u>Me</u> <u>as</u>	<u>Ful</u> <u>ly</u>
		<u>Age</u> <u>(Months)</u>	<u>Number</u>										
1980	Mzimba	12	24	73	79	91	77	51	88	72	47	64	39
1980	Lilongwe	12	24	50	69	60	52	40	59	40	23	58	20
1980	Thyolo	12	24	69	66	61	55	49	93	75	50	61	28
1982	All Malawi	12	24	86	87	88	82	69	91	80	72	70	55
1984	All Malawi	12	24	70	72	84	78	66	82	76	68	64	55
1985	All Malawi (weighted)	12	24	73	73	83	74	58	84	71	56	52	35

Part B:

<u>Date</u>	<u>Area</u>	<u>Number</u> <u>of</u> <u>Women</u>	<u>% of Coverage</u> <u>of Women</u> <u>During Last</u> <u>(By History)</u>		
			<u>Card</u>	<u>TT1</u>	<u>TT2</u>
1985	All Malawi	626	41	51	30

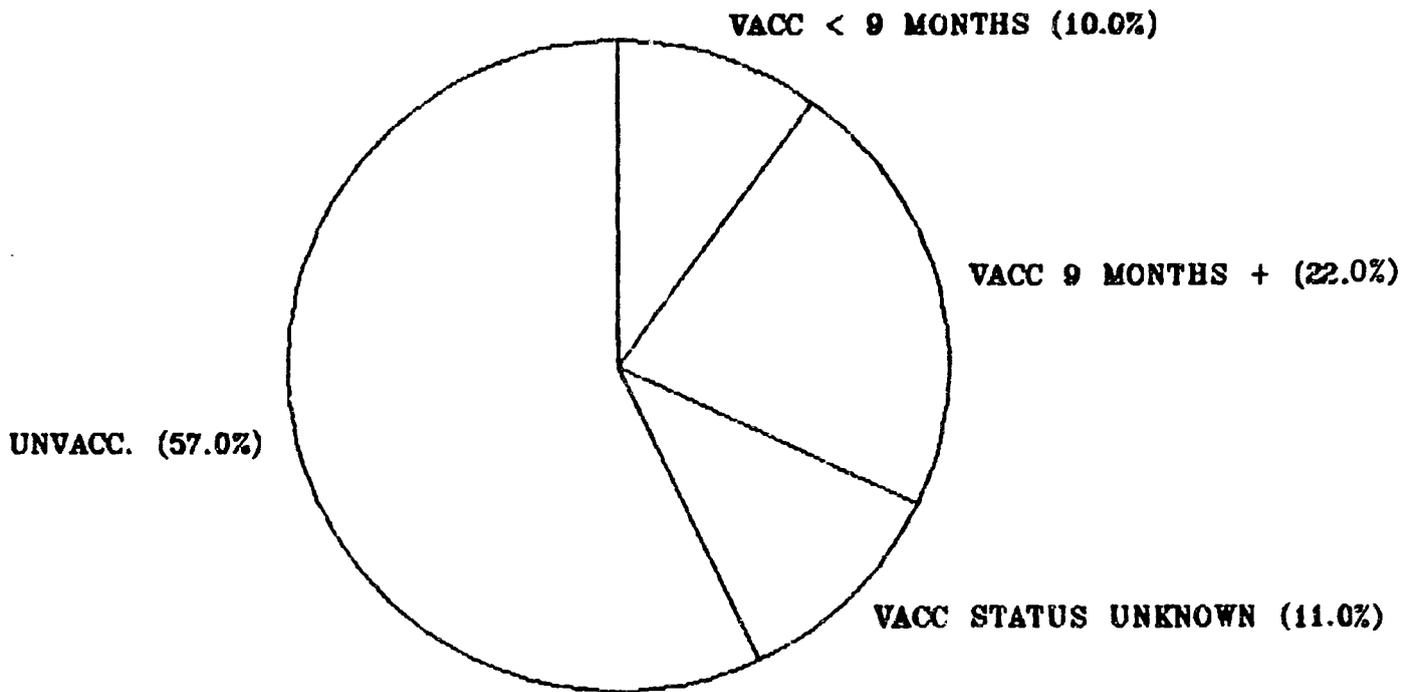
Notes:

- TT1: Percent vaccinated once.
- TT2: Percent vaccinated more than once.

Measles

A special five-month measles surveillance was conducted in 1984. All 24 districts participated in collecting age and immunization status data on nearly 5000 outpatient measles cases. Thirteen percent of the cases reported were under 6 months of age and 62% were under one year of age. Thirty-two percent of the cases were among vaccinees. (see Chart 6.1.)

FIGURE 6.1. Measles Vacc. Status, Malawi
Sentinel Survey, 4950 Cases, Jan-May 84



The evaluation team collected measles data on 152 hospitalized measles cases (1986) from the Queen Elizabeth Central Hospital in Blantyre, the largest urban area in Malawi (500,000 population). Six percent of the cases were under 6 months of age and 48% were under one year of age. Thirty-four percent of the cases were among vaccinees.

TABLE 6.2. Measles Cases by Age and Vaccination Status, Queen Elizabeth Hospital, Blantyre, Malawi, January-September 1986

<u>Age</u>	<u>Number of Children</u>	<u>Percent (%) of Children</u>	<u>Number of Children Vaccinated</u>	<u>Percent (%) of Children Vaccinated</u>
Under 6 mo.	6	(4%	0	0%
6-8 months	28	48%(18%	4	8%
9-11 months	39	(26%	8	16%
12-23 months	42	28%	14	27%
24 and above	37	24%	25	49%
TOTAL	152	100%	51	34%

Source: CCCD Evaluation Team analysis of hospital records, 1986.

Polio

A polio outbreak occurred last year in the Central Region of Malawi. Seventy-two cases were reported between May and December 1985. Only one child had a series of three polio vaccine doses (2 had 2 doses). Vaccinations to control the outbreak started in June. Over 18,000 children under six years of age received one dose vaccine while only 6,300 children received the third dose. Ages of polio cases were:

<u>Age</u>	<u>Cases</u>	<u>Percent</u>
1 Year	10	14
1-3 Years	41	57
4-5 Years	13	18
6 Years & Over	8	11
Total	72	100

EPI/Malawi had one of the best vaccination coverage rates in the early 1980's in all of Africa. In 1982, when mass campaigns were carried out, measles vaccination coverage was between 58 and 70% for the entire country. Since then, with the integration of EPI activities into the MCH/PHC system, measles coverage declined steadily until it reached 52% in 1985. Since 1986 is the Year of Vaccination and more emphasis is being placed on immunizations



in Malawi, there should be an increase in coverage as a result; especially with the new policy of clinics offering vaccinations every day. At the end of this year, however, results of this year's EPI activities need to be analyzed, and if the results show tremendous increase in vaccine wastage without a significant increase in vaccination coverage, EPI/Malawi needs to consider some modifications in strategy.

Modification does not mean radical change. Strengthening the health infrastructure by integrating vaccination services in fixed and outreach centers is good, and it is necessary, and it should not be changed. But, integration of services by definition does not necessarily mean providing a particular service every day; nor does it mean exclusion of other strategies. Providing services every day is ideal if the need exists, but making a service available daily when the need is not there causes undue burden on personnel. Using twenty-dose vials of DTP, 20-dose vials of BCG, and 20-dose vials of polio vaccine day after day in clinic after clinic for providing from one to six vaccinations per day (the case in many clinics) is a practice which a country can ill afford moneywise and manpower-wise. If there are no other options, and if the government's money cannot be spent in a better way, then it may be justifiable. Otherwise, clinics should work out their own vaccination schedules according to need. If fifty or more children present per week for vaccinations, daily vaccinations may be ideal. If ten children present per week, weekly vaccinations may be ideal. Other options may also be available.

One option, for example, which has been used in other countries with success, is the promotion of Accelerated Vaccination Day(s). This strategy employed in the U.S.A. contributed to the elimination of polio in the 1960's. Malawi, more than most other African countries, is best prepared to succeed with such a strategy. The fixed vaccination center infrastructure with outreach capability is already in place. A logistics system is operational and personnel are experienced in vaccination activities. ✓

In the Central Region, there are about 130,000 children under one of year of age, of which approximately 50% are vaccinated, leaving 65,000 susceptibles. If 80%, or 52,000, present for vaccination at 491 vaccination sites (fixed and outreach) there would be an average of 100 children presenting per vaccination site for DTP-polio vaccinations in one day. Another 100 children would present for measles vaccinations.

This is not a substitute for integrated clinics. It is an option for surpassing the excellent vaccination coverage of 1982; it is an opportunity to control, or perhaps even interrupt, transmission of measles; it is an opportunity to reduce significantly the number of measles cases in children under one year of age; it provides an opportunity for children to reach the age of vaccination before being exposed to measles; and most important of all it provides the opportunity to save lives as planned in the five-year plan.

One (1) Vaccination Sunday of the year (or any day of choice), preferably during the low point of measles transmission (September or October) would be needed to accomplish the above. Other needs would be 100,000 disposable

needles and syringes (\$12,000), at least 500 vaccinators, and 1500 other personnel, volunteers, or nursing school students.

Advantages of an acceleration vaccination day(s):

- o reduces deaths and suffering;
- o stops or slows down measles transmission so the under-9's can reach vaccination before being exposed (reduces % of cases in children under one year);
- o motivates government's personnel and the public;
- o makes awareness of communicable disease problem acute;
- o eases clinic loads (fewer cases);
- o eases vaccination clinic loads (fewer susceptibles);
- o makes vaccinations more efficient and convenient to the public;
- o makes conservation of cold chain monitoring easier;
- o eases sterilization problems;
- o boosts morale of personnel; and
- o conserves vaccine.

It is prudent not to include BCG vaccine in a vaccination day activity because of the complexity of the vaccination, the slowness of the procedure, and often unsuitable location for administration of the vaccine. It is not worth risking the success of the other antigens for the sake of including one more. (Epidemiologically, BCG should be given at birth at the maternity.) Success with the Vaccination Day will provide health staff more time to do BCG's in proper surroundings.

Recommendations

- 6.1. Adequate number of needles and syringes be provided to clinics to permit conducting vaccination sessions with sterile equipment.
- 6.2. A communication from MOH be circulated ASAP to all health facilities explaining and emphasizing the importance of using sterile injection equipment.
- 6.3. MOH in cooperation with WHO and/or CDC accelerate plans to study high rate of measles cases among children under 1 year of age (greater than 45%) and high rate of measles cases among vaccinees (greater than 30%).
- 6.4. MOH determine and implement a strategy to increase vaccination coverage, for example, by initiating accelerated vaccination day(s).
- 6.5. Polio vaccine be ordered under regular UNICEF ordering procedures.
- 6.6. Discontinue use of vaccination log books.

7. PROJECT INTERVENTION FOR ORAL REHYDRATION THERAPY

Background

The Control of Diarrheal Diseases (CDD) Program in Malawi was introduced in 1981 with the formation of a Diarrheal Disease Control Committee made up of members from the Ministry of Health and including representatives of both the curative and the preventive services. Also represented on the committees were members from the Ministry of Local Government, city councils, and the Private Hospitals Association of Malawi (PHAM). Recommendations of this committee were:

- o Formation of permanent Control of Diarrheal Diseases Committee for CDD direction;
- o Integration of diarrheal disease control activities within the primary health care system;
- o Implementation of diarrheal disease control activities through MCH clinics and primary health workers;
- o Provision of oral rehydration salts in packets to fixed health facilities, and education of the community to use ORT for treatment of children with diarrheal disease while at the same time encouraging feeding of the children during the diarrheal episodes.

The CDD program is managed through a Program Coordinator based at the Ministry of Health. The Coordinator functions under the direction of the National CDD Committee. CDD teams have been set up to promote CDD activities in the three regions.

Current Policy

Malawi has adopted all four (4) strategies for CDD as recommended by WHO, which are as follows:

- o Case management
- o Environmental sanitation
- o Strengthening maternal and child health services, and personal hygiene; and
- o Epidemic control (data collection for action).

Presently, all diarrheal disease control activities are integrated within the MCH/PHC system and are largely funded through the national budget. However, since the introduction of the Combatting Childhood Communicable Diseases Project (CCCD), increased funding has been made available.

Objectives of CDD in Malawi

The immediate objective is to reduce childhood mortality. The long-term objective is to reduce morbidity. To this end, the case management strategy has been adopted as the major component of CDD while encouraging the other strategies to continue. Case management includes prevention of dehydration at health centers and at home by continuing feeding, including breast feeding, and encouraging fluid intake.

Although case management has been chosen in order to achieve the immediate objective, the need to improve the environment as part of the long-term objective is not ignored. A Health Education and Sanitation Promotion (HESP) campaign is being conducted along with rural water projects which cover well over one-third of the country. Education of mothers in certain regions of the country promotes treatment of diarrheal diseases using homemade sugar and salt and other home solutions.

CDD Practices

A national five-year CDD plan has been printed and circulated for 1985-1989. Several MCH and other workshops have been held in which CDD training was included. Personnel from district hospitals attended the International CCCD Mid-Level Management Course in Malawi in November 1984.

ORT units have been established in all health facilities throughout the country (see Annex D). Some units are in name only but many provide a real service. Kamuzu Central Hospital's outpatient ORT unit in Lilongwe, established July 1984, treated 1,711 children during its first year of ORT services. Only 35 children (2%) were hospitalized after treatment was started. As a result, 40% fewer diarrhea cases were admitted to the pediatric ward. During the first five months of this year, the ORT unit at the Queen Elizabeth Hospital in Blantyre treated approximately 1,500 children with diarrhea; 45% with some degree of dehydration and 4% with severe dehydration. Only 3% were subsequently admitted to the hospital. ✓

At nearly all ORT units, personnel prepare large batches (5-20 liters) of ORT solution with the corresponding amount of ORS packets at the beginning of the clinic. Few mothers witness this operation. The large ORS container usually is covered but rarely has a spigot. The solution must be dipped from the container. Mothers are given small containers (20-50 ml.) of ORS and told what, why, and the how of it. The evaluation team did not observe any training of other health personnel in any of the ORT units. The ORT unit at the Q.E. Hospital in Blantyre sees several cases of dehydration per day and would be an excellent training and demonstration unit.

During clinic sessions, mothers are taught to make SSS (sugar salt solution) for use at home. They are shown how to mix 10 level bottle caps of sugar, one level bottle cap of salt, and 3 Fanta bottles full of water into a container large enough to hold at least the equivalent of one liter. Besides being more complicated than mixing one packet of ORS in one liter of water,

studies have shown that in most areas most families do not have either sugar, salt, bottle cap, Fanta bottle, or a proper container. Studies have also shown that over 60% of mothers do not prepare SSS properly even when given all the necessary tools and ingredients.

ORS packets were first introduced in Malawi over four years ago, yet mothers have not yet been taught to use them. Since ORS is by far the best tool available for treating virtually all cases of dehydration and should be used as liberally, even more liberally, than is chloroquine in the treatment of malaria. ORS is less potentially dangerous than chloroquine, and there is no need for fear of resistance. An estimated half million children suffering from diarrhea this year will contribute to the chronic overcrowding of health facilities; and even more alarming--thousands of those children will die from dehydration.

The solution--(not a pun):

- o teach mothers the importance of giving fluids in general to prevent dehydration;
- o teach mothers how to prepare and use ORS, rather than SSS, in the clinics (teach by hands-on experience);
- o make liter containers available in the clinics so that mothers can prepare ORS themselves;
- o make liter containers available in shops;
- o teach TBA's and other village health personnel the importance of giving fluids to prevent dehydration and how to prepare ORS to treat dehydration;
- o make ORS packets available to trained village health workers; and
- o make ORS packets available in all shops.

UNICEF is prepared to supply the quantity of ORS packets necessary to meet the demand (5 million packets per year when total access and utilization is achieved) and to fund the purchase of liter containers needed for clinic use. The local plastic factory should be encouraged to produce well-designed liter containers for distribution to all shops. Sterling Products or other commercial firm should be encouraged to distribute ORS packets for sale in all shops. This should dispel the frequently-mentioned fear of running out of supplies after the demand has been created. Mothers had not been given ORS packets in the past because it was felt that they did not know how to prepare them, and there were incidents of incorrect utilization. Mothers should be taught how to prepare and use ORS packets correctly. Occasionally, abuses in the use of packets can be expected, but in spite of the occasional abuse thousands of lives will be saved. This is primary health care.

UNICEF is the sole supplier of ORS packets for Malawi. Table 7.1 shows

the number of ORS packets supplied in Malawi over the past three years.

Use of Intravenous Fluids decreased annually at Kamuzu Central Hospital from 686 liters in 1983 to 83 liters in 1986.

The MOH statistics Unit has recently computerized the tracking of:

Inpatient Diarrheal Disease Cases
Inpatient Diarrheal Disease Deaths
Outpatient Diarrheal Disease Cases
Sentinel reporting (12 sites) of home treatment practices
Sentinel reporting of feeding practice (breast feeding)
Sentinel reporting by age, less than 1 year and 1-4 years
Sentinel reporting by degree of dehydration

Recommendations

- 7.1. Supply liter containers to all ORT units and teach mothers to prepare ORS packets (hands-on training) instead of SSS.
- 7.2. Train village health workers to prepare ORS and provide them with liter containers and ORS packets.
- 7.3. Make ORS packets and liter containers available to communities through private shops.

TABLE 7.1. ORS Packets Supplied by UNICEF, Malawi, 1984-1986

Year:	1984	1985	1986
No. ORS Packets:	235,750	610,000	1,500,000

TABLE 7.2. Amount of Intravenous Fluids Used for Children with Diarrheal Disease, Kamuzu Central Hospital Pediatric Ward, Lilongwe, July 1982-July 1986

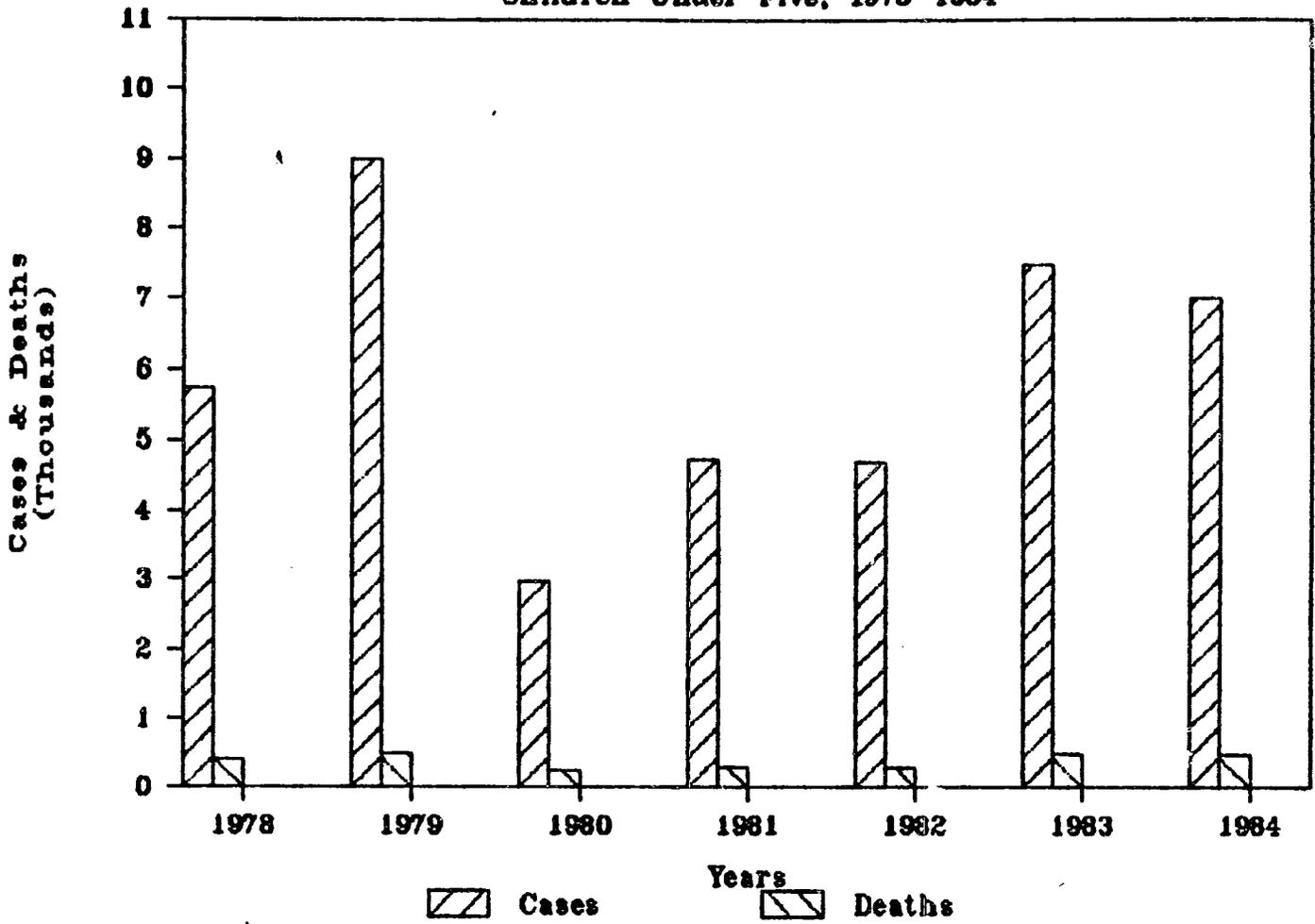
<u>Year</u>	<u>Cases</u>	<u>IV Fluid (Liters)</u>	<u>Liters Used Per Child</u>
1982-1983	381	686.2	1.51
1983-1984	235	237.9	1.01
1984-1985	169	119.9	0.70
1985-1986	203	83.0	0.41

TABLE 7.3. Sentinel Surveillance Diarrheal Diseases, Malawi, 1986

<u>Month</u>	<u>% Center Reporting</u>	<u>Under 1-Year</u>	<u>Cases 1-4 Years</u>	<u>Total Under 5 Years</u>	<u>Degree of Dehydration</u>		
					<u>None</u>	<u>Moderate</u>	<u>Severe</u>
Feb	9/12 (75%)	1145 (52%)	1078(48%)	2223	1687(76%)	473(21%)	63(3%)
Mar	10/12(83%)	859 (50%)	848(50%)	1707	1130(66%)	537(32%)	40(2%)

<u>Month</u>	<u>Home Treatment</u>			<u>Breast feeding</u>		<u>Referred/ Admitted</u>
	<u>SSS</u>	<u>Other Fluid</u>	<u>None</u>	<u>Total</u>	<u>Stopped</u>	
Feb	759 (34%)	353 (16%)	1117 (50%)	1547	173 (11%)	78 (4%)
Mar	586 (34%)	277 (16%)	854 (50%)	1275	108 (9%)	98 (6%)

FIG.7.1 Diarrhea Cases & Deaths, Malawi
Children Under Five, 1978-1984



8. PROJECT INTERVENTION FOR MALARIA TREATMENT

Background

Malaria deaths in children under five years of age more than doubled from 287 deaths reported by hospitals in 1980 to 741 in 1983. It was then that Plasmodium falciparum was recognized to be chloroquine resistant. At the same time, the incidence of cerebral malaria, and abortions associated with malaria, were noted to have increased. As a result, in 1984, the MOH reactivated the National Malaria Control Committee, which provides direction for malaria control activities in Malawi. The Committee is comprised of a medical specialist and representatives from various sections of the Ministry of Health. One person is responsible for the Malaria Program at the central level. The functions of the Committee are to assure:

- o Standardization of drug usage nationwide;
- o Distribution of drugs down to the communities;
- o Community participation in malaria control activities within the primary health care framework;
- o Availability of antimalarial prophylaxis to select groups;
- o Regular monitoring and evaluation of malaria control activities, including drug efficacy.

Under Committee guidance, malaria treatment, prophylaxis, and community vector control activities are integrated and managed within the primary health care system.

Current Policies

Objectives. A five-year Malaria Plan for 1986-1989 has been published and an annual work plan for 1986 was included in the CCCD workplan. Three specific, measurable objectives of the National Malaria Five-Year Control Program to be accomplished before 1989 are:

1. Reduce hospital admissions due to malaria by 15%
2. Reduce hospital mortality due to malaria by 30%
3. Reduce malaria case fatality rate in hospitals by 25%

Strategies. Five basic strategies of malaria control in Malawi to reach morbidity and mortality reduction, access, utilization, training, and health education targets are:

- A. Presumptive treatment of fevers;
- B. Continuous monitoring of antimalarial efficacy;
- C. Selective antimalarial chemoprophylaxis;

- D. Vector control through community participation; and
- E. Health education.

Malaria treatment posters (tear-outs) were included in the 1986 Malawi Guide for Management of Malaria which are being distributed to all health facilities.

Current malarial control policy in Malawi follows WHO recommendations for malaria control in areas of proven chloroquine resistance in Africa (1983). All malaria control activities are completely integrated within primary health care services. During the five years, 1985-1989:

- o Chloroquine and/or alternative antimalarials will be made widely available so that all individuals with fever and/or other signs and symptoms recognized as malaria are treated as close as possible to their homes;
- o Chloroquine chemoprophylaxis will be given only to special groups of individuals, such as those who have compromised immunity, sickle-cell disease, or those who have a past history of recurring cerebral convulsions. These special groups include:
 - o pregnant women;
 - o patients who are on immunosuppressive drugs or for some other reason immunosuppressed; and
 - o children with recurring febrile convulsions.

No other chemoprophylaxis programs, including those of healthy children under five, will be conducted so that chloroquine pressure on P. falciparum will be kept to a minimum;

- o Continuous monitoring of in-vivo antimalarial efficacy will be conducted in order to determine best current medication/dosage schedules; such schedules will be published and distributed to medical practitioners as required to assure most effective treatment;
- o Major vector-control efforts requiring substantial financial inputs will be initiated only after careful consideration; for the immediate future only local urban government vector-control programs by residual spraying and larvicide will be continued in certain regions such as Lilongwe and Blantyre.
- o Communities will be expected to play an increasing role in malaria control through such activities as:
 - o selecting community volunteers to distribute antimalarials and supervise local vector-control activities such as elimination of breeding sites, encouraging use of mosquito nets, repellents and screens;

- o reporting to local health authorities cases of malaria not responsive to routine treatment.

Current Practices

Investigations have shown that chloroquine successfully treats (clinically) over 90% of children with malaria, even though resistant parasites are not completely eliminated. Therefore, chloroquine remains the drug of choice. The chloroquine dosage is 25 mg./kg in health facilities where children can be weighed. Where babies cannot be weighed, dosages have been simplified on a chart showing amount of tablet(s) to be given by age and/or size of child.

Junior aspirin is no longer recommended as an antipyretic due to its association with Reye's Syndrome; and amodiaquine has been discontinued as a malaria prophylaxis drug. Amodiaquine remains, though, an important second line drug for short course treatment of chloroquine resistant malaria. Paracetamol is recommended as an antipyretic for children under-five. Chemoprophylaxis for malaria is recommended only for pregnant women plus expatriates and special high risk groups, and studies are currently being conducted to determine its effectiveness. M

Chloroquine resistance studies were done in 1984 and routine surveillance was started. In 1985, new malaria policies and strategies were completed, disseminated and, later on, malaria treatment seminars were held for over 2000 health personnel. Seven operational research studies were done. Results of these studies will help adjust malaria policies as needed.

A two-year study on the efficacy of malaria chemoprophylaxis in pregnant women will begin in January 1987 in Magochi. Children born to mothers taking chloroquine will be followed for six months to observe susceptibility to malaria, growth, etc. Preliminary studies have shown that 25% of women taking regular prophylaxis have parasite breakthrough in peripheral blood and that over 50% have incidence of placental infection at time of delivery. Other laboratory confirmed results revealed that only 29% of the women who said they were taking 300 mg. of chloroquine per week had blood levels consistent with actually having taken it. ✓

As a result of the new malaria policies, injectable antimalarial drugs are presently available only in hospitals. When parenteral administration of antimalarials is necessary, the drugs are given intravenously. The supply of vials of injectable antimalarials decreased 75% from 99,200 in 1985/86 to 25,480 in 1986/87. Injectable chloroquine will be discontinued altogether after 1986/87.

TABLE 8.1. Malaria Among Children Under Five, Hospital Reporting, National Health Information System, Malawi, 1978-1983

<u>Year</u>	<u>Cases Admitted (Cerebral and Non-Cerebral)</u>	<u>Deaths</u>	<u>Case Fatality</u>	<u>Incidence 100,000 Children Under Five</u>
1978	6,094	363	6%	533
1979	--	--	--	--
1980	5,899	287	5%	485
1981	10,524	632	6%	841
1982	10,240	427	4%	795
1983	16,579	741	4%	1,246

TABLE 8.2. Cerebral Malaria Among Children Under Five, Hospital Reporting, National Health Information System, Malawi, 1978-1983

<u>Year</u>	<u>Cases Admitted</u>	<u>Deaths</u>	<u>Case Fatality</u>	<u>% of Total Malaria Cases</u>	<u>Incidence per 100,000 Children Under Five</u>
1978	1,044	168	16%	17%	91
1979	--	--	--	--	--
1980	815	124	15%	14%	67
1981	1,601	435	27%	15%	128
1982	1,814	234	13%	18%	141
1983	2,487	334	13%	15%	187

TABLE 8.3. Malaria Among Children Under Five Outpatient Reporting, National Health Information System, Malawi, 1978-1983

<u>Year</u>	<u>Cases</u>	<u>Incidence per 100,000 Children Under Five</u>
1978	--	--
1979	--	--
1980	--	--
1981	--	--
1982	1,613,916	125,303
1983	1,790,385	134,585

During the past three fiscal years, Central Medical Supply distributed following amounts of antimalarial drugs through its distribution network:

<u>Antimalarial Drug</u>	<u>1984/85</u>	<u>1985/86</u>	<u>1986/87</u>	<u>Unit</u>
Chloroquine Syrup	7,900	10,500	9,000	Liters
Chloroquine Tabs	34,140	60,500	34,000	Tins
Chloroquine Injec. (discontinued)	25,300	56,000	280	5 ml Amps
Chloroquine Injec. (discontinued)	33,400	25,600	23,000	50 ml Amps
Quinine Tablets	900	3,300	1,500	Tins of 100
Quinine Injec.	10,160	17,600	2,200	Ampules
Camoquine			3,500	Tins of 100
Palludrine 100 mg	400	130	63	Tins of 1000
Daraprim	690	600	180	Tins of 1000
Fansidar				(Exact quantity of use not available)

Besides the above amount of chloroquine, the MCH program also received the following amounts from UNICEF for antenatal clinics:

	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Unit</u>
Chloroquine	4,551	5,228	15,000	Tins of 1000

Oral antimalaria drugs, when available, are prescribed in all treatment facilities throughout the country. With the exception of the present rupture in stock which is supplied by UNICEF for MCH centers, the team found chloroquine available in all treatment centers. Second line drugs, however, were not always sufficiently available in hospitals.

Chloroquine tablets (150 mg.) are produced by a private firm in Blantyre called Sterling Products. The MOH Medical Stores purchases chloroquine from private firms to supply hospitals and health centers. Sterling sells chloroquine to private outlets which make chloroquine available throughout the country. On several visits to small shops, the team found Norolon (chloroquine) always available at 0.085 to 0.095 Kwacha, or approximately US\$0.05 per tablet. None of the shopkeepers knew the recommended (MOH) treatment schedule, nor is there sufficient public awareness of proper antimalaria treatment schedules. Sterling Products has printed large malaria prescription posters identical in content to the smaller size MOH posters for distribution to all shops where chloroquine is sold. No second line antimalarials were found in the shops.

MOH drug supply and distribution, including antimalarial drugs, have been consistently problematic. Stock depletion at the central level and irregular deliveries to regional and district levels result in frequent and prolonged ruptures in stock down to the peripheral level. With central supplies being moved from Blantyre to Lilongwe perhaps some of the logistics problems will be solved.

TABLE 8.4. CCCD Project Regional Funding of Operations Research for Malaria in Malawi

<u>Protocol</u>	<u>Completion Date</u>	<u>Level of Funding</u>
1. Assessment of Chloroquine Resistant <u>Plasmodium Falciparum</u> Malaria in Malawi Investigator: Khoromana	August 1985	8,502
2. Antimalarial Drugs Evaluation for <u>P. Falciparum</u> Infection Investigator: Wirima	February 1985	9,500
3. Fansidar Efficacy Study Investigator: Khoromana	February 1986	9,016
4. Efficacy of Quinine in the Treatment of Children Hospitalized with Malaria Investigator: Wirima	February 1986	7,758
5. Effectiveness of Chloroquine/Amodiaquine Prophylaxis in Maintaining Peripheral Blood/Placenta Parasite Free Investigator: Wirima	Pending	4,000
6. Testing the National Malaria Control Policy Investigator: Macheso	Pending	500
7. Reviewing the Relationship between Malaria and Iron Deficiency Anemia in Malawi Investigator: Mbvundula	Pending	4,000

all made \$10,000

P. i. Mbvundula

TABLE 8.5. Sentinel Surveillance of Malaria, Malawi, 1986

	<u>February, 1986</u>		<u>March, 1986</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Percent of Centers Reporting	9/12	75%	10/12	83%
Under 1 Year	3293	42%	3393	44%
Cases 1-4 Years	4565	58%	4273	56%
Total Under 5 Years	7858		7666	
Norolon	899	11%	1356	18%
Home Treatment				
Aspirin, Cafenol, Panadol	1607	20%	1620	21%
Other	310	4%	257	3%
None	5111	65%	4509	59%
Referred/Admitted	189	2%	250	3%

Source: Sentinel Surveillance System, Malawi, 1986.

Recommendations

8.1. Technical assistance be sought through CCCD, UNICEF, or other donor agency for a sufficient period of time (equivalent to 6 to 12 months, uninterrupted or periodic) to improve ordering, stocking, and distribution of supplies at all levels of the health structure.

8.2. In addition to distributing as soon as possible to all health facilities the malaria treatment schedule tear-out found in the Malaria Treatment Guide, the Sterling posters should be supplied as soon as possible to all sites where malaria drugs are sold. Frequent radio announcements describing malaria treatment schedules should be continued and efforts to teach correct treatment schedules to shop owners should be accelerated.

8.3. Second line antimalarial drugs of choice should be made available to all hospitals through the Central Medical Stores and through CCCD, UNICEF, and/or other donor agencies who can assist in purchasing second line drugs.

9. TRAINING STRATEGY

Background

Training of Ministry of Health personnel is conducted through preservice education, inservice training and workshops, clinical observations, and short-term and long-term training outside the country. There is no one section that oversees all training of personnel in the MOH, but rather numerous offices and specialities arrangement for training of personnel as need or as resources become available. There is no integrated training plan for the MOH to organize and guide the numerous types of training, donor funding agencies, and locations where training is performed.

Numerous primary health care training activities are scheduled each year, funded by UNICEF, WHO, or from internal funds of the MOH. The primary health care training activities of the MOH include attention to many of the service concerns of the CCCD project.

Much of the preservice and inservice training in the past was organized as classroom instruction with little time devoted to opportunities to learn hands-on, how to do clinical procedures or use concepts of community health. Over the past few years, the planners of MOH training have recognized the need for expanded hands-on training situations and the approach is slowly being changed. The use of experiential learning (combining: experience, reflection, generalization, and application) is being considered for use in future MOH training activities.

The shortage of personnel at all levels in the MOH has placed additional burden on many types of health professionals to combine supervision with training activities. MOH Coordinators and other supervisory personnel are expected to conduct training of MOH staff members in the areas of primary health care and maternal and child health. In some cases, the talents of such supervisor-trainers are not sufficient to permit them to do a good job at both aspects of their assignment. Some of these people are skilled supervisors without having a capability for designing, arranging, and conducting organized training sessions for their staff members.

Facilities for primary health care inservice training are scarce and poorly located to encourage large scale participation by MOH personnel. This problem is being solved with the expected completion in the near future of primary health care preservice and inservice training facilities in each region of the country under World Bank funding. Additional training facilities are operated by the MOH for training of nurses, clinical officers, health inspectors, paramedical personnel, and related health workers.

CCCD Training Activities

Training is one of the four main strategies employed in the Malawi CCCD Project for the development of disease control services. (The other three are: disease surveillance and health information systems, health education, and operations research). Although CCCD Project is not engaged in any long-term training, the training activities are to be provided at all levels in the service delivery system and are to include training for both clinical and managerial aspects of the program. A great deal has already been accomplished in the training strategy of the Malawi CCCD Project as given in Table 9.1. These activities focused on numerous immediate needs for training material development and initial training of many primary health care workers. The evaluation team was unable to find a CCCD life-of-project training plan, which would set priorities and define a comprehensive training perspective, as recommended during the 1985 CCCD project review.

TABLE 9.1. Summary of CCCD Training Activities, Malawi, to September 1986

<u>Date</u>	<u>Training Activity</u>
December 1984	Mid-level Managers Course
March 1985	Adaptation of materials for training modules: treatment of diarrhea, malaria, epidemiologic surveillance. Development of nutrition and growth monitoring module.
September 1985	Peace Corps Volunteers trained in ORT (9).
May-December 1985	UNICEF funded CCCD training of over 2,000 health workers (peripheral level training in 3-day sessions)
December 1985	Malaria module translated into Chichewa.
January 1986	Plans made for integrating CCCD topics into the country's training institutions. Training for individuals responsible for establishing and maintaining the 12 sentinel sites. Development of Job Aids Development of evaluation tool for training. Discussed possibility of holding training of trainers course in Malawi because participants had not been able to attend the Lesotho Training of Trainers course as planned.
February 1986	Peace Corps Volunteers volunteers counterpart training
May 1986	Mid-level managers course for district ORT and EPI coordinators
Aug/Sept 1986	Evaluation of UNICEF training.

Production of Training Courses. A combination of centralized and local training has been used thus far in the Malawi CCCD Project. With UNICEF, WHO, A.I.D., and CCCD funding, well over 2000 health workers were trained in

management, primary health care fundamentals, related to CDD, malaria, and nutrition during the years 1985-1986. The numbers of trainees through the end of 1985 are given in Table 9.2.

TABLE 9.2. Categories of Health Personnel and Others Trained in Management and Treatment of Priority Diseases, Malawi, 1984-1985

<u>Category</u>	<u>Number</u>
Medical Officer	9
Clinical Officers (All Grades)	78
Health Inspectors (All Grades)	69
Registered Nurses (All Grades)	236
Medical Assistants (All Grades)	372
EN/Nurse Midwives (All Grades)	849
Health Assistants (All Grades)	141
Health Surveillance (All Grades)	118
Homecraft Workers, etc.	33
Hospital Servants, etc.	40
Laboratory Assistants	9
Pharmacy Assistants	2
Others	87
TOTAL	2,043

Issues Concerning Training

Training materials development. Several types of training materials and documents are needed to achieve a high level of effectiveness in the training activities of CCCD:

1. Guides to instruction for instructors and trainees.
2. Audio, visual, and poster material to illuminate and expand on the instructor's presentation or demonstration
3. Short job aids for use with single, or several simple, procedures after training on-the-job.
4. Long reference material giving theory and practice descriptions for techniques required in rendering services, for use by supervisors or clinicians having complex duties
5. Evaluation materials to determine progress of trainees and for use as supervisory tools, if possible.

The Malawi project prepared reference materials and job aids during the past year which have served as a model for CCCD projects in other African countries and is continuing to develop additional materials. Some of the material produced by the Malawi project thus far is an attempt to combine several of the above types of training materials into one document. There is some difficulty in trying to achieve several purposes inside the same training

document. Careful study should be made of the costs and benefits derived from developing such materials. Consideration should be given to developing, separately, both instructional guides and reference materials.

Training approach. The evaluation team held numerous discussions with MOH participants in the training and the organizers of the training. In addition, the evaluation team observed the work practices of those delivering EPI, CDD, and malaria treatment services in health facilities. These discussions and observations led the team to the conclusion that much greater emphasis will be needed in the future on hands-on, experiential learning in order to achieve desired improved performance in the CCCD services.

Evaluation of performance. An extensive evaluation of training is being conducted during October and November 1986. The results of the evaluation process were not available to the evaluation team. The evaluation team encourages the organizers of future training sessions also to incorporate a practice-oriented evaluation in the plans for training developed under the CCCD project.

Training sites and instructors. The combination training sites used for training in CCCD to date often caused people to travel from throughout the country for courses. Many of the main courses were hotel-based training in major towns of Malawi. The instructors for these courses included senior officials and experts from around the country. Many of the later courses were held in district sites, some using a combination of instructors from regional locations.

The planned training arrangement for the next year apparently will include the use of supervisors or coordinators in primary health care who previously were given special courses in training of trainers. These people are expected to arrange training of additional workers in their districts, near to the worksite. In principle, this arrangement will get a great deal of training done with reasonable investments in arrangements and instructors' time. Certainly, the use of training sites close to the homes and work places of the health workers is a worthwhile arrangement. In practice, the evaluation team is concerned that some of the people who will be assigned these training duties, although perhaps well trained, will be poorly suited by their interests, personalities, or other duties to perform well in such an extensive training arrangement. A selection process to identify people suited to be trainers is preferable to the use of people selected as trainers primarily because they are otherwise engaged in supervisory activities.

Topics and specialities. The emphasis in the training thus far has been on the topics and specialities required for immediate action within selected parts of the CCCD activity. Emphasis was given, for example, to the CDD and malaria elements of the project in training, but little training activity under CCCD thus far has given attention to the EPI elements. Also, the training of mid-level managers has given attention, rightfully, to the needs for supervision in the field. An often-neglected, higher level of management training is needed also in such techniques as planning and operation of logistical operations, inventory management, budget planning, and related

topics which are of importance in the duties of people between senior managers and mid-level managers.

Recommendations

9.1. The development of a CCCD training plan, including provision for systematic assessment of trainees' performance, scheduling of courses and sites, arrangements for development of training materials, and related requirements is urgently needed to guide the project inputs and to coordinate the many donors involved in the process.

9.2. Active investigation is needed of the best approaches to installing experiential learning in the MOH training programs, beginning with CCCD training activities. The results of the October 1985 training performance evaluation can be used for guidance as to the nature of problems to be solved in developing further training activities.

9.3. Emphasis in the training programs of CCCD must remain relevant to the immediate and longer-term needs of the service delivery system, but special consideration is needed to expanding the instruction in EPI techniques, including sterilization procedures, cold chain management, and related topics; also, the high level management tools needed to manage the CCCD services should be offered in training, either in-country or through the special CCCD Training Fund at the WHO Regional Office in Brazzaville.

10. DISEASE SURVEILLANCE AND HEALTH INFORMATION SYSTEM STRATEGY

The MOH Statistical Unit, reinforced by CCCD and CHSU, is responsible for Malawi's health information system. The system was evaluated and revised in 1980 by a WHO consultant. Two evaluations were done in 1984 by consultants from Management Sciences for Health (MSH) in Boston, and one in 1984-1985 by CCCD. Past evaluations found that for years inpatient and outpatient facilities have been faithfully sending their monthly morbidity and mortality reports to the Statistical Unit. Though not always accurate, complete, or timely, reports were received from the twenty-four (24) districts over 80% of the time. Due to a lot of information and very little staff, the Statistical Unit consistently took two years to analyze and publish the data. (The 1984 statistical report is to be available in November 1986.) The unit is in dire need of a chief statistician.

In order to monitor and evaluate CCCD and primary health care activities in a more timely and accurate fashion, CCCD recently purchased 5 computers and the British Volunteer Services (VSO) made available a computer programmer-trainer to assist with the computerization and training of the Statistical Unit.

In establishing health indicators, age-specific morbidity and mortality baseline information was taken from a National Family Formation Survey. Baseline data were also established on polio lameness and neonatal tetanus surveys done by EPI in the early 1980s. Slightly over sixteen cases of polio (16.4) per 10,000 children under five years of age and 12 cases of neonatal tetanus per 1000 live births were recorded at that time. Both surveys reflected rates much higher than did the routine monthly reporting system which was estimated to be reporting only 2 to 18 percent of the cases. Results of a 1985 CCCD Knowledge-Attitudes-Practices (KAP) survey were rejected because of inconsistencies in questions due to inadequate supervision of survey teams. Additional information relating to utilization of health services and supply systems is being obtained through an interim sentinel surveillance system and a standardized integrated and computerized supervisory checklist. The checklist is being used by regional level supervisors when visiting health facilities in their jurisdiction.

A special sentinel surveillance system was established in all districts (24) during the first five months of 1984 to collect information on age and vaccination status of diagnosed measles cases from 60 hospitals and outpatient clinics. Of the 4,950 cases, an alarming 3069, or 62%, were under one year of age (16% under 6 months) and 32% of cases were among vaccinees.

Twelve health facilities are now participating in an interim sentinel

surveillance system throughout Malawi. They were chosen because of previous reliability of reporting, and population, and geographic representation. Monthly reporting from these sites helps monitor trends in age, vaccination status, home treatment practices before arrival at the health center, and treatment practices at the center. The reports are computerized and analyzed upon receipt and a quarterly feedback report distributed. Visits by the evaluation team revealed that the sentinel sites have actually received feedback information from the Statistical Unit and that two sites, due to heavy workloads, have not been recording information since July 1986. (One of the sites with eight professional staff serves a catchment area of 120,000 people with up to 1,500 patients per day.) In addition to modifying the sentinel surveillance system to correct inadequacies identified during Year One of the data collection, the Statistical Unit plans to finalize the supervisors checklist after field trials in order to evaluate the quality of services at health facilities, such as:

- o sterilization practices
- o cold chain monitoring
- o vaccine administration
- o vaccine transport
- o malaria treatment and education
- o oral rehydration therapy and education

Though health facilities are remarkably reliable for submitting reports, the team observed that the facilities rarely analyze their own data. Though manpower again is a constraint, it is just as important to analyze data locally as it is to forward monthly reports. The Statistical Unit also plans to continue the modification and simplification of data collection forms and to continue to do KAP surveys, including recognition and treatment of childhood diarrhea, and malaria.

The HSU has been receiving routine EPI management information (dose of vaccine by age) regularly since 1980 from over 94% of health facilities offering EPI services. Before computerization of HSU, the information was not exploited, analyzed, and made available in time to be used as a management tool. Now, with the computerization of this data and by comparing the number of vaccines administered by age and by district with the targeted age population, vaccine coverage can be determined probably as accurately, plus more often, and much more rapidly (within three months after receipt of routine data) than by the 30 cluster survey technique. Table 10.1 compares results of reported vaccination coverage with vaccination survey coverage for 1982, 1984, and 1985. Annual surveys no longer appear to be necessary to monitor vaccination coverage. Periodic coverage surveys (every two years or as indicated) can be used to serve as a control for the computerized management system. The manpower, money, and motion used for annual coverage surveys could be best used to reinforce and improve services in overcrowded health clinics.

TABLE 10.1. Comparison of Reported Coverage Results with Survey Coverage Results for Immunizations, Malawi, 1980 to 1985

<u>Antigen</u>	<u>1980</u>	<u>1981</u>	<u>1982</u> <u>Survey</u>	<u>1982</u>	<u>1983</u>	<u>1984</u> <u>Survey</u>	<u>1984</u>	<u>1985</u> <u>Survey</u>	<u>1985</u>
BCG	94	78	87	91	95	72	75	74	87
DPT1	95	97	88	86	89	84	77	83	81
DPT2	70	77	82	71	78	78	68	74	69
DPT3	37	46	69	50	63	66	54	58	53
Polio1	58	84	91	66	86	82	78	84	73
Polio2	38	69	80	51	77	76	68	71	61
Polio3	18	41	72	36	58	68	54	56	46
Measles	36	*48	70	58	58	64	50	52	49
Fully Immunized:			55			55		35	

***NOTE:** Excluding measles vaccinations less than 9 months 38.6%

Source: Malawi Ministry of Health, 1986.

Other data which has been computerized by the HSU are:

- o Case rates of the 10 top causes of outpatient attendance
- o Percent of outpatient reports received by month
- o Number of children receiving malaria drugs and oral rehydration salts
- o Monthly number of outpatients by disease, age, and district
- o Outpatient first-visits as % of population, by less than 5 years of age and age 5-years and over.

Recommendations

10.1. Inpatient information on measles and pertussis cases and deaths be collected by age, date of vaccination (when applicable), and date of onset of disease from (at least) the Central Hospitals in the Central and Southern Regions and a hospital of choice in the Northern Region. (Since diagnosis of hospitalized measles cases is more reliable, age distribution is expected to be more accurate; cases among vaccinees more accurate; determination of vaccine efficacy more accurate; and "vaccine failures" occurring during incubation period would be known.)

10.2. Routine vaccination coverage surveys be conducted, at most, every two years. (Surveys should be conducted on a need-to-know basis only.)

10.3. Classification of neonatal tetanus be included in the disease reporting system when revision of reporting form is made.

10.4. A polio lameness survey be repeated in 1987 to help measure impact of vaccination program (first lameness survey done in 1979).

10.5. Employ a chief statistician in the Ministry of Health Statistics Unit as soon as possible, and maintain sufficient staff to take advantage of the five new computers.



11. HEALTH EDUCATION STRATEGY

Background

The CCCD/Malawi assessment and the CCCD Project Agreement both are quite general in their specifications of health education activities needed. The basis for the team's evaluation of the health education component was developed, as a consequence of this lack of specificity in the planning documents, from a combination of sources. The basic scope of the CCCD Health Education activities in Africa was given in the CCCD Project Paper of AID/Washington.

As stated in the CCCD Project Paper the support strategy of health education, to aid in the overall Project objective of morbidity and mortality reduction, is divided into two parts: Program support and operational research. The Project Paper provides the following description of the possible scope of these services:

- o Program Support. This is largely directed at the development of methodologies and materials that motivate full utilization of available CCCD services. An important aspect of this 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
 - working through community organizations such as local councils, health committees, etc.

- o Operations Research. Activities in this component include:
 - development and testing of methods to promote community involvement in and support for CCCD services.
 - identifying factors contributing to the acceptance or rejection of CCCD supported interventions.
 - Development and testing of methods to increase utilization of CCCD services, including studies of measures to identify and where possible remove barriers to utilization of services.

As the CCCD Project developed in Malawi, the MOH Health Education Unit and the technical assistance of the AID/Washington HealthCom Project are the main resources involved in health education activities.

Health education and promotion activities are regularly conducted by the Health Education Unit at the Ministry of Health, including the following: production of 4 weekly radio programs; development and distribution of posters and pamphlets; publication of Moyo magazine (a bi-monthly magazine about health in Malawi); and a Family Health Newsletter--these are distributed free to health workers. The mobile cinema section uses borrowed films from the British Council and the American Cultural Center, turning off the sound track during showings when the health officer in charges makes a running commentary in Chichewa, the national language along with English. The health education band composes music and songs with health messages and performs around the country. The MOH also collaborates with other ministries, for example, agriculture and community services, and with donor agencies to develop and disseminate health messages using radio and print media.

Most health education and promotion is conducted through face-to-face contact by health workers, sanitation workers, and agriculture extension workers.

Health education staffing. The health education unit is admittedly understaffed, and the staff under-trained. Presently there are 8 established posts, 2 of which are vacant, in the HE unit. There are 16 other persons (including six band members) working in the unit who are working under borrowed posts from other services. The Senior Health Education Coordinator is presently in training for a masters degree in health education at the University of Ibadan. The acting Health Education Coordinator has an advanced diploma in health education. Three Public Health Inspectors, with no special training in health education, have been posted as health educators to the three regions.

The Health Education Unit has presented the MOH with a "Proposal To Create a Career Structure for Health Educators and to Decentralize Health Education Activities." The plan calls for an increase of approximately 93 positions, over the 10 year period, including 10 health educators at the masters degree level, 29 at the bachelors degree level and the rest at the diploma level.

Media Production Services. There has been some discussion with the World Bank by the MOH about the creation of a Communications Development Center, in the context of multi-sectoral collaboration where all sectors of government would benefit from using shared resources rather than duplicating them. Under this plan it is envisioned that within each individual ministry the capability should exist to determine the messages which need transmission, the vocabulary in which they should be transmitted, and the channels which should be used. In the MOH the existing Health Education Unit staff would be retrained to perform research and development work, such as: determination of the health behaviors under examination; the synthesis and translation of medical and health advice for the target audiences; the determination of messages to be disseminated and the most effective channels for the target population; coordination with outside sources for the production and dissemination of messages; and the monitoring of communication transmission and program effectiveness. They would continue to be responsible for direct communications with health professionals, through their network of channels

such as Moys magazine and the family newsletter. Health workers would still be responsible for providing health education in hospitals and clinics.

There are communications activities that are common to all Ministries. These activities would be combined under one roof, either literally, in the Ministry of Communication or Information, or figuratively, through the allocation of multi-sectoral budget covering the expenditures. They include the production of messages: the graphic, telegraphic, videographic, audiographic, photographic musical and dramatic efforts associated with such an effort and, the dissemination of messages utilizing the variety of channels available in Malawi.

The evaluation team recognized that some observers in Malawi take the view that Ministry of Health requirements for mass media presentations often require rapid development and transmission of messages for particular programs. There is a concern by some health services experts that the high priority needed by the Ministry of Health may be difficult to command in a government-wide service agency such as that proposed for mass communications. Certainly, the need for such a priority and specialized health-oriented capability demands that careful study be made and adequate safeguards be provided before any steps are taken to place the Health Ministry in the position of using a mandatory, outside communication resource.

Current Activities

The importance of communication and education to health development and more specifically to the Malawi CCGD Program is evident from the bilateral budget. Included is \$100,000 for a mass media campaign and additional funds for equipment, which has been provided, or is on order. The Program provided the services of a graphics artist (Peace Corps Volunteer) for approximately 2 years, to assist with the development of materials and staff inservice training. The total becomes considerably larger when some portion of training costs, as well as the cost of vehicles, gasoline, and maintenance, are allocated to health education and promotion and communications.

When in the field the CCGD evaluation team observed the wide dissemination of posters promoting immunizations, the use of chloroquine to treat malaria -- the local manufacturer of chloroquine tablets (Morolon), in collaboration with the MOH, has printed the MOH recommended treatment schedule on each box containing Morolon tablets, and how to properly prepare a sugar and salt solution (SSS), to be used at home to prevent dehydration due to diarrhea. In every hospital and health center that the team visited, an ORT Corner (a particular room or space dedicated to the treatment of dehydration cases) had been established. Staff at each of these corners train mothers on the proper preparation of SSS.

In early 1986 the MOH requested the USAID, through the CCGD Project, to obtain the services of the Academy for Educational Development (AED) to provide assistance through its Communication for Child Survival Project (HealthCom) to assist with the integration of mass media support with other

MOH training and health service inputs for the control of diarrheal diseases, treatment of malaria, and prevention of diseases through immunization. HealthCom is providing a resident technical advisor for at least 24 months (she arrived in country in May 1986) and up to 10 additional person months of technical assistance through short-term consultancies.

The HealthCom Project has submitted a proposed work plan to the MOH which address activities in CDD, malaria, and EPI. The cited outputs are as follows: for the CDD, formative research, a marketing feasibility study, and the development of messages, materials, and a pretesting and dissemination plan; for malaria, a behavior case study, formative research, a marketing study and a development of messages, materials, and a pretesting and a dissemination plan. For EPI, redesign of the immunization card so that it becomes an educational tool as well as a record, and a study on an incentives strategy; for training, a curriculum for primary school children, production of cassettes for use by district level supervisors to use to train and supervise staff. The activities in the draft work plan are in keeping with the scope of support to health education by the CCCD Project.

The draft workplan was intended to identify the types of activities that would be important to accomplish for each of the interventions, and in that context it is overly ambitious, given the resources in HealthCom and the proposed life of the project. It was stated that the work plan was to be revised to more precisely delineate what activities will be undertaken. The initial focus will be on the diarrheal disease and malaria components of the Project, with EPI being attended to later. If the proposed amount of formative research etc. is going to involve each of the three interventions, input by other donors, with HealthCom serving in an advisory capacity, will be needed. According to the budget in the work plan WHO, has made available \$21,000 for formative research for EPI and UNICEF, \$10,000 for an EPI logistics study. The balance of the budget, \$120,000 will be provided by the CCCD Program (\$100,000) and HealthCom (\$20,000).

Other Donor Support

The MOH's National Health Plan 1986-1995 calls for strengthening the "Health Education Component so that it is capable of promoting healthy behavior which will make maximum impact on the major health problems of the country". In relation to this, the 1986 World Bank Staff Appraisal--Family Health Project indicates the intention to support the improvement of health education capabilities in the country, primarily emphasizing the use of mass media, in-country and overseas training in graphic arts, health education, and journalism, and in the provision of equipment, materials and supplies. The Bank proposes that the health education activities will be implemented by the Information Department, Office of the President and Cabinet, as noted above.

UNICEF is providing approximately \$4.7 million, over a four year period, in support of the National EPI and MOH programs. Their proposal provides approximately \$551,000 in support of "Community Mobilization", utilizing 11 months of short-term consultant time to assist with materials development and

dissemination, and the planning and conducting of special immunization activities in urban areas each year for three years.

As mentioned above WHO has made \$21,000 available for formative research in EPI.

Recommendations

11.1. Role of the Health Education Unit. The role of the Health Education Unit and its relationship to the MOH's health education and promotion requirements needs to be clarified. If it is to be the health education and promotion center of the MOH, then it will require upgrading through training and perhaps expansion. It should be an integral part of each service delivery activity in the MOH and involved in the planning and decision making process for those activities. It should be the MOH liaison with other Ministries, providing them with salient health information and, training of their outreach workers, i.e., agriculture extension workers, to develop the broadest possible dissemination of information and promotion of services utilization.

Recommendation. The role of the Health Education Unit should be studied carefully in the light of present and expected resource constraints, including staff and funds. The evaluation team advises that the MOH seek to build and sustain only those elements in the HEU for which no competent outside services are or can be made available--such as, for example, in the formulation and management of formative, behavioral, and related health communications research. If the MOH chooses to increase the numbers of staff, the team would recommend a careful review of needs by outside consultants expert in the field of health education.

11.2. CCCD Health Education Work Plan. A work plan and implementation schedule is needed to manage CCCD health education services, specific to the activities that will be undertaken in the 24 months period, including a procurement plan. The plan should identify the person(s) in the MOH and donor agencies that have the principal responsibility for each activity, and the time frames in which the activity will be accomplished.

Recommendation. The HealthCom Project contractor, in cooperation with the HEU, should prepare the CCCD Health Education Work Plan, as described, for adoption by the MOH and USAID, by mid-November, 1986.

11.3. Training. There are three regional health education designees in place having little or no training.

Recommendation. Short term training should be provided for the three new regional health inspectors recently appointed as health educators. HealthCom should provide assistance to the Health Education Unit to develop an annual work plan for this staff.

11.4. EPI Research. The draft work plan for the HealthCom project calls for formative research and a logistics survey to be supported by WHO and UNICEF respectively.

Recommendation. The planned formative research and logistics study for EPI should be conducted prior to the implementation of the plans for significant donor assistance to the EPI mass media activity.

11.5. Donor Coordination. Given the amount of present or planned support to health education activities in Malawi it will be exceedingly important for the GOH and donors to coordinate these activities to share limited resources and gain maximum benefit from their collective efforts.

Recommendation. Once the MOH has determined the role that they wish the Health Education Unit to play in their health delivery plans, they and the donors should establish a forum whereby donor support can be coordinated to provide maximum benefit to the MOH and avoid confusion and duplication.

12. OPERATIONS RESEARCH STRATEGY

Malawi has been one of the most active CCCD countries in Africa in conducting operational research. Half of the 12 studies have been completed and results of the studies have been used to update public health policies and practices. Two more studies will begin in November 1986, and one study is under revision. The full list of operations research projects is given in Table 12.1, below. No recommendations are given by the evaluation team for the operations research strategy.

TABLE 12.1. Operations Research under CCCD Project, Malawi, 1984-1986

<u>Protocol</u>	<u>Completion Date</u>	<u>Level of Funding (\$000)</u>
1. Assessment of Chloroquine Resistant <u>Plasmodium Falciparum</u> Malaria in Malawi Investigator: Khoromana	August 1985	8,502
2. Knowledge, Attitudes, and Practices concerning Childhood Diarrhea and Dehydration in Mulenje District Investigator: Malenga	October 1986	10,000
3. Antimalarial Drugs Evaluation for <u>P. Falciparum</u> Infection Investigator: Wirima	February 1985	9,500
4. Fansidar Efficacy Study Investigator: Khoromana	February 1986	9,016
5. Efficacy of Quinine in the Treatment of Children Hospitalized with Malaria Investigator: Wirima	February 1986	7,758
6. Continuation of the Health Impact Study of the Zomba West Water Project Investigator: Nyasulu	Pending	10,000
7. Effectiveness of Chloroquine/Amodiaquine Prophylaxis in Maintaining Peripheral Blood/Placenta Parasite Free Investigator: Wirima	Pending	4,000

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TABLE 12.1 (Continued). Operations Research under CCCD Project, Malawi, 1984-1986

<u>Protocol</u>	<u>Completion Date</u>	<u>Level of Funding (\$000)</u>
8. Testing the National Malaria Control Policy Investigator: Macheso	Pending	500
9. Reviewing the Relationship between Malaria and Iron Deficiency Anemia in Malawi Investigator: Mbvundula	Pending	4,000
10. Development of Sentinel Surveillance for Measles and Treatment Practices for Malaria and Diarrheal Diseases Investigator: Kalliani	Continuing to be Evaluated and Revised.	
11. Evaluation of Impact of ORT Unit, Kamuzu Central Hospital after 1 year of Operation Investigator: Mbvundula	August 1986	Not Available
12. Evaluation of Impact of ORT Activities on Hospital Admissions after 3 Years Investigators: Mbvundula and Kalliani	Pending	Not Available
13. Community Level Intervention Studies for the Control of Malaria, Salima and Mkwotakota Districts Investigators: Wireza and Malaria Committee	To begin Nov. 1986	Not Available
14. Evaluation of Measles Situation Under-9 months including Sero-confirmation of Diagnosis, Serological Survey for Antibody and Hospital Record Review Investigators: Kalliani and Chickakuda	To begin Nov. 1986	Not Available
15. Evaluation of SBS for Sodium Content after Mixing by Mothers Investigator: Kalliani	Completed Aug. 1986	Not Available

13. FUTURE DEVELOPMENT AND SCHEDULE OF CCCD PROJECT

This section considers two issues affecting the future development of the project: (1) the need for extension of the project time period, specifically known as the Project Assistance Completion Date (PACD); and (2) the evaluation team findings concerning the 1986 request for additional funding, to be provided to the Malawi CCCD Project from the Child Survival fund of A.I.D. to complete certain specific project functions and objectives. These two issues are discussed in the remainder of this section.

Extension of Time

The CCCD Project in Malawi was planned in 1983 and initiated in 1984, after extensive discussions among the principal participants. The original Project Agreement was signed 9 June 1984 for a period of approximately four (4) years of operation. The original amount of funding was US\$1.78 million, including the central funds. The present Project Assistance Completion Date (PACD) in the project agreement remains March 31, 1988.

Two recommendations by outside reviewers have been submitted to A.I.D. concerning possible extension of the project. The Third Year Overall CCCD Evaluation, examining several CCCD projects in the region, recommended that the Malawi project be extended to December 1988. The 1985 Project Review, held in Malawi during June 1985, recommended extension for a period of one (1) year.

In the view of the evaluation team, a recommendation for additional time to complete the project should be based on the following elements: progress made to date; how rapidly funds can be used and activities can be accomplished, considering the expected obstacles facing implementers of the project in the future; and the nature of the assistance which will be required in completing the work.

Project progress. Progress in implementation is summarized for each project element in the preceding 12 sections of the report. The evaluation team finds that the steps taken to complete project tasks and arrange required procurement actions is adequate to ensure viable results from the project inputs. Review of progress made in resolving issues discussed in the 1985 Project Review team report was found also to be adequate.

Delays in project implementation caused by slow completion of procurement actions are of special concern to the evaluation team. CDC has no responsibility in procurement required by the project once clear specifications and requirements are prepared in consultation with the Government of Malawi. The evaluation team finds that both CDC and

USAID/Malawi personnel have handled the effects of the delayed procurement in such a manner that other project activities have not suffered unnecessarily in the process. (Needles and syringes requested by the Project over one year ago, however, have not yet been received in-country.) The USAID/Malawi Health Officer has attempted to take special steps to resolve procurement problems as they arise. It was noted by the evaluation team that USAID/Malawi has now arranged to employ additional comptroller staff, but the procurement process will still involve lengthy procedures which are conducted both in Nairobi and AID/Washington. The situation now with respect to procurement is viewed by the Evaluation Team as adequate to prevent further difficulties in completing the procurement actions.

Future progress. The start-up experiences of project participants involved a number of predictable, but largely unavoidable, delays and set-backs. The Evaluation Team found that structuring the relationships among participating agencies and professionals had taken a considerable period of time in the early months of work, owing to the factors already cited in the section on project management. The Evaluation Team found no reason to believe that progress now could be not be sustained toward completion of the remaining project elements.

Resource requirements. The completion time required for the CCCD Malawi project may require more time with or without the continuation of technical assistance inputs. The technical assistance provided for the project included technical officer, regional epidemiologist assistance, and outside consultations. Under the Malawi CCCD Project, the technical officer was provided as a part of the project operations. (The regional epidemiologist is assigned on a regional basis to several countries in the region so would be available to cooperate with Malawi with or without the Malawi Project, and, coincidentally, is based in Malawi.) The Evaluation Team found that the Malawi project benefitted greatly from the assignment of a technical officer in the first two years of the work, and that the project will find the technical officer role essential to making further progress.

Recommendation

13.1. The Evaluation Team recommends to A.I.D. that the Malawi Project be extended for an additional period of one year, making the revised Project Assistance Completion Date to be March 31, 1989. The funding levels for project activities should continue as presently budgeted, with additional funds being made available as needed to continue the support of technical officer, locally-hired staff members, and their transportation, local services, and other support costs, until project close-out.

Additional Funding Request

The funding requested in the amount of US\$900,000.00 from the Child Survival Fund for use in the Malawi project may be summarized as follows (based on USAID/Malawi Cable 2286, dated 16 June 1986):

1. **Training of Health Services Providers (US\$300,000)**
Expansion of training to include more health workers serving in rural health centers, and increasing the emphasis on practical clinical training.
2. **Community Health Motivation (US\$250,000)**
Extension of health awareness, training, and motivation programs to community-level health committees.
3. **Operations Research (US\$150,000)**
Initiation of operational research focussing on the provision and use of the basic child survival preventive health services.
4. **Multi-Purpose Vehicles (US\$200,000)**
Six four-wheel drive vehicles and their operating costs for: transport of supervisors, trainers, trainees, and other participants; transport of operations research supervisors and field workers; and transport of training, research, and health services supplies.

These four elements are proposed for spending during the period 1986 to 1988.

The Evaluation Team has considered the merits of the proposed individual elements and their potential impact on other CCCD Project activities. Also, the length of time to properly use the proposed additional funding was assessed.

Proposed work elements. The Evaluation Team considered the mix of proposed additional work and commodities included in the request. The Evaluation Team came to the conclusion that the additional work and commodities, taken together, are a reasonable set of work elements to be implemented at the time the MOH proceeds with village-level activity in the CCCD services. With the exception of the vehicle procurement, most of the funding is requested for local purchases and costs. The extreme shortage of MOH budget support funds for the activities envisioned in the proposed work was considered by the Evaluation Team. The Evaluation Team concluded that the importance of the activities, which largely are for one-time development costs, provides support for use of the funds for local rather than off-shore use of the funds. The funding of these cost elements by the Government of Malawi after completion of the project activities is not of itself likely to be a large burden to sustain the programs. The Evaluation Team did not have sufficient information with which to judge if some additional elements would be needed also to permit such an extension of the work, perhaps to fill gaps in supervision or training in addition to those named in the proposal.

The policies of the MOH concerning village-level committees, workers, and outreach were considered by the Evaluation Committee in relation to the village-level activities proposed in the Request. The Evaluation Team understands that the MOH Committees involved in the CCCD services are now forming their plans and policies concerning the next phase of local-level development for services for primary health care and village-level supervision. New or revised and extended policies are expected to provide also a further basis for guiding the use of resources for use at the village level.

An additional concern of the Evaluation Team is the potential overlap of elements in the Request and the activities proposed for funding by the several donors active in Malawi primary health care: (1) Multiple Assistance Schemes in Health (M.A.S.H.) Project proposed for Malawi by USAID/Malawi; (2) UNICEF funding for EPI and CDD; and (3) World Bank funding for Family Health (see: Section 14, below, for additional data on other donors).

Potential impact on Project. The proposed additional work and procurement under the Child Survival Funding Request will require a great deal of time on the part of MOH officials and the CCCD Technical Officer to implement. The CCCD project has reached a point in implementation where the causes of delays in the first two years are unlikely to burden the remaining two years of work. The available staff members in the MOH are spread among many projects already, and the large additional project activities upcoming in the World Bank and UNICEF funding will further burden the MOH participants. The planned addition of two people for EPI technical assistance by UNICEF during the next few months may provide some relief and improved implementation progress for EPI activities, but their potential contribution is still too early to determine.

Time period required. The Evaluation Team concluded the proposed implementation time for the requested funds would be at least the twenty-four months proposed in the request. The implementation time could even be longer should there be additional delays caused by lack of MOH staff to carry-out their various functions at the same time they are participating in the other projects starting in the MOH.

Recommendation

13.2. It is recommended to A.I.D. that the Malawi Request for Child Survival Funding in the amount of US\$900,000 be divided into two phases, with funding approved if certain conditions are met as follows:

Phase One:

Recommended Scope of Funding: The local and off-shore commodity purchase elements, including the proposed additional vehicles which will probably require an extended period of time to get in-country.

Recommended Conditions: Assurance that no additional management burden will be added by implementation of the work elements.

Phase Two:

Recommended Scope of Funding: Other requested elements not in Phase One would be included but with implementation delayed until fiscal years 1989-1990. The final formulation of the Phase Two funded activities ought to be reexamined by the MOH again at the end of fiscal year 1987 to ensure that the main gaps lying outside other available funding are covered.

Recommended Conditions: Assurance that: (1) no duplication of resources would occur and the main gaps in other funding sources are being covered, and (2) the MOH policy studies concerning extension of village-level services show that technical and managerial obstacles are resolved.

14. LONG-TERM FINANCIAL VIABILITY

Recurrent Costs of the Project

Short and Long Term Issues. The principal recurrent, or operating, costs of the GCCD project include the costs of salaries, medicines, transportation, equipment and supplies necessary to deliver the services each year. These regular, annual costs also include short, in-service training necessary to maintain the skills of health workers. For the Ministry of Health in Malawi, expenditures in the budget on Revenue Account all represent the operating costs of the Ministry's services each year. Most of these expenditures now support the basic service level from year to year; some support increases in service and increased coverage of the population.

The focus on recurrent costs for purposes of evaluating financial viability of a project is usually on the incremental, or additional, recurrent costs due to the project activity. These costs are above the costs associated with the basic services that existed before the project. It is generally assumed that a ministry will maintain the funding necessary to support operating costs of existing service levels.

For example, if a Ministry regularly provides immunizations to 3,000 children per year, the costs of doing so are part of the basic service level. It is assumed that the Ministry will continue to receive enough funding in its budget to cover the cost of serving 3,000 children annually. If a project then seeks to provide immunizations to 1,000 more children than the Ministry already would have served, the additional recurrent costs of the project are those of the extra vaccines, needles, syringes, and fuel for outreach transportation necessary to accomplish this goal. Usually, a Project Agreement provides that both the ministry and donors will share these additional costs during the 4 or 5 years of the project period.

The short run recurrent costs of a project can thus be represented by funding, for relevant categories, in the Project Agreement budget. The short run financing issue for the Ministry of Health then involves consideration of its ability to pay the amounts included as its contribution, as specified in the Project Agreement, during the life of the project.

The long run costs of the project that the MOH will have to fund include recurrent costs funded by donors during the project, as well as costs the Ministry paid during the project. The long run recurrent costs to the Ministry of Health are therefore usually higher than the short run costs and obtaining increases in the MOH budget to cover these higher costs is usually more difficult than obtaining the increases to cover additional costs during the project period. This is one of the reasons it is important that a ministry prepare gradually to find ways to pay these additional costs so that the MOH is in a position to continue the project activities once donor funding ends.

Estimates. Given data constraints and the time available for the evaluation, it was not possible to prepare a detailed estimate of specific recurrent costs of the project. It is also premature to estimate unit costs, such as costs per fully immunized child or costs per ORT given and per child covered per year, for the Malawi CCCD project. Neither accurate cost data, nor appropriate current or planned coverage data, is available for that purpose.

But it is possible to present preliminary estimates that can be used for a high and low range of the annual recurrent costs. These estimates can then be used to illustrate the possible impact of project costs on the Ministry of Health budget.

Table 14.1 presents low and high estimates of annual recurrent costs for each of the program components of the CCCD project. As the table shows, the total of the high estimate, K6.7 million (\$3.6 million), is twice that of the low estimate, K3 million (\$1.6 million).

TABLE 14.1. High and Low Estimates of Annual Recurrent Costs of the Malawi CCCD Project (Funding amounts in US\$)

Project Component	LOW ESTIMATE		HIGH ESTIMATE	
	Annual Recurrent Cost Estimate Based on Project Agreement		Annual Recurrent Cost Estimate Based on Robertson Cost Study	
	Kwacha	US\$	Kwacha	US\$
IMMUNIZATION	1,539,588	810,309	3,241,104	1,705,844
DIARRHEAL DISEASE	683,875	359,934	809,557	426,082
MALARIA	863,425	454,434	2,702,308	1,422,267
TOTAL	3,086,888	1,624,677	6,752,969	3,554,194

Rate of Exchange: \$1=K1.9

NOTE: Dr. Robertson estimated the first nine month costs. These have been adjusted to annual costs for purposes of this presentation. ✓

The low estimate is based on the relevant costs included in the Project Agreement budget. Major categories of cost in the Project Agreement that have been excluded from the low estimate are research and long term technical assistance, since these should not be required on an ongoing, annual basis once project goals have been achieved.

The additional costs associated with activities funded by USAID are technically the major recurrent costs to consider for the CCCD project. But full consideration of the long run financial viability of activities supported under the project must also take account of costs of medicines and other supplies provided by UNICEF, that would have to be maintained to keep the project operating on a regular basis. The low estimate thus also includes costs attributed to UNICEF in the Project Agreement. ✓

While specific categories of recurrent costs included in the Agreement have changed with operating experience, total spending is likely to remain the same. A low estimate derived from the Agreement should thus provide at least an approximation of the average annual recurrent costs during the life of the project. They may also serve as a low estimate of additional, annual recurrent costs that would have to be paid after the project ends.

One of the most important types of cost not included in the low estimate is salaries of health workers and MOH central office support staff. Because no new positions have been added to the MOH budget by the project, it is appropriate to exclude these costs for purposes of a minimum estimate of additional costs due to the project. But long term viability of the project will depend on recruiting and funding sufficient staff to manage the program at the central level and to provide all the CCCD services in the field for an increasingly larger population.

For example, under the current situation, it is the same health workers that have been responsible for delivering all existing services that have had to increase their level of activity to provide a larger number of children with vaccinations and with oral rehydration therapy. If these health workers do not increase their level of activity, and work longer hours in the day if necessary, they will not be able to treat the same number of people for other health problems as they did, plus provide the increased number of CCCD services. Recruiting and paying additional health workers is thus a major long term issue for the viability of CCCD, as well as of the whole MOH service delivery system. More detailed analysis than time permitted for the evaluation team is necessary to estimate these longer run costs.

The high estimate is based on the more detailed and complete derivation of costs carried out by Dr. Robert Robertson, at the request of A.I.D./Washington in 1985. These estimates were developed based on the first year of operation of the program, and are not necessarily representative of costs that will exist at the end of the project. Costs by the end of the project will depend on a variety of factors, including the numbers of people actually served by the CCCD program by then. Nevertheless, they represent the best available estimate of the full annual recurrent costs of providing CCCD services. ✓

A few comments are necessary to best understand the important implications of the high estimate. This estimate is a total cost estimate for immunization, ORT, and diarrheal disease control services in Malawi. The high estimate is not limited to only the additional recurrent costs of the project, as are the low estimates. It includes costs of both the level of services that was already being provided, as well as the increased activity due to the project. Further, the high estimate includes central office support costs, as well as the cost of salaries of health workers, based on an estimated percentage of time they spend delivering CCCD services. In addition, it includes operating and salary costs for the PHAM units, as well as for government units. It is appropriate to include costs of the PHAM units since they are completely integrated in the CCCD project and their participation is essential to reach the coverage goals set by the project. Also, most of the costs included in the high estimate for PHAM represent costs to government since the MOH provides CCCD medicines to PHAM and 95 percent of PHAM manpower are funded through the Ministry of Health subsidy to PHAM.

Thus, the MOH would not have to increase its budget by the full amount of this estimate to cover the costs of the CCCD project, since it is already paying some of this cost. Sufficient information is not available to determine what proportion of these costs the Ministry and donors are now funding or what proportion represent increased activity due to the project. For this reason, the high estimate must be understood as only an illustration of the full costs that may have to be paid by the Ministry in the long run.

Ability of the Government to Support Project Recurrent Costs

Table 14.2 provides a preliminary measure of the ability of the MOH recurrent budget to fund the additional costs of the CCCD program. This table shows the average funding levels expected of the MOH during the project, as estimated in the Project Agreement, and the low and high estimates of the annual average recurrent costs of the project for the post-project period. The table compares these CCCD costs with the amount of real increases in the MOH budget that are available to pay them. The increase in real funding, after taking account of inflation, is used because this amount represents funding available to support increases in service delivery capacity. This is an important point because, if there were no real increases, then funding additional costs of CCCD would take money away from other MOH activities.

The estimates suggest that the MOH budget should be quite adequate during the life of the project for funding the GOM share required by the Project Agreement. But, as Table 14.2 shows, the amount of additional funding available to the MOH after paying CCCD costs decreases each year during the

TABLE 14.2. Impact of Government of Malawi Funding for CCCD Project on Ministry of Health Budget Expenditure, 1984-1988, and in the Post Project Period (Funding amounts in thousands of Kwacha)

	Project Period				Post-Project
	1984/85	1985/86	1986/87	1987/88*	Period (1988/89+)*
A. Ministry of Health budget expenditures					
current prices	28,031	36,753	35,201	36,949	36,949
constant 1986 prices	35,858	40,428	35,201	36,949	36,949
B. Amount of annual real increase in MOH budget					
	5,901	4,371	-5,227	1,748	1,748
C. Estimated average CCCD costs for MOH					
	981	981	981	981	3,087 to 6,753**
D. Balance of annual MOH increase after paying CCCD					
	4,920	3,590	-6,208	767	-1,339 to -5,005**

* 1987/88 and post-project period calculated in constant 1986 prices. For 1987/88, the estimates assume that the budget will be increased by the average amount of real increase for the past several years. The budget is assumed to be held constant, in real terms, for succeeding years.

** Low to high estimates.

project. After paying nearly K1 million (\$526,000) for the CCCD project in FY 1984/85, the Ministry had nearly K5 million (\$2.6 million) left for increasing its capacity in other areas. By the last year of the project, FY 1987/88, the MOH contribution to CCCD under the Project Agreement will absorb more than half of the projected additional real funding available that year, leaving K .7 million for other activities. For the current fiscal year, if the total budget stays at the level currently authorized, there will be a deficit. Current MOH estimates of final spending by the end of FY 1986/87, (K40 million) would, however, cover this deficit.

Prospects for the Ministry to pay for maintaining CCCD services in the longer run, however, are not promising. The low estimate (K3 million) of

annual costs during the life of the project is three times higher than the average annual contribution (K.9 million) expected to be funded by the MOH budget. The high estimate is almost 7 times higher. As Table 14.2 shows, paying the annual recurrent costs of CCCD would leave a deficit of K1.3 million (\$704,737) under the low estimate and a deficit of K5 million (\$2.6 million) under the high estimate.

Most importantly, if the MOH budget had to pay ^{all} recurrent costs of the CCCD project now funded by donors, the estimates indicate that the real increase available to the MOH would have to double from K1.7 million to K3 million under the low estimate and would have to be nearly 7 times higher under the high estimate. These projected increases are unlikely in view of the current assumption in the National Health Plan that the MOH budget would be held constant in real terms.

Even if such increases were possible for CCCD services, it would be necessary to add even higher increases if the Ministry also wanted to maintain basic services for a larger population and wanted to cover the costs of expanding other activities it plans to undertake. Given a realistic assumption about future increases in the MOH budget, the Ministry will face a choice between using any additional funds for maintaining CCCD services, as donor funding declines, and using the funds for maintaining or expanding other activities.

where?

Financing Strategies

MOH Plans. The Ministry of Health is well aware of the inability to fund the recurrent costs of all its efforts to improve and expand the capacity of the health service delivery system. The National Health Plan of Malawi for 1986-1995 explicitly proposes a financing strategy with three basic components: 1) rely on donors to continue to fund a large portion of recurrent costs; 2) introduce management improvements that can reduce costs and improve efficiency; and 3) implement cost recovery measures (increase fee revenues) for a limited number of services.

1. Donor Funding. Reliance on continued donor funding appears to be realistic for the near future, given the support already committed or planned by UNICEF, the World Bank, and USAID. Each of these donors plans substantial assistance for the health sector that includes continued support for immunization, ORT, and malaria activities through at least the early 1990s. But it should be recognized that each of these donor efforts generate additional recurrent costs well in excess of the estimated CCCD costs discussed here.

The World Bank has reportedly indicated to the MOH that the Ministry will be able to finance recurrent costs that will be generated by its five year \$43 million Health II project. UNICEF and USAID are planning a total of approximately \$10 million for assistance to MOH activities through the early 1990s. There was no information available to the team that indicated the MOH could fund the additional recurrent costs that would be generated by these

\$43

donor activities. Counting on donors for the next 5 years, without other action to gradually cover costs they will be funding, only serves to postpone and increase the Ministry's long term financing problem.

2. Cost reduction. The Ministry has recently begun efforts to reduce costs, principally at the regional hospitals, with assistance from the World Bank. In addition, the Ministry recently issued an order that would restrict personal use of vehicles to save fuel costs. But information gathered during site visits suggests that it will be necessary to strengthen and monitor implementation of these plans.

There is no apparent control over field staff requests for additional fuel for whatever purpose. Many districts have already overspent their allocation for the current fiscal year in one or another category. Hospital pharmacists order drugs without a firm basis of estimating actual needs in their district and it is not known whether hospitals are hoarding drugs that should be made available to health centers. Further, staff with authority to order goods and supplies frequently do so without checking what the budget allocation for those items is or how much is left for the balance of the year.

This situation continues up to the central level. Initial authorizations from the Ministry of Finance for the Health budget have been unrealistically underestimated in recent years. Consequently, the MOH has been overspending its authorizations with subsequent approval from Finance. Although this strategy keeps the health system running, it is not realistic for the long run.

3. Cost recovery: fee policy and practice. In general, the policy with respect to fees is that government health services are to be provided free of charge. There are two exceptions to this policy. The Ministry officially requires fees to be charged at the two government regional hospitals for certain services and medicines. The Ministry recently issued a revised fee schedule for these hospitals that was intended to bring in more fee revenues and increased estimates of this fee revenue were included in the FY 1987 budget. But information gathered during site visits made by the evaluation team suggest that the new schedule is not being followed in at least one of the hospitals. The Ministry apparently did not take adequate steps to explain or to work out appropriate details with the field level staff to assure implementation.

The second exception to the "free care" policy is a one Kwacha (\$.50) fee for a full series of antenatal and maternity (delivery) care. This fee applies to services provided at all MOH health facilities and the system of collecting these fees has been well-established and operated. Field evidence from MOH facilities generally suggests that most people were able to pay this fee; those who were not were not charged. One day before the evaluation team completed its work, however, it learned that the Ministry now intends to drop this fee.

Under current policy, fee revenues from the hospitals and the antenatal services are returned to the Treasury. In contrast, however, to similar policies of many Sub-Saharan African countries, the amount of fee revenues is

credited to the Ministry of Health's budget in Malawi. Fees collected for health services are thus used directly to support the health system and the Ministry has an incentive to collect fees to augment their budget.

Other options. The Ministry's ten year plan does not explicitly consider the potential for relying more on private sector providers as an additional option for relieving the government budget of some health costs. The potential for the largest group of private providers, PHAM, to help in this regard is probably limited.

For example, under current arrangements, any increase in PHAM staff that would be necessary to expand their service delivery capacity would have to be paid for by the Ministry of Health. As noted in Chapter 3, the MOH now provides approximately 54 percent of PHAM's budget to cover salaries of Malawian personnel, who constitute 95 percent of PHAM staff. Foreign donations to PHAM units are not likely to increase substantially in the near future and any increase in fees charged at PHAM units would be likely to restrict utilization, rather than provide increased revenue for expanding services.

Another alternative in the private sector is to rely more on private sector production and distribution of pharmaceuticals. A private firm, Sterling, already produces and distributes, through small shopkeepers, a substantial volume of chloroquine, and has begun producing ORS packets. One liter containers, appropriate for use in ORT can also be produced locally. Careful planning between the MOH and these private producers could establish a basis for wider availability of medicines and supplies particularly relevant to the CCCD program without increasing costs to the government.

Recommendations

14.1. Action Plans. The Ministry should begin now to develop action plans, to be implemented in several phases over the next five years, for Malawian sources of financing to begin to pay an increasingly larger proportion of costs for CCCD and other basic health services that donors are now funding.

The long run financing situation is sufficiently serious that it is important to begin laying a base now for significant cost saving and cost recovery efforts that go beyond the present focus on only the two regional hospitals. New action plans should identify areas of cost savings and cost recovery in additional area that appear to have the greatest potential and are most feasible. They should be practical plans on which staff can take action as soon as possible to lay a base for modification as experience is acquired.

Specifically, these plans should identify amounts and types of cost (e.g., medicines, supplies, fuel, salaries) and the sources of funding (e.g., donors, the MOH budget, fees) for each type of cost. To do this with respect to the CCCD services, the Ministry will first need to identify better than at present service delivery and population coverage goals. The Ministry can then estimate more accurately the cost of implementing program policy. Once better

cost estimates are available, it will be feasible to identify affordable service levels, potential for greater efficiency, and target amounts of funding from various sources.

14.2. Efficiency. The Ministry should concentrate efforts at improving staff efficiency in the field on ways in which CCCD services are delivered.

Sterilizing and assembling equipment for immunizations, providing the immunizations, and teaching mothers how to treat diarrhea and dehydration take substantial amounts of time. Both the mothers and children receiving these services, as well as people seeking other kinds of health services, wait for hours while these services are provided. Because there are not enough staff to handle the current workload and because of the time consuming nature of these services, improvements in efficiency would have a major impact on the Ministry's ability to reach coverage levels.

Improved efficiency in delivering CCCD services would also help to ensure that health workers can continue to provide the other basic health services to the rest of the population. Making better use of existing resources would also be the first step for appropriate estimates of additional staff needed before attempting to fund additional positions in the MOH budget.

Funding from the CCCD project is available and should be requested from USAID to provide technical assistance personnel to work with MOH staff in the field to develop and implement more efficient service delivery patterns.

14.3. Cost recovery. The team found no evidence that cost recovery studies or actions had been undertaken with respect to CCCD services, as required in the Project Agreement. It is USAID's responsibility under the Project Agreement to initiate these actions and they should do this, with full participation by the MOH in determining the feasibility of fees for these services.

We do not recommend that the MOH devote effort at this time to studying or experimenting with fees for immunizations or ORS packets. Evidence in the field suggests that the travel and waiting time costs for these services are now very high, such that a cash charge at a Ministry facility is likely to present a strong disincentive to use.

We do recommend strongly that the Ministry consider charging fees for chloroquine, for which demand is high. These fees should be explored in conjunction with introducing fees for other curative medicines (e.g., aspirin) for which the demand and use are high, which are also available for purchase in local shops, and for which PHAM charges. Charges for chloroquine at MOH facilities could be combined with increased efforts to make chloroquine available at the village level at an affordable price through the private distribution mechanism.

To be effective, any initiatives for cost recovery in the CCCD program must be based on policy decisions that establish a general fee principal for all services the MOH provides. The Ministry needs to establish a fee policy

that takes into account equity, as well as the incentives and disincentives it wants to establish for use of preventive compared with curative services, at what levels (e.g., hospitals, rural health centers, villages) of the health system, and from which providers (government, PHAM, traditional practitioners, shop keepers).

what evidence?

Not enough is currently known about the effect of the present fee systems in the public, private, and traditional sectors; about how many people are paying what amounts at PHAM facilities; or about the extent to which fee revenues for a variety of services could cover the costs of health services in the public sector. For example, people who live nearer PHAM facilities where they have to pay for services may be considered disadvantaged compared with those who live near government facilities where services are free. Yet evidence in the field indicates that people often bypass nearer government facilities and travel longer distances to receive services at PHAM facilities.

It is clear that people are now paying for health services in the public, private, and traditional sectors. All health facilities in Malawi now charge fees for some services. There is little reason that people able to pay a variety of fees at PHAM facilities should not also be asked to do so at government health facilities. These considerations suggest the importance of further data collection and analysis for the purpose of developing plans soon to assure greater equity and to make better use of the potential of revenue generation from fees. If such steps are taken now, the government will have greater assurance that it can fulfill its goals for health service delivery and improving the health status of the people of Malawi.

Funding from the CCCD project, as well as from A.I.D.'s REACH project, is available and should be requested from USAID to provide assistance with carrying out this recommendation. This assistance can include development of appropriate cost estimates; feasibility studies; analyses of people's willingness and ability to pay for different kinds of services and medicines; development of means to assure equity; analysis of the impact on utilization of fees at PHAM facilities, compared with free services at government facilities; estimates of revenue raising potential under various options; and assistance in coordinating prices with the private sector.

ANNEX A. Evaluation Scope of Work

Objectives of Evaluation

1. To evaluate CCCD activities in Malawi through systematic collection and analysis of data on CCCD management and operations at the central, regional, and peripheral levels.
2. To measure the extent to which CCCD activities have been integrated into the existing primary health care structure.
3. To offer a series of recommendations to impress the expansion and delivery of CCCD services (including training, health education, and health information system developments) and to accelerate their integration into the primary health care delivery structure given ever present resource constraints.

Methods of Evaluation

- A. Study relevant reference statements at central and regional levels.
- B. Visit selected service delivery units and other health institutions in rural and urban areas of a representative number of regions of the country.
- C. Review survey data.
- D. Interview relevant project implementing agents.

Evaluation Components

1. Project Planning, Administration, and Management [Report Section 5]
 - a. Review the CCCD assessment and evaluate its adequacy as the basic planning document for the CCCD project in the respective countries.
 - b. Review the development of plans of operation and the adequacy of those plans to govern and support field activities.
 - c. Describe and review the capacity of government management and administrative structure to manage and administer a regional program incorporating immunization, ORT, and malaria treatment.
 - d. Review the AID, CDC administration and support to the project and adequacy of procedures established for project support.
 - e. Review country project executive management structure and functions with particular emphasis on relevant CCCD project and executive committees.

2. Project Support [Report Section 2]

- a. Review epidemiologic and health services statistics in order to determine if the CCCD project has exerted an influence on lowering morbidity, mortality, or increasing the availability or quality of primary health care services in the respective country.
- b. Review the adequacy of information systems current and planned to provide data necessary to determine project impact.

3. Program Operation [Report Section 2]

- a. Review the delivery system (current and proposed) to be utilized to delivery CCCD services.
- b. Review the following operational aspects of the delivery system--supervision, logistics and supply, communications, personnel coverage, control of funds and supplies.
- c. Review the distribution of delivery points of CCCD services.
- d. Review staffing distribution to delivering CCCD services.

4. Interventions

a. EPI Program Components [Report Section 6]. (1) analyze geographic coverage of delivery systems and characterize the system; (2) review immunization policies and schedules; (3) review frequency of vaccination schedules; (4) review coverage of immunizations and review immunization practices with special emphasis on sterilization of equipment, immunizing ill children, and frequency of immunization clinics.

b. ORT Program Components [Report Section 7]. (1) analyze geographic coverage of oral rehydration therapy delivery system and characterize the delivery system; (2) review national ORT policy; (3) review population coverage of ORT; (4) review ORT practices with special emphasis on continuing use of I.V., adequacy and frequency of use of ORS, and adequacy of public information regarding ORS.

c. Malaria [Report Section 8]. (1) analyze geographic coverage of delivery system and characterize the system; (2) review national malaria treatment and antimalarial chemoprophylaxis policies; (3) review population coverage of malaria treatments; and (4) review malaria treatment and chemoprophylaxis practices with particular emphasis on availability of Chloroquine, adherence to national policies, and frequency of antimalarial chemoprophylaxis in pregnant women.

4. Procurement, Distribution, and Quality Control of ORS and other Commodities [Report Section 4]

- a. Review drug acquisition and distribution;
- b. Review cold chain performance;
- c. Review vaccine distribution system;
- d. Review local ORS production;
- e. Review acquisition and distribution of other supplies.

5. Strategies

a. Training [Report Section 9]. (1) Review types and magnitude of training provided; (2) review training materials developed; (3) review numbers

and types of personnel trained and evaluation of their performance; and (4) review training plan for remainder of project.

b. Target Disease Surveillance and Medical Information System [Report Section 10]. (1) Review baseline surveys--morbidity and mortality; (2) review current reporting and report-keeping systems; (3) review plan for modification of present system to provide accurate M and M data and utilization data; and (4) review health information system activities proposed for remainder of project.

c. Health Education [Report Section 11]. (1) Review the current health education structure, plan of execution and activities to date; (2) review staffing and institutional capacity for delivering health education services; and (3) review the adequacy of technical assistance provided for support to health education activities.

6. Financing [Report Sections 3 and 14]

- a. Review sources and amount of funding for current program activities;
- b. Review government's normal budget and auto-financing;
- c. Review USAID bilateral funds, regional funds, and counterpart funds;
- d. Review future financing of recurrent cost estimates and country project ability to finance recurrent costs in 1986, 1987, and 1988 from government; and
- e. Review country fee-for-services systems.

7. Program Costs [Report Sections 3 and 14]

- a. Review cost for immunization given, cost per fully immunized child, and cost per pregnant woman immunized;
- b. Review ORT cost per ORT given, and cost per child covered per year; and
- c. Review antimalarial treatment and chemoprophylaxis average cost per antimalarial treatment provided, cost per child covered per year, and cost per pregnant woman covered per period of gestation.

ANNEX B. List of People Contacted and Field Visits

Malawi--Ministry of Health

Headquarters

B. L. Walker, Principal Secretary
Dr. Ntaba, Chief Medical Officer
Dr. J. Lungu, Deputy Chief Medical Officer
Dr. Jean Kalilani, Deputy Chief Medical Officer; CCCD Project Coordinator
Dr. A. R. Msashi, Assistant Medical Officer--MCH
John Chickakuda, EPI Coordinator
Stanley Jere, Director of MCH
Mr. Mandambwe, CDD
Dr. M. Mbvundula, CDD
S. M. Mtilatila, Health Education Officer
G. Namanja, Health Education
Yohani Niasulu, Chief Health Coordinator
Dr. J. Wirema, Malaria
Mr. Zgambo, Chief Accountant

Field Facilities

Southern Region

Brenda Keller, Peace Corps Volunteer
J. Msowoya, Deputy Health Inspector
Mrs. Nkhunga, MCH Coordinator
Shawn Olsen, Peace Corps Volunteer
Mr. S. Washoni, Regional EPI Supervisor

Facilities:

Chickwawa District Hospital
Mangochi District Hospital
Malindi Hospital (PHAM)
Nchalo Hospital (PHAM)
Ndirande Health Center
Ngaho Rural Hospital
South Lunzu Health Center
Queen Elizabeth Central Hospital

Central Region

A. W. C. Munyimbiri, Regional Health Inspector
Mr. Makoka, Cold Chain Manager

Facilities:

Chipoka Health Center
Kamuzu Central Hospital
Kasungu District Hospital
Khombedza Health Center
Madisi Hospital (PHAM)
Mponela Hospital (Rural)
Mua Hospital (PHAM)
Nathenje Health Center
Salima New Hospital
Salima Old Hospital

Northern Region

Mr. Dauod, Cold Chain Coordinator
E. P. Jumula, Deputy Regional Health Inspector
Mrs. Katambo, Regional Nursing Officer
Katherine Mzembe, Regional Public health Nurse

Facilities:

Bolero Health Center
Jenda Health Center
Mzimba District Hospital
Mzuzu Health Center
Nkhata Bay District Hospital
Rumphi District Hospital
St. John's Hospital (PHAM)

Malawi--USAID and Centers for Disease Control

Charles Gurney, Health Officer, USAID/Malawi
Reggie Hawkins, CCCD Technical Officer, Centers for Disease Control
David Heyman, CCCD Regional Epidemiologist, Centers for Disease Control
John Hicks, Mission Director, USAID/Malawi
Charles O'Reare, Financial Officer, USAID/Malawi

Malawi--Other Organizations

Claudette Bailey, Howard University
Michael Culp, Country Director, Peace Corps
S. N. Darfour, Family Health, WHO
Cooper Dawson, Country Representative, UNICEF
Debra Helitzer-Allen, Academy for Educational Development
Mr. Joe, Health Education, WHO
Mr. Katunda, PHC Coordinator, Private Hospital Association of Malawi
Mrs. Mzoi, MCH Coordinator, Private Hospital Association of Malawi
Ramesh M. Shrestha, Project Officer, UNICEF
Dr. S. H. Siwale, Representative, WHO

Mr. Tamandu, Statistician, WHO
Mr. Zgambo, Executive Director, Private Hospital Association of Malawi

U.S.

Andy Agle, CDC/Atlanta
Vincent Brown, CDC Consultant
Lillian Gibbons, DrPH, Westinghouse Health Systems
Mary Harvey, Westinghouse Health Systems
T. Stephen Jones, CDC/Atlanta
Maryanne Neill, CDC/Rwanda
Dennis Olsen, CDC/Atlanta
Kathleen A. Parker, CDC/Atlanta
Wendy L. Roseberry, AID/Washington
Jean Roy, CDC/Atlanta
Anne Voight, CDC/Atlanta
Ron Waldman, CDC/Atlanta
Jason Weisfeld, CDC/Atlanta

ANNEX C. List of Documents Consulted

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ANNEX D. STATISTICAL DATA
FIGURE D.1. Map of District Boundaries and Road, Malawi

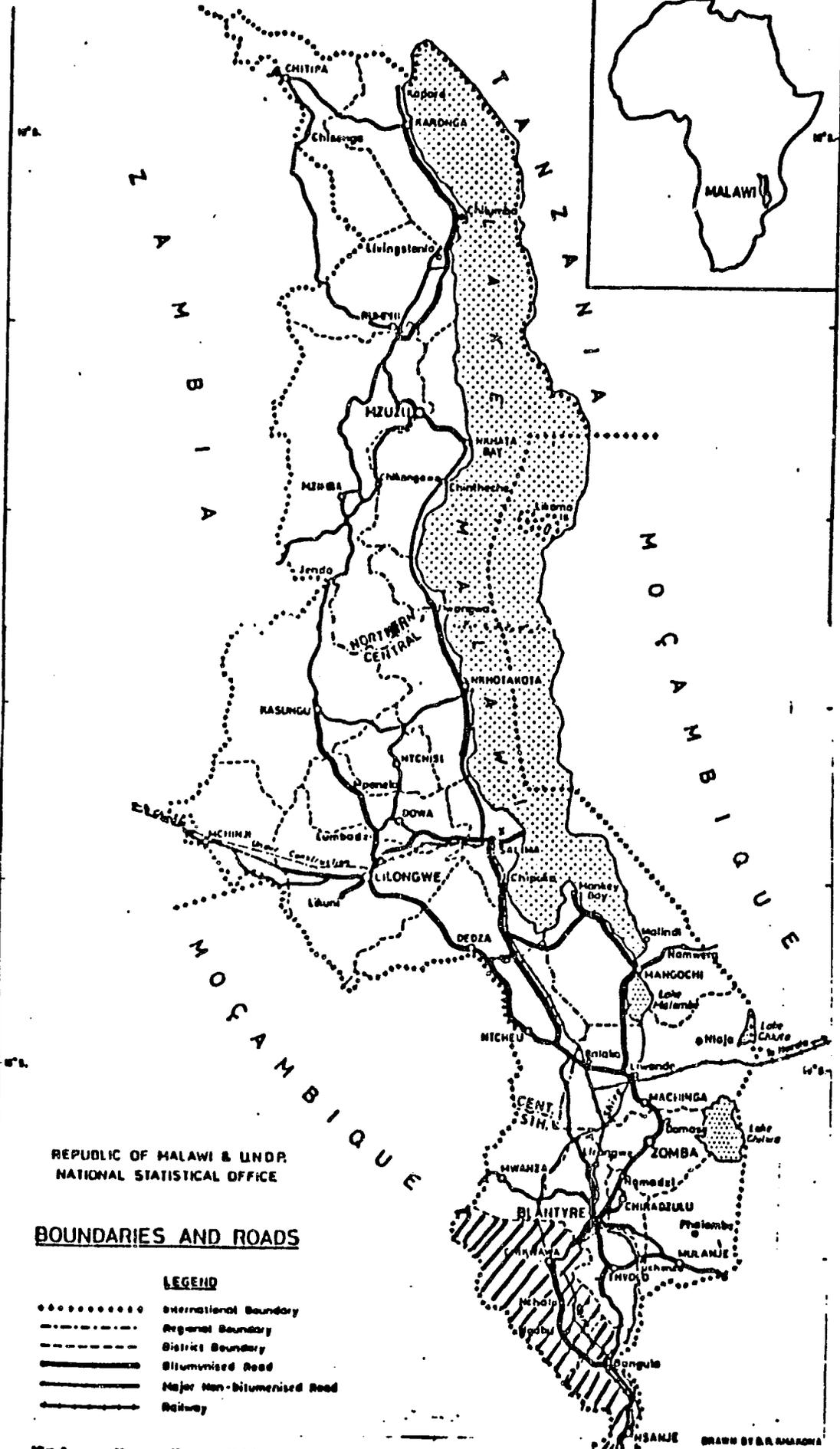
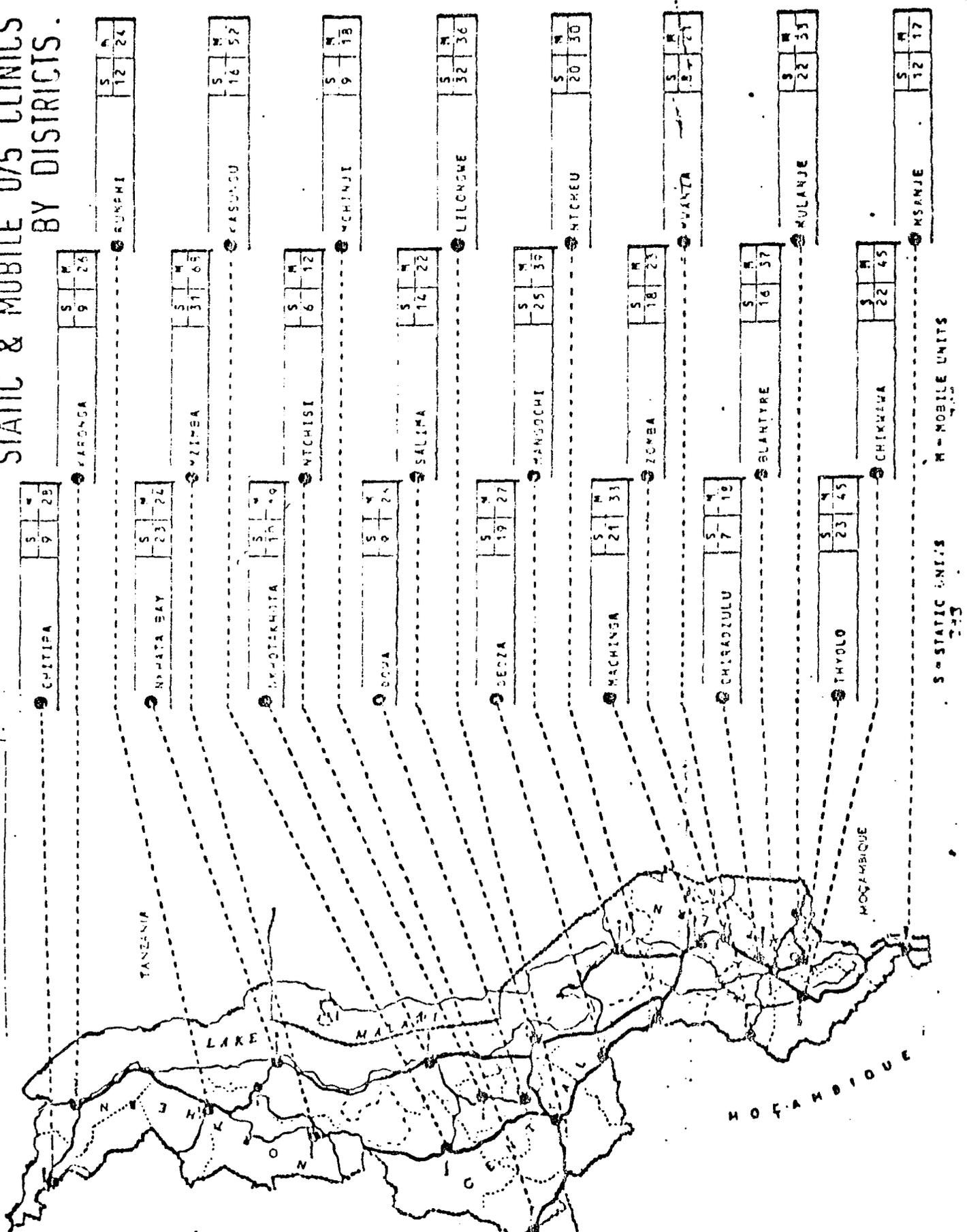


FIGURE D.2. Map of Expanded Program on Immunization, Malawi

MALAWI | EXPANDED PROGRAMME ON IMMUNIZATION (EPI)
 STATIC & MOBILE U/S CLINICS
 BY DISTRICTS.



S - STATIC UNITS
 M - MOBILE UNITS

MALAWI

ORAL REHYDRATION THERAPY TRAINING CENTRES, 1985

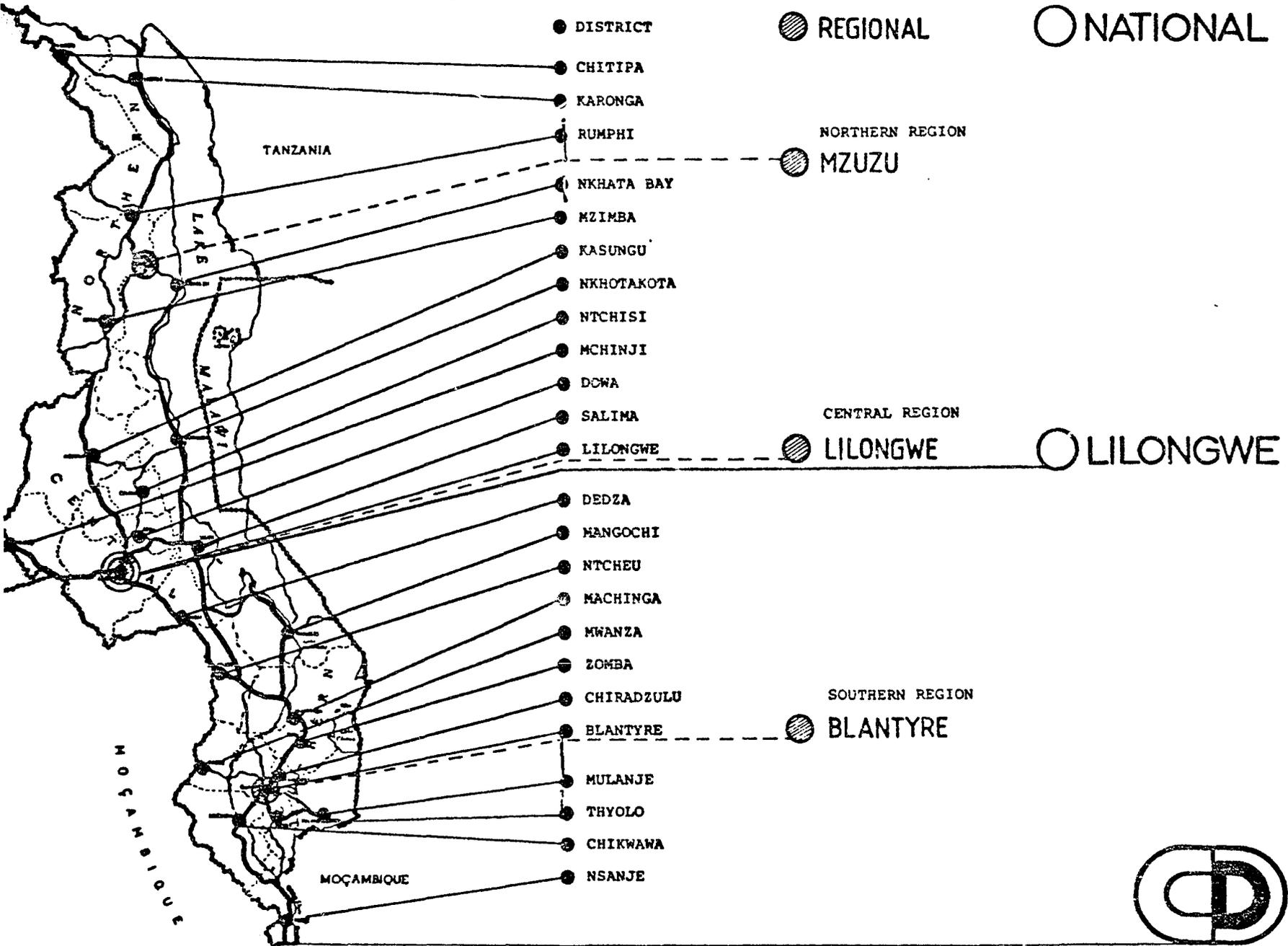
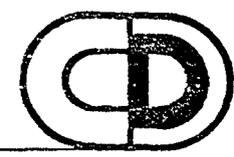


FIGURE D.3. Map of Oral Rehydration Therapy Training Centers, Malawi



MALAWI

12 SITES SELECTED FOR NATIONAL SYSTEM OF SENTINEL SURVEILLANCE

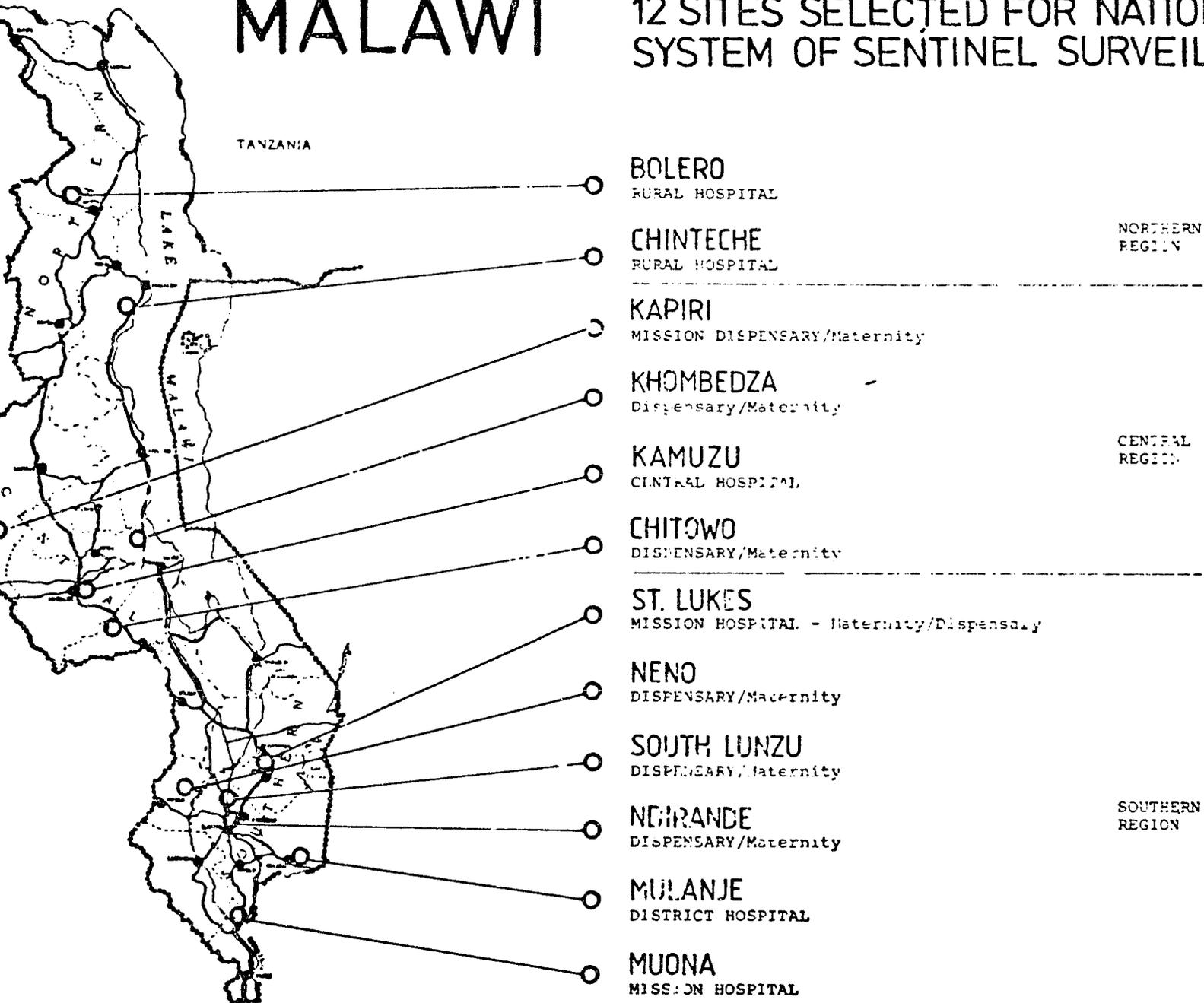


FIGURE D.4. Map of System of Sentinel Surveillance, Malawi