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**PROMOTING HEALTH INTERVENTIONS FOR CHILD SURVIVAL
(PHICS)**

612-0231

PROJECT PAPER

JUNE 1989

Unclassified

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE

A = Add
 C = Change
 D = Delete

Amendment Number

DOCUMENT CODE

3

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3. PROJECT NUMBER
612-0231

4. BUREAU/OFFICE

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5. PROJECT TITLE (maximum 40 characters)

Promoting Health Interventions -
Child Survival

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY
06 30 97

7. ESTIMATED DATE OF OBLIGATION
(Under 'B' below, enter 1, 2, 3, or 4)

A. Initial FY 89

B. Quarter 3

C. Final FY 92

8. COSTS (\$000 OR EQUIVALENT \$1 =)

| A. FUNDING SOURCE | FIRST FY 89 | | | LIFE OF PROJECT | | |
|------------------------|--------------|--------------|--------------|-----------------|---------------|---------------|
| | B. FX | C. L/C | D. Total | E. FX | F. L/C | G. Total |
| AID Appropriated Total | 2,510 | 2,610 | 5,120 | 7,324 | 7,676 | 15,000 |
| (Grant) | (2,510) | (2,610) | (5,120) | (7,324) | (7,676) | (15,000) |
| (Loan) | () | () | () | () | () | () |
| Other U.S. 1. | | | | | | |
| U.S. 2. | | | | | | |
| Host Country | | 25 | 25 | | 2,500 | 2,500 |
| Other Donors) | | | | | | |
| TOTALS | 2,510 | 2,635 | 5,145 | 7,324 | 10,176 | 17,500 |

9. SCHEDULE OF AID FUNDING (\$000)

| A. APPRO- PRIATION PURPOSE | B. PRIMARY CODE | C. PRIMARY TECH. CODE | | D. OBLIGATIONS TO DATE | | E. AMOUNT APPROVED THIS ACTION | | F. LIFE OF PROJECT | |
|----------------------------------|--------------------|--------------------------|---------|------------------------|---------|-----------------------------------|---------|--------------------|---------|
| | | 1. Grant | 2. Loan | 1. Grant | 2. Loan | 1. Grant | 2. Loan | 1. Grant | 2. Loan |
| (1) DFA | 514 | 560 | | | | 5,120 | | 15,000 | |
| (2) | | | | | | | | | |
| (3) | | | | | | | | | |
| (4) | | | | | | | | | |
| TOTALS | | | | | | 5,120 | | 15,000 | |

10. SECONDARY TECHNICAL CODES (maximum 8 codes of 3 positions each)

541 544 545 549 520

11. SECONDARY PURPOSE CODE

531

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code BR BWW EQTY NUTR PART TNG
 B. Amount 5,600 5,600 2,800 700 1,700 1,100

13. PROJECT PURPOSE (maximum 480 characters)

To increase the institutional capacity of the Ministries of Health and Works to deliver child survival services on a sustained basis, and to increase the supply and utilization of these services at the community and family level.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY
 07 93 01 97

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 911 Local Other (Specify) 935

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

Controller Clearance: *Peasley* 6/30/89

17. APPROVED BY

Signature

Carol A. Peasley

Title

Mission Director

Date Signed

MM DD YY
30 06 89

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY
09 25 89

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ACRONYMS

| | |
|------|--|
| ARI | Acute Respiratory Infection |
| CBD | Community Based Distribution (of Contraceptives) |
| CCCD | Combatting Childhood Communicable Diseases |
| CDD | Control of Diarrheal Diseases |
| CHSU | Community Health Sciences Unit |
| CS | Child Survival |
| CWL | Central Water Laboratory |
| CDD | Control of Diarrheal Diseases |
| ECHN | Enrolled Community Health Nurse |
| ENM | Enrolled Nurse Midwife |
| EPI | Expanded Program on Immunization |
| GOM | Government of Malawi |
| HA | Health Assistant |
| HEU | Health Education Unit |
| HESP | Hygiene Education and Sanitation Promotion |
| HI | Health Inspector |
| HIS | Health Information System |
| HSA | Health Surveillance Assistant |
| IEC | Information, Education and Communication |
| IEE | Initial Environmental Examination |
| IMR | Infant Mortality Rate |
| LSHS | Lilongwe School of Health Sciences |
| MCH | Maternal and Child Health |
| MOH | Ministry of Health |

| | |
|--------------|--|
| MOLG | Ministry of Local Government |
| MOW | Ministry of Works |
| NRCM | National Research Council of Malawi |
| OPEX | Operational Expert |
| ORS | Oral Rehydration Salts (Solution) |
| ORT | Oral Rehydration Therapy |
| PCV | Peace Corps Volunteers |
| PHAM | Private Hospital Association of Malawi |
| PHC | Primary Health Care |
| PHICS | Promoting Health Interventions for Child Survival |
| PIU | Project Implementation Unit |
| PM | Project Manager |
| PU | Planning Unit |
| RRC | Research Review Committee (MOH) |
| RU | Research Unit |
| RWO | Rural Water Operators |
| RWS | Rural Water Supply |
| SD | Service Delivery |
| SSS | Sugar Salt Solution |

Project Authorization

Name of Country: Malawi

Name of Project: Promoting Health Interventions for
Child Survival (PHICS)

Number of Project: 612-0231

1. Pursuant to Title II of the Foreign Operations, Export Financing and Related Program Appropriations Act of 1989 (Sub-Saharan Africa, Development Assistance), I hereby authorize the Promoting Health Interventions for Child Survival Project (the "Project") for Malawi (the "Cooperating Country") involving planned obligations of not to exceed \$15,000,000 in grant funds over a five year period from date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project. The planned life of the Project is eight years from the date of initial obligation.

2. The Project consists of assistance to the Cooperating Country to strengthen its institutions primarily responsible for the provision of health care, and to improve and expand primary health care and child survival services through a variety of activities including the deployment of additional trained health staff, the conduct of health systems research, the training of health workers, the provision of health and hygiene education, and the construction of piped water systems, latrines, and washing slabs.

In furtherance of the information, education and communication component of the Project, I hereby authorize musical equipment and pre-recorded video tapes as necessary for IEC activities under the Project.

3. The Project Agreement, which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

4.A. Source and Origin of Commodities, Nationality of Services

Commodities financed by A.I.D. under the Project shall have their source and origin in the United States, in the Cooperating Country, or in countries included in Geographic Code 935, except as A.I.D. may otherwise agree in writing.

Except for ocean shipping, the suppliers of commodities or services shall have the United States, the Cooperating Country, or other countries included in Geographic Code 935 as their place of nationality, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States or Code 935 countries. Air travel and transportation shall be financed only on U.S. flag air carriers to the extent they are available. Procurement of commodities and services of U.S. source, origin and nationality shall be maximized to the extent practicable.

B. Conditions Precedent

(1) Conditions Precedent to First Disbursement

Except as A.I.D. may otherwise agree in writing, prior to the first disbursement under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall furnish or have furnished to A.I.D., in form and substance satisfactory to A.I.D.:

(a) A written statement setting forth the names and titles of persons holding or acting in the office of the Grantee and of any additional representatives, and representing that the named person or persons have the authority to act as the representative or representatives of the Grantee, together with a specimen signature of each such person certified as to its authenticity.

(2) Conditions Precedent to Disbursement for Service Delivery Support (Research Unit, Epidemiology Unit and Health Information System) Activities

Except as A.I.D. may otherwise agree in writing, prior to any disbursement for Service Delivery Support Activities under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall furnish or have furnished to A.I.D., in form and substance satisfactory to A.I.D.:

(a) Written evidence that the Grantee has: a) established an account at the Reserve Bank of Malawi for the deposit of funds provided by A.I.D. to the Grantee for the implementation of the Project; b) assigned a separate vote number and account; and c) for funds provided through each PIL, established a subsidiary ledger account and separate file for paid vouchers supporting expenditure transactions.

(b) Written evidence that a Ministry of Health (MOH) Project Coordinator and Accountant have been appointed and assurance that they will commence work within 60 days of their appointment.

(c) Written evidence that a Project Coordination Committee comprised of appropriate representatives from both Parties has been formally constituted.

(3) Conditions Precedent to Disbursement for Information, Education and Communication (IEC); Hygiene Education and Sanitation (HESP); and Child Survival Services Activities

Except as A.I.D. may otherwise agree in writing, prior to any disbursement for IEC, HESP and Child Survival Activities under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall furnish or have furnished to A.I.D., in form and substance satisfactory to A.I.D.:

(a) Written evidence of a time-phased plan for creating and filling with qualified individuals the new positions within the MOH as required under the Project.

C. Covenants

(1) Policy Dialogue. The Grantee agrees to involve A.I.D. in discussions of policy issues which are likely to affect implementation of the Project.

(2) A.I.D. Concurrence. The Grantee agrees to obtain A.I.D. concurrence for significant project implementation actions including: (a) the plan for the phased creation and filling of new positions; (b) project management and coordination procedures; (c) annual workplans; (d) position descriptions for key staff such as the Project Coordinator and health surveillance assistants; (e) procedures and proposal selection criteria for the child survival research program; and (f) the selection of technical advisors and trainees.

(3) Recurrent Costs. The Grantee agrees to undertake in the Project's second year a review of the Government's program for assuming the Project's recurrent costs. The Grantee will then advise A.I.D. on the program and take all necessary actions to implement it.

(4) Project Coordination Committee. The Project Coordination Committee which will convene at least twice a year will, at its initial meeting(s), develop procedures for the management and coordination of the Project. The Committee regularly will review project progress, address and resolve problems, and plan and coordinate future activities.

(5) Annual Workplans. The Grantee agrees to submit to A.I.D. annual workplans which describe quarterly objectives, estimated financial expenditures, anticipated implementation problems, outstanding actions, and a time frame for proposed activities indicating responsible parties.

(6) Annual Reports. The Grantee agrees to submit with each annual workplan, a short annual report on the preceding year's progress, achievements, and problems.

(7) Use of Project Goods. The Grantee agrees to assure that all vehicles and equipment procured for the Project will be used exclusively for Project purposes and that usage will be carefully monitored and controlled.

(8) Long-Term Trainees. The Grantee agrees to financially support Government employee participants during their absence on long-term training in accordance with existing Government regulations.

(9) Employment of Trainees. The Grantee will ensure that all A.I.D.-financed trainees, upon completion of their training, will serve the Government in an appropriate position commensurate with their newly acquired skills.

(10) Project Evaluation. The Parties agree to establish an evaluation program as part of the Project. Except as the Parties may otherwise agree in writing, the program will include during the implementation of the Project:

(a) evaluation of progress towards attainment of the objectives of the Project;

(b) identification and evaluation of problem areas or constraints which may inhibit such attainment;

(c) assessment of how such information may be used to help overcome such problems; and

(d) evaluation, to the degree feasible, of the overall development impact of the Project.

D. Waiver

A waiver of the 25 percent host country contribution requirement of Section 110 of the Foreign Assistance Act of 1961, as amended, was approved by the Assistant Administrator for Africa on August 26, 1988.

Carol A. Peasley
Carol A. Peasley
Mission Director
USAID/Malawi
30 June 1989
Date

| | | | | |
|-------------|-------------------|--------------------|-------|-------------------|
| Drafter: | ST Norton, PDO | <u>SM</u> | Date: | <u>30 June 89</u> |
| Clearances: | GW Newton, HPH | (Draft) | Date: | <u>6/30/89</u> |
| | RC Day, PO | <u>[Signature]</u> | Date: | <u>6/30/89</u> |
| | RB Amin, CONT | <u>[Signature]</u> | Date: | <u>6/30/89</u> |
| | RL Shortlidge, AD | (Subs) | Date: | <u>6/24/89</u> |
| | JBorns, RLA/REDSO | (Draft) | Date: | <u>6/27/89</u> |

. /

I. EXECUTIVE SUMMARY

A. Introduction

Promoting Health Interventions for Child Survival (PHICS) is an eight-year, \$15 million project to be implemented by the Government of Malawi (GOM) through the Ministry of Health (MOH) and the Ministry of Works (MOW). The goal to which the PHICS project will contribute is the improved health status of rural Malawians with emphasis on decreasing child morbidity and mortality. The target for goal achievement is a decrease in the overall level of mortality and morbidity in Malawi; specifically, a reduction in the infant mortality rate from an estimated 154/1000 in 1989 to 100/1000 in 1997, the last year of the project.

The health priorities to which the project responds and the program strategies chosen are based on the Government of Malawi's National Health Plan (1986-1995) and Statement of Development Policies (1987-1996). Specific needs for additional staff, technical assistance, training, commodities, and operational support with which to address GOM health priorities were identified and requested by the MOH and MOW during the PHICS project design and development process. The project directly addresses the goals and objectives of A.I.D. health, child survival, and child spacing strategies.

B. Terminology

The term "child survival" describes a set of primary health care (PHC), maternal and child health (MCH), and water and sanitation services considered by the Government to play a central role in the improvement of children's health in Malawi. In addition to oral rehydration therapy (ORT) and immunization (A.I.D.'s "twin engines"), the project supports the following GOM child survival priorities: the prevention and treatment of malaria, malnutrition, and acute respiratory infections (ARI), and the provision of child spacing, safe water, and sanitation services.

C. Project Purpose

The project purpose is to increase the institutional capacity of the MOH and MOW to deliver child survival services on a sustained basis, and to increase the supply and utilization of these services at the community and family level.

D. Project Components

The purpose will be accomplished through activities implemented under the project's two main components -- institutional strengthening and service delivery.

1. Institutional Strengthening: Malawi currently lacks the human and financial resources necessary to sustain child survival services. Resource constraints combined with organizational and institutional deficiencies limit the impact of ORT and immunization, the "twin engines" of child survival. To maximize the impact of the "twin engines" and other priority child survival interventions, the project will strengthen the institutional infrastructure on which qualitative and quantitative improvements in child survival service delivery depend. This will be done through: (a) the formal establishment of new MOH positions for service delivery and management staff; (b) the training of Malawians to fill new positions; and (c) the assumption by the GOM of the recurrent costs of these new positions over the long term. The project will result in the institutionalization of an expanded child survival service delivery program, the costs of which the GOM will support on a sustained basis upon project completion.

2. Service Delivery: The project's service delivery activities will increase access for twenty percent of the nation's population to safe water, sanitation, and child survival services. Fundamental to this component is the implementation of a child survival research program and a community-based service delivery system which the GOM can afford to sustain over the long term. Approaches to be field-tested under this component include: (1) introducing the community-based distribution of modern methods of contraception (CBD); (2) determining the feasibility of home-based prevention and early treatment of malaria and diarrheal diseases; and (3) harnessing the community organization which coalesces around the construction, use, and maintenance of water systems to initiate and sustain sanitation and child survival services. Lessons learned from field experience gained under this project regarding how best to deliver child survival services will be utilized by the GOM in the formulation and refinement of child survival policies and programs.

E. Project Activities

The project's five activities are:

1. Information, Education and Communication (IEC):
Expand the MOH Health Education Unit (HEU) and strengthen and institutionalize the Unit's capacity to develop and disseminate messages leading to the adoption of behaviours and the use of services which improve child survival.
2. Service Delivery Support: Improve the capacity of the MOH to plan, implement, monitor, and evaluate child survival services through the strengthening of key MOH operational units -- Research, Epidemiology, Health Education, Health Information, Control of Diarrheal Diseases (CDD) and Malaria, and Environmental Health (Sanitation and Hygiene Education).
3. Service Delivery: Assist the MOH to design, implement, evaluate, and replicate a community-based child survival program which has measurable impact on child morbidity and mortality and which can be sustained over the long term with resources available to the GOM.
4. Rural Piped Water: Assist the MOW and rural communities to increase access to safe water through an extension of the gravity-fed piped water system and, in so doing, contribute to the key MOH child survival goal of preventing water-borne diseases, particularly diarrheal diseases among children.
5. Project Management: Strengthening the capacity of the MOH Planning Section and Project Implementation Unit to plan and manage MOH programs, including the PHICS project.

F. Institutionalization and Sustainability

At the conclusion of the PHICS project, key child survival services and support activities will be institutionalized and the Government of Malawi will have substantially increased its long-term commitment of human and financial resources to preventive health and child survival in Malawi. Consequently, the GOM will be better able to sustain child survival services over the long term.

G. Estimated Budget

Project activities will be funded as follows:

| <u>Project Activity</u> | | <u>Amount (US\$000)</u> |
|---|-------|-------------------------|
| 1. Information, Education, and Communication | | \$ 1,805 |
| 2. Service Delivery Support | | 3,384 |
| a. Research Unit | 1,102 | |
| b. Epidemiology Unit | 1,811 | |
| c. Health Information System | 471 | |
| 3. Rural Piped water (MOW) | | 5,099 |
| 4. Service Delivery | | 3,216 |
| a. Hygiene Education and Sanitation Promotion | 1,850 | |
| b. Child Survival Services | 1,366 | |
| 5. Project Management | | 434 |
| 6. Evaluation and Audits | | 340 |
| 7. Contingency | | 722 |
| Total | | \$15,000 |

II. PROJECT BACKGROUND

A. The Status of Children's Health

The main health problem in Malawi is the high level of child mortality and morbidity. Children under five years of age make up seventeen percent of Malawi's total population but account for over half of all deaths in the country. The infant mortality rate (IMR), when last measured on a national basis in 1984 (Family Formation Survey), was 154/1000. The level of infant mortality varies widely among Malawi's twenty-four districts, from a low of 75/1000 in Zomba (Southern Region) to a high of 212 in Dedza (Central Region). The under-five mortality rate was estimated by UNICEF to be 270 in 1986. A significant reduction in childhood mortality in Malawi could be achieved through the application of currently available strategies for the treatment of malaria, diarrhea, and immunizable diseases. Based on routine inpatient reporting in 1987, the leading causes of mortality among children under five were malaria (18%), measles (13%), anemia (13%), and diarrhea (7%). The leading causes of morbidity among children under five generally parallel those of mortality, with malaria the most prevalent, accounting for one-third of all in and outpatient visits. Between 1984 and 1987 there was a 5% increase in the incidence of malaria among children under five, a 13% increase in pediatric malaria admissions, a 33% increase in pediatric malaria deaths in hospitals, and a 25% increase in malaria case fatality. The increase in the severity of malaria is in part due to the development of chloroquine resistance in 1983. In the course of one year, children in Malawi are estimated to suffer, on average, thirteen episodes of malaria fever and seven episodes of diarrhea. Neonatal tetanus and respiratory infections also take a heavy toll. The high burden of infectious disease when coupled with the high prevalence of chronic malnutrition in Malawi has a devastating impact on child survival.

B Economic Overview of Health

Malawi's annual per capita income in 1987 was US\$174, below the average for sub-Saharan Africa. After growing strongly in the 1970s, the economy has experienced formidable difficulties in the 1980s. The GOM is responding to these problems in the context of a structural adjustment program with the World Bank and an IMF stabilization program. However, at best, the prospects are for slow economic growth over the coming years with no better than a slight increase in GDP per capita through the early 1990s. In confronting these economic difficulties, the GOM recognizes the critical importance of achieving fiscal discipline. Although projections differ

somewhat, even under the more optimistic projection, the rate of real growth of government expenditure will be meager over the coming years and will in any case represent a decline in real government expenditure per capita for the whole ten-year period.

This sketch of macroeconomic expectations and overall GOM fiscal policy make it clear that fiscal stringency will be very much the order of the day for the medium term. However, it is important to remark that the implications for health-sector financing may be less ominous than this overall picture suggests. For one thing, the health sector is seen in Malawi as an integral part of the overall development program and effort. Thus, as set out in the GOM's Policy Framework statement:

"Malawi's large unexploited human resource investment opportunities offer significant potential for economic growth. Levels of education, health and nutrition in Malawi are some of the lowest in sub-Saharan Africa. Thus, the Government places high priority on expanding the social infrastructure ... The impact on growth of these policies would be in the longer run."

It is also important to recognize that the Government hopes to overcome Malawi's serious economic development problems while at the same time not causing a deterioration in the position of the most vulnerable and disadvantaged groups. As part of this, the Government seeks to improve the provision of social services, including health services. Pursuant to this, and as spelled out in the Statement of Development Policies 1987-1996, the Government plans an average annual rate of increase in the MOH budget in real terms of 5.7 percent over this period, a significantly faster rate of growth than is projected, even under the more optimistic scenarios, for GDP or for overall Government expenditure. It is clear that even while responding with fiscal discipline to current macroeconomic problems, the GOM has made a remarkable commitment to a major effort to support the health services.

C. Overview of National Health System

Since independence, the GOM has adopted various approaches in response to health needs in the country. The first five-year plan covered the period 1965-1970 and was based on the principle of curative medicine. Much of the health services at that time were concentrated on the development of physical infrastructure and human resources to support the health facilities. The GOM recognized the limitations of the plan in terms of health impact, and consequently adopted the 1973-1978 Health Plan. This plan emphasized the following: (a) reorganization of the Ministry of Health (MOH); (b) development of basic health

services; (c) control of communicable diseases; (d) improvement and extension of existing hospitals, and the creation of a training school for paramedicals; and (e) human resources and staff development. In addition, a "mini-plan" for maternal and child health care was adopted with the following objectives: (a) increase immunization coverage to 90 percent of children under-five; (b) provide health and nutrition education to combat malnutrition among children, pregnant women and nursing mothers; and (c) promote family life education. In 1978, the GOM moved to a strategy of primary health care (PHC), the principle of providing health services through community involvement and multi-sectoral cooperation. Attention was devoted to maternal and child health care (MCH), water and sanitation, early treatment of major diseases and the creation of the PHC delivery system. The current ten-year National Health Plan (1986-1995) continues to focus on PHC and emphasizes decentralized planning and management by shifting more control to the country's three regions and 24 districts.

A favorable policy climate exists in which to make progress on Child Survival. The current National Health Plan emphasizes sensible and appropriate approaches which focus on: (1) the at-risk under-five age group; (2) priority diseases for which there are technically feasible interventions; (3) the expansion of health services into peripheral, underserved areas; (4) prevention and early treatment; (5) the development of institutional and human resources; and (6) expanding access to child-spacing services as part of the MCH program.

Most health services in Malawi are delivered either through the MOH or the Private Hospital Association of Malawi (PHAM). A small portion of services are provided by local government, army, police agricultural estates, industry, private physicians, traditional healers and traditional birth attendants (TBAs). About 80 percent of Malawians live within five miles of a fixed health facility.

The MOH is responsible for establishing national health policy. It conducts comprehensive preventive, curative, and educational activities, including emergency care, obstetric care, pediatric care, surgery, maternal care, child care, infant care, child spacing, and so on. These services are provided at five levels as follows:

1. Community Level: Outreach activities conducted through mobile clinics which focus on health education, sanitation, diarrheal diseases, immunizations, pre- and post-natal care, child spacing, growth monitoring and limited curative care.

2. Health Centers and Rural Hospitals: In addition to outreach services at the community level, offer limited in-patient care and curative services, pre-natal care, natal care, post-natal care, infant care and in many cases nutrition clinics.

3. District Hospitals: Essentially referral centers for the health centers and the primary facility serving local towns, offering in-patient and out-patient services for maternity, pediatric, adult male and female, communicable diseases, all preventive services and outreach activities offered at the health centers.

4. Central Hospitals: All services offered by district hospitals plus specialised referral care for their region and act as training hospitals.

5. Special Hospitals: Offer specialized services, e.g., mental health, and in-patient care for leprosy and tuberculosis.

These fixed facilities absorb a large share of the MOH recurrent budget and are, for the most part, severely overutilized. There is a need to give greater emphasis to preventive services at the village level to relieve pressure on these facilities while increasing the efficiency of the health care system.

D. Major Constraints to Health Development

Lack of resources and institutional deficiencies are the main constraints which limit the attainment of national health objectives. The National Health Plan identifies insufficient financial and human resources and weak management and implementation capacity as priority problems. Health expenditures in 1988/89 will amount to approximately three dollars per person and will be spent largely on curative as opposed to preventive care. There is a dearth of ministerial staff (in number and experience) at the central, regional, district, and community levels. Many basic service delivery support systems at the central MOH level are in their early stages of development (e.g. research unit), and some not yet established (epidemiology). The physician to population ratio is 1:60,000, with only six Malawian physicians currently engaged in clinical practice. The health fieldworker to population ratio is 1:25,000 -- or one worker for every 37 villages.

The population of Malawi is young, rural, and growing fast. Between 1977 and 1987 Malawi's population grew 44% from 5.5 million to almost 8 million, a provisional growth rate of

3.7%. The rapidly growing population will further increase the level of demand for health services on an already overtaxed and underfunded service delivery system.

Low levels of health knowledge in Malawi compound problems related to the supply of health services. A recent review of Malawi's Primary Health Care program (GOM/UNICEF/WHO 1987) revealed a pervasive lack of knowledge among mothers with respect to immunization-preventable diseases and the prevention and treatment of diarrhea and malaria. Knowledge of modern methods of contraception is limited to 5% of women surveyed (Family Formation Survey).

E. A.I.D. and Donor Support to the Health Sector:

1. A.I.D. Support: A.I.D. support to the public health sector in Malawi is structured upon two separate but complementary program strategies; the first, seeks to assist the MOH to implement an effective and sustainable service delivery system to prevent childhood diseases and reduce associated morbidity and mortality. This strategy, which directly addresses A.I.D. health and child survival policies, has been implemented through the CCCD project and will continue to be supported through PHICS. The second, supports the service delivery strategy through health manpower development activities. This strategy is being implemented through the Human Resources and Institutional Development (HRID) and Health Institutions Development (HID) projects.

The USAID health program in Malawi has the following objectives: (1) to increase knowledge, access, and use of child survival and child spacing services among rural populations at the community and family level; (2) to assist the GOM to strengthen and institutionalize child survival program planning, implementation, and evaluation capability and; (3) to promote the long-term sustainability of child survival services.

The principal USAID/Malawi bilateral projects designed to meet these objectives are: (1) Human Resources and Institutional Development (HRID), an eight year, \$18 million multi-sectoral human resources project designed to support, inter alia, the strengthening of MOH planning and management capability; (2) Health Institutions Development (HID), a six year, \$9.7 million project designed to increase and institutionalize MOH capacity to train paramedical staff, particularly with respect to the delivery of primary health care and child spacing services; (3) Self Help Rural Piped Water Supply, an eight-year, \$6 million project designed to reduce the prevalence of diseases in rural villages through the provision of potable water and health and sanitation education (PACD December 1988); (4) Combatting Childhood Communicable Diseases (CCCD), a four-year project with

approximately \$3.7 million in combined bilateral, regional, and central funding designed to reduce infant and childhood mortality and morbidity resulting from malaria and diarrheal diseases. With the exception of the Mangochi malaria research component, which has been expanded and extended through 30 June 1990, the CCCD project and its companion HEALTHCOM project ended 30 September 1988; (5) Services for Health, Agriculture, and Rural Enterprises (SHARE), a seven-year, \$10 million project planned for FY90 under which approximately \$6 million will support the expansion of child survival and child spacing services in the PVO/NGO sector in Malawi; and (6) PHICS absorbs and builds upon both the rural piped water project and the CCCD project and addresses additional priority requests made by the GOM with respect to the delivery and institutionalization of child survival services.

USAID's health portfolio includes a variety of centrally-funded health, population, AIDS and nutrition projects implemented by Cornell and Harvard Universities (nutrition); the Adventist Development Relief Agency (ORT, immunization, and nutrition); the International Eye Foundation (ORT, immunization, vitamin A); Save the Children Federation (ORT, immunization, and nutrition education); Family Planning International Assistance (child spacing services); SOMARC (contraceptive social marketing); John Snow International/CDC (child-spacing commodities and logistics), AIDSCOM (AIDS), Project HOPE (AIDS), and Johns Hopkins University (AIDS). In addition, proposals are under development for support from the Association for Voluntary Surgical Contraception and AIDSTECH.

2. Other Donors' Support: A.I.D. support to the health sector in Malawi complements support from other donors. As of 1988, sixteen different donors were financing over sixty discrete health projects in Malawi. Donor contributions of \$7.6 million account for approximately 85% of Malawi's \$9 million health sector development budget. In addition, there are scores of contributions through overseas NGOs (mostly Christian Missions) to the PHAM affiliates.

UNICEF is the only other donor which supports a large scale, national-level program focused on child survival. With funding from the Government of Italy and Rotary International, UNICEF provides comprehensive assistance to the EPI program in Malawi through its four year (1986-89), \$4.5 million "EPI/MCH" Program. In addition, UNICEF supports a wide range of child survival activities through its \$9.0 million "Child Survival and Development Program" (1988-92) and is raising an additional \$5.0

million in supplementary funding to support this program. The World Bank supports child survival activities in the context of Malawi's MCH program. WHO plays a key role in the health sector but mainly as an implementing agency and not as a donor.

3. Support of Child Survival: In addition to the "twin engines" of ORT and immunization, interventions designed to address malaria, ARI, AIDS, malnutrition and high fertility are central to improving children's health and survival in Malawi. There follows a summary of USAID and other donors' activities in some of these priority areas:

a. Control of Diarrheal Diseases (CDD)/ORT: USAID support focuses on: the prevention of diarrheal diseases through increased access to safe water, sanitation, and hygiene education services; research to resolve critical CDD service delivery issues such as the identification of home-base ORT solutions and the identification of effective and affordable providers of ORT and CDD services in the community (PHICS); strengthened supervision and management of the ORT program (PHICS and HRID); basic and in-service training in ORT (HID); the development and dissemination of CDD IEC materials (PHICS); and improved access to CDD/ORT information and services through the deployment of 550 additional male and female field workers (PHICS).

Other donors are supporting ORT training for PHC committee members, teachers, and field workers (UNICEF); ORS packets (UNICEF); CDD IEC materials and general training in "priority diseases" (IDA).

b. Immunization: USAID support for technical assistance, training, commodities, and operating expenses to refine and decentralize the MOH health information system (HIS) will allow the MOH to improve its capacity to monitor EPI program target attainment and impact (PHICS).

UNICEF, with support from the Italian Government and Rotary International, is providing comprehensive support to the GOM for its EPI program.

c. Malaria: USAID support focusses on: technical assistance, training, commodities, operating expenses, and research to identify effective and affordable community-based malaria prevention and treatment strategies; and health education and training to improve home and health-worker treatment practices (PHICS). The malaria research component of the CCCD project continues and has recently been expanded and extended. The project is designed to determine the effect of antimalarial drugs (chloroquine and mefloquine), taken by women

during pregnancy, on birth weight and other indicators of child and maternal health. The results of this study should have important implications for Malawi's national malaria policy.

Other donors' support for malaria control includes commodities (UNICEF and IDA), training of health workers (IDA), and research (WHO).

d. Child spacing: The primary focus of the bilaterally-funded HID project is on the establishment and institutionalization of a child spacing training program in Malawi. The project is providing child spacing training to all categories of paramedical health personnel and developing the capacity within Malawian training institutions to continue this training. A.I.D. is Malawi's main source of contraceptive supplies and related technical assistance and training in contraceptive logistics. To further expand access to modern methods of contraception, at the request of the GOM, the design process has begun for the establishment of a contraceptive social marketing project to be funded with A.I.D./W central funds under the SOMARC project. In addition, FPIA supports child spacing service delivery activities in the public and private sector, and AVSC, at PHAM's request, is developing a proposal to help improve access to and the quality of surgical contraception in the private sector.

UNFPA and the World Bank are the other principal supporters of Malawi's child spacing program. Support from UNFPA focuses on policy development, service delivery, data collection, demography, and IEC. The World Bank supports the construction and renovation of health facilities, orientation of village health committee members, IEC materials, and support for clinical contraception.

e. Nutrition: The USAID Mission is giving increased attention to the nutrition problem in Malawi. Through major centrally-funded nutrition surveys (conducted by Harvard and Cornell), an analytical framework for understanding the nature and causes of the nutrition problem is being developed. Results from a recently-conducted Harvard study lend support to the PHICS project emphasis on the prevention and early treatment of childhood diseases, especially diarrheal diseases, as an effective way to prevent nutritional problems. Analysis of these studies and others -- notably the Cornell "vulnerability" study designed to determine the effects of structural adjustment on vulnerable households -- will provide the basis for policy dialogue with the GOM and other donors and for the design of future programs particularly in the health and agriculture sectors. In addition to the above-mentioned studies, A.I.D. supports nutrition education (PHICS and SCF); health worker training (HID and ADRA); and vitamin A distribution (PHICS, IEF, ADRA, and SCF).

Other donors' support to nutrition includes nutrition surveillance and policy dialogue (UNICEF, with USAID/Cornell); nutrition IEC (UNICEF); growth monitoring (IDA, WHO, UNICEF); and micro-nutrient supplementation.

f. Institutionalization, Sustainability and Health Care Financing: The over-arching issue which the project will help the GOM address is the problem of institutionalizing and sustaining child survival services over the long term. This is a gap in donor support to child survival in Malawi which USAID will help close. PHICS embodies a number of strategies which will lead to the institutionalization of a sustainable child survival program.

(i) Increase the overall level of human and financial resources devoted by the GOM to preventive health and child survival. PHICS will result in a substantial increase in the level of human resources devoted by the GOM to preventive health and child survival. The MOH identified its manpower needs in connection with recent organizational and manpower assessments. Under PHICS, the GOM has agreed to meet many of these needs with the formal establishment of nearly 700 new positions identified by the MOH as necessary for qualitative and quantitative improvements in child survival service delivery. Over ninety percent of the new positions (630) will be created where they are needed most -- at the community level. Service delivery support functions (mainly supervision and health education) will be decentralized with the establishment of new positions at the regional (15/2%) and district (34/5%) levels. Twelve new positions at MOH headquarters in the Preventive Health Services and Research divisions will strengthen program policy formulation, planning, implementation, and evaluation capacity.

PHICS will also result in a substantial increase in the financial resources committed by the GOM to preventive health and child survival over the long term. Based on an economic analysis done during project development, the GOM has found the project's recurrent costs affordable and has agreed to assume the recurrent costs associated with the project by the first post-project year. Recurrent costs are mainly related to the above-mentioned new staff and their transport and training.

(ii) Emphasis on prevention and treatment at the community and family level: The project's emphasis on the prevention of diarrheal diseases through extending access to safe water and hygiene education and sanitation services is intended to contribute to a sustainable long term solution to

this problem. Likewise, the project's focus on improving the capacity of families to prevent and treat childhood diseases at home is intended to enhance the sustainability of child survival services.

(iii) Train Malawians to plan, implement, and evaluate the child survival program: Through the HRID, HID, and PHICS projects, USAID is playing a leading role in helping Malawi become self-sufficient in terms of the manpower needed to deliver health services on a sustained basis. PHICS will support the training of Malawians to staff an expanded and decentralized child survival and preventive health care program. Support from the HRID project to the MOH will complement support from PHICS and is designed to help strengthen the ministry's overall planning, implementation, and evaluation capabilities through long- and short-term training and technical assistance. Listed in Table 1 are training needs identified during the PHICS project development process for possible HRID funding. The HID/Howard University project supports pre- and in-service training for all categories of paramedical staff. The central objective of the HID project is to institutionalize a PHC training program which can be sustained by the MOH after the project's termination.

(iv) Assist the MOH identify an effective yet affordable primary health care service delivery system: Because the nature and range of community-based services in Malawi is still evolving, the Statement of Development Policies identifies the need to evaluate and refine the "...techniques, roles and relationships for village volunteers, HSAs, village committees and health center teams". PHICS provides the MOH with the means to do this by field-testing, evaluating, and designing service delivery approaches prior to their replication on a large scale. Central to the evaluation of different approaches is the question of their affordability by the GOM over the long term.

(v) Assist the GOM assess opportunities for cost recovery: The project will provide the GOM with the means to explore the feasibility of cost recovery. Through support of health care financing studies and surveys which build upon experience to date, PHICS will allow, for example, the MOW to take the next steps in determining who is willing and able to pay, how much, to whom, and for what types of water and sanitation services. Access, equity, and the costs of administering cost recovery schemes will be among the issues to be evaluated.

(vi) Assist the GOM identify opportunities and implement measures to reduce the costs of health care: The project will support GOM efforts to deliver curative and preventive health care services more efficiently, thereby increasing the overall level of resources available for preventive health care.

(vii) Increase the supply of preventive health and child spacing services in the private sector. A.I.D.'s health portfolio includes two planned projects which will promote sustainability through the privatization of child survival and child spacing services. The SHARE project will enable local NGOs to expand child survival and child spacing services, and the SOMARC project will help increase the availability of child spacing and STD prevention services in the private sector.

F. PHICS and Child Survival

Immunization and oral rehydration therapy (ORT) are the two principle instruments for achieving A.I.D.'s child survival strategy. Malawi, as an A.I.D. child survival emphasis country, has implemented nationwide immunization and ORT programs. The EPI program is funded by UNICEF, whereas the Control of Diarrheal Diseases (CDD) program is supported by USAID and a number of other donors. The PHICS project will provide major support for the expansion and improvement of the CDD program and will supplement UNICEF support for EPI.

Immunization: Malawi's Expanded Program on Immunization (EPI) is considered one of the best in Sub-Saharan Africa. Malawi has an EPI policy, and a five-year EPI implementation plan (1985-1989) which includes a service delivery strategy, objectives and targets. A WHO sample survey done in August 1988 indicates significant increases in immunization coverage. Immunization coverage was found to be 71% for measles, 72% for DPT 3 and polio 3, and 80% for BCG. The evaluation suggests that national immunization goals will likely be met by the end of 1989 if the present acceleration can be sustained. The one exception is TT2 which is estimated to have a coverage of 40% among pregnant women. A major concern arising from the evaluation is that measles mortality and morbidity has not declined in spite of the high levels of immunization coverage achieved. By contrast, pertussis incidence has declined by half. CCCD reported a 43% decrease in paralytic poliomyelitis and a 50% decrease in tetanus among children under one year of age between 1984 and 1987. UNICEF, with funding from the Italian Government and Rotary International, provides

comprehensive support to the Malawi EPI program. Due to the high level of support from UNICEF for EPI, the CCCD project had minimal input into the Malawi EPI program.

The PHICS project will complement UNICEF assistance to EPI in several ways: support to strengthen overall MOH information, education, and communication (IEC) capabilities regarding key child survival interventions will permit an increase in EPI-related IEC activities; support to establish an epidemiology service in Malawi and for the refinement and decentralization of the MOH health information system (HIS) will improve MOH capabilities to conduct disease surveillance and to monitor and evaluate the EPI program; support for a new cadre of health workers who will work at the community-level with village health committees on EPI mobilization and service delivery; and support for a child survival research program will assist the MOH to identify practical ways to implement EPI services which can be sustained and afforded by the GOM over the long term. In addition, under the HID project, immunization is one of the key child survival interventions on which training programs for all categories of health staff focus.

ORT: USAID's other principle child survival intervention, ORT, plays a key role in Malawi's Control of Diarrheal Diseases Program (CDD) which, though more recently established than the EPI program, has made progress. Malawi has formulated a national diarrheal diseases control policy and a five-year implementation plan which includes strategies, objectives and targets for the reduction of mortality and morbidity due to diarrheal diseases. ORS/ORT is now widely available in fixed health facilities throughout Malawi. CCCD reported that the incidence of diarrheal diseases among children under five years of age declined by 33% between 1984-1987 (based on available outpatient reports from clinical facilities). Progress in combatting diarrheal diseases in Malawi has been achieved with the support of training, technical assistance and

commodities provided by the CCCD project and by support from USAID and other donors to increase access to safe water, sanitation and hygiene education.

Much work remains to be done, however. The two principle CDD problems on which PHICS will focus are, the long-term prevention of diarrheal diseases, and the establishment of a sustainable capability at the village and family level to prevent and treat diarrheal disease. The project's service delivery component will support, in select project areas, the integration of water and sanitation, hygiene education, and ORT/ORS (as well as other child survival interventions) in an effort to both prevent diarrheal diseases as well as to reduce morbidity and mortality associated with it. Support for health education will assist the MOH improve health providers' and consumers' knowledge of proper ORT/ORS practices. In addition, the project will support the formal establishment of an MOH position for a manager of the national Malaria and Diarrheal Diseases Control Program.

In addition to support for USAID's two primary child survival interventions -- ORT and immunization -- PHICS will also address the following child survival problems of special concern to Malawi: malaria, malnutrition, child spacing, acute respiratory infections (ARI), and AIDS. Of central concern to the PHICS project is the over-arching child survival issue of sustainability discussed in section II.E.

G. PHICS and CCCD

Over a period of approximately four and one-half years, CCCD supported MOH malaria and diarrheal disease control efforts by providing technical assistance, training, and commodities to strengthen MOH capability in research, epidemiology, health information and health education. CCCD helped the MOH lay the groundwork for its malaria and diarrheal diseases control program. Based largely on information collected under the CCCD project concerning malaria and diarrheal disease treatment practices, cultural perceptions, and epidemiology, the MOH developed malaria and diarrheal disease control policies, service delivery strategies, training curricula, and implementation plans. Building upon the work of CCCD, the PHICS project will provide the MOH the means to institutionalize and sustain these and other disease control programs and services.

1. Epidemiology: Under CCCD, technical assistance in epidemiology was provided to the MOH by a long-term regional advisor resident in Malawi. PHICS will establish and institutionalize an MOH epidemiology service. Under PHICS, key epidemiology positions will be established at central and

regional levels and Malawians will be trained to fill them. While a Malawian is in training to head the unit, the project will provide a technical advisor to fill a line position in the newly-established MOH epidemiology unit. Malawian staff will receive academic training in the U.S. at the D.Sc. and Masters degree level, and in-service diploma and certificate-level epidemiology training programs will be initiated in Malawi. The project will result in the establishment of permanent epidemiology capability in the MOH, the recurrent costs of which will be supported by the GOM after the project's conclusion.

2. Health Information System: With support from CCCD and other donors, a Health Information System (HIS) has been established within the MOH. A sentinel surveillance system for monitoring diarrhea and malaria treatment and control practices supplements the HIS. The system is considered to be potentially one of the best of its kind in Africa. The HIS permits the monitoring of EPI, malaria, and DDC targets as well as nutritional surveillance. PHICS will support the refinement and decentralization of the HIS system. UNICEF supports the sentinel system.

3. Health Communications: The HEALTHCOM project assisted the MOH Health Education Unit (HEU) to research, pretest, and produce information, education, and communication (IEC) materials focused on the reduction of morbidity and mortality due to malaria and diarrhea. A variety of materials for health workers and community health volunteers were developed and some have been tested and are ready for dissemination nationwide. PHICS support will allow remaining HEALTHCOM/MOH materials to be tested and reproduced for widespread use in the field by healthworkers. PHICS will provide increased support for health promotion and communications in Malawi. The project will support health communications activities in a broader range of areas beyond malaria and diarrheal disease control including nutrition, ARI, child spacing and AIDS. While the focus of PHICS support is on the MOH (HEU), other important communication networks will be supported such as the Malawi Broadcasting Corporation. The main objective of the PHICS project is to institutionalize a decentralized health education program in Malawi which the GOM will support and sustain.

4. Control of Diarrheal Diseases (CDD): CCCD played a leading role in the development of CDD policies and programs in Malawi. With CCCD support, oral rehydration therapy and ORS is now widely available in fixed facilities throughout the country. The main objectives of PHICS support for Malawi's CDD/ORT program include: to improve the quality of services available at fixed facilities; to extend the availability of ORT/ORS services to the community level; to provide families the means to prevent, diagnose and treat diarrheal diseases at home; and to prevent diarrheal diseases through increased access to

and utilization of safe water, sanitation, and hygiene education. Technical assistance to the MOH CDD program will be continued under the project through the provision of advisors in CDD service delivery, research, and epidemiology. An increase in the number of community-level healthworkers and an expansion and decentralization of the MOH health education program should help achieve these objectives.

5. Malaria Control: CCCD played a leading role in the study of malaria in Malawi and the development of treatment and control policies. In part due to the development of chloroquine resistance in 1983, malaria mortality and morbidity among under-fives has increased. Community-based malaria prevention and treatment is thought essential to reverse this trend. PHICS will provide the support needed to undertake the operations research on which to base malaria control strategies and to implement these strategies on a wider scale. This support will complement the recently expanded MOH/CDC malaria research project in Mangochi district funded by USAID under the ACSI-CCCD project.

6. Expanded Program on Immunization (EPI): The CCCD program had minimal input into Malawi's EPI program. PHICS support for the establishment of an epidemiology service and the strengthening of the HIS will permit the institutionalization of EPI program monitoring capability.

H. PHICS and WID

Women, along with their children, are the primary beneficiaries of project-supported services. Women are the main beneficiaries of the project's piped water component. Benefits include those associated with improved health and time-savings, as well as those associated with women organizing into village committees to help construct and manage water systems. The project's health communications component is directed at improving women's health knowledge and skills as the primary caretakers of children. Women are obvious beneficiaries of the project's child spacing component, designed to improve maternal as well as children's health. Women also play a fundamental role in project implementation. One of the project's central hypotheses is that women are effective and acceptable providers of health care to other women and their children. The project will support the supervision, transport, and salaries of 550 new community-based Health Surveillance Assistants (HSAs) and approximately 150 new MOH positions at the central, regional, and district level. Given the centrality of women as providers and beneficiaries of child survival services, every effort will be made to hire women for these positions and to include women in associated training programs.

Data collected to measure project impact on health and child spacing knowledge, attitudes, and practice (KAP), and to track progress on the hiring of new health staff and the training of new and existing staff, will be disaggregated by gender to enable the project's impact on women in Malawi to be closely monitored.

I. PHICS and Recurrent Costs

The handling of recurrent costs associated with PHICS project activities is in conformity with guidance given in the A.I.D. Policy Paper on Recurrent Costs (May 1982). The recurrent cost implications of the PHICS project were analyzed comprehensively during the project design phase. The results of the analysis (presented in Annex A.5 and summarized in Table 2) indicate that the GOM can afford the recurrent personnel, training, and operational costs related to the the PHICS project. The GOM has provided written assurance that recurrent costs will be assumed according to an agreed-upon schedule. GOM agreement to assume these costs is also a condition precedent of the project. In addition, promoting the sustainability of health services is a key goal of the PHICS project. Central to the attainment of this goal is the examination of cost-recovery and cost-reduction issues in the health sector in Malawi. The PHICS project will support technical assistance, training, and research to assist the GOM with the formulation of a health care financing strategy to determine the extent to which revenues can be increased from fees-for-service in Malawi, and the extent to which in-kind contributions can be increased from, for example, volunteer village labor to construct and maintain water and sanitation facilities (see section II.E. for a more detailed discussion of health care financing issues).

III. PROJECT DESCRIPTION

A. Goal

The goal to which the PHICS project will contribute is the improved health status of rural Malawians with emphasis on decreasing child morbidity and mortality. The target for goal achievement is a significant reduction in overall mortality; specifically, a decrease in the infant mortality rate from approximately 154/1000 in 1989 to 100/1000 in 1997, the eighth and last year of the project.

B. Purpose and Strategy

The project purpose is to increase the institutional capacity of the MOH and MOW to deliver child survival services on a sustained basis, and to increase the supply and utilization of these services at the community and family level. The

purpose will be accomplished through a combination of institutional strengthening and service delivery activities.

A central objective of the project is to promote the institutionalization and sustainability of child survival services in Malawi. The GOM has provided written assurance that the new positions which the MOH requested under this project will be established and staffed. The GOM also has provided written assurance that the recurrent costs of these positions will be assumed in full by the GOM according to an agreed-upon schedule so that by the first post-project year, the MOH will maintain and fully fund the increased level of recurrent expenditures. The phase-in schedule will apply to the recurrent costs associated with the activities described in this section.

Project-supported training and technical assistance in combination with GOM support of new MOH positions and associated recurrent costs will strengthen the institutional infrastructure on which sustainable improvements in the quality and quantity of child survival services depend. MOH institutional strengthening activities will directly support service delivery and complement other primary health care activities. Through the project, the MOH Health Education Unit will increase its capacity to design, produce, and disseminate materials and messages that promote demand for CS and hygiene services and improved health practices. IEC materials will be tested and disseminated as an integral part of service delivery activities under the project as well as on a national level. The project will also strengthen the capacity of the recently-created MOH Research Unit to design, manage, and evaluate research needed to guide MOH programming and policy-making. Research supported by PHICS will address issues that are relevant to the service delivery activities carried out under the project. Project assistance to strengthen MOH epidemiological skills and the health information system will better enable the Ministry to monitor health status in the project areas and nationwide, with an emphasis on priority child survival diseases.

The service delivery component will give the MOH the means to implement primary health care service delivery approaches in a setting where the impact and cost of approaches can be measured and evaluated, allowing approaches to be refined prior to replication. Service delivery activities will support MOH objectives of a more decentralized health delivery system and greater participation of communities in their own health care. The activities will be implemented on a limited geographic basis directly affecting approximately 1.5 million persons, or 20% of the total population. The size of the target group is appropriate given the evolving nature of the service delivery model and the need to test approaches before committing resources to a nationwide effort. At the same time, it is large enough to have a significant impact on health status of the rural population.

See Tables 3a and 3b for a summary of new positions, training, and technical assistance to be financed by the project under the following activities.

C. Project Activities

1. Activity One: Information, Education, and Communication (MOH)

Child survival programs depend on effective communication so that mothers learn and perform simple home-based diarrhea management, malaria treatment and nutrition rehabilitation. The lack of basic knowledge and skills relating to child survival and hygiene contributes to Malawi's high child morbidity and mortality rates. This problem is recognized in the National Health Plan and documented in recent evaluations.

The Ministry of Health is committed to strengthening the Health Education Unit (HEU) to provide the information people need to share more fully in the quest for better health. In January 1988, the GOM approved for the first time a health education policy. The Health Education Unit's (HEU) mission, as defined in the Health Education Policy Statement of January 1988, is:

To increase public awareness, facilitate community involvement and participation, and promote activities which will foster health behavior and encourage people to want to be healthy, know how to stay healthy and to do what they can individually and collectively to maintain health and seek help when needed.

The HEU in the MOH is responsible for carrying out this policy and the programs outlined in the health plan. This project activity will strengthen the capacity of the HEU to perform this important role. By the end of the project, it is expected that the HEU will be efficiently producing (or arranging for the production of) a variety of health education materials and messages in response to requests from MOH and other GOM clients. Using a variety of media including radio, print, and face-to-face contacts, the project will support the HEU's overall mandate to change health behaviors.

The project will provide resources for institution building, tools for increased production and delivery of health education materials, systems for testing and evaluating education activities, and technical assistance to help the HEU grow to its full potential and take its place as a major component of the nation's health system. Special targets for project information, education, and communication (IEC) activities are: malaria, diarrheal disease, child spacing, nutritional deficiencies, immunization-preventable diseases, acute respiratory infection (ARI), and AIDS.

The HEU staff will be increased in size to strengthen the headquarters unit and allow expansion at regional and district levels. A career development structure will be created for MOH health education staff. Training will be organized to improve planning, management, administration and technical skills. Production equipment will be provided to increase capabilities in printing, graphics, photography, video and audio production, music and drama. Vehicles will be provided to increase local contact between health educators and their audience.

The HEU will develop, test, and disseminate a number of health education materials bearing messages related to the priority interventions targeted under the National Health Plan. Given the low literacy levels and rich oral traditions in Malawi, the HEU will emphasize the production of films, puppet shows, radio programs, and musical and dramatic presentations. The HEU will also disseminate messages through printed and graphic materials, such as signs, plastic bags, match boxes, calendars, and posters.

The HEALTHCOM project has, over the past two years, supported HEU efforts to research, pretest, and produce materials to assist the MOH to reduce mortality and morbidity due to diarrhea and malaria. Materials include those for three regional pilot projects to train community health volunteers in PHC activities, materials for health workers to support diarrhea and malaria health education efforts, and materials which support the communication skills of health workers through continuing education and practical exercises. Over twenty-five different health education media and materials have been produced by the HEU with HEALTHCOM support. As one of its first tasks under the PHICS project, the HEU will complete the testing and revision of these materials, and their duplication and dissemination nationally.

Materials will be produced on both in-house and on a contractual basis. Audio, video, color slide and graphic/printed materials are often required by the HEU's clients on a fast turn-around basis. Given the long delays often encountered by the HEU in contracting this work out and the relatively low cost of the production facilities, the development of an in-house production capacity for these materials is justified. The project will finance production equipment and software as well as the expansion and remodeling of the HEU physical facility in Lilongwe.

Film and radio production will be contracted out. The Extension Aids Branch of the Ministry of Agriculture (film) and the Malawi Broadcasting Corporation (radio) have basic facilities and long experience that would be costly to duplicate. The project will provide these two organizations with certain film and radio equipment for use on HEU productions.

The materials produced by the HEU will generally be disseminated on a nationwide basis. However, priority will be given to disseminating them within the project's service delivery areas. To aid in dissemination, the project will provide the HEU with cinema vans and vehicles. In addition, MOH health workers will be provided with radios, cassettes players, and batteries for use with village-level listening groups.

The use of radio, films and other mass media will be increased. A survey of the impact of mass media, including data on media-interpersonal diffusion systems and radio ownership and listening habits, will guide and inform the allotment of resources and delivery systems planning. The integration of traditional music and drama with modern communications will be studied to capitalize upon Malawi's vast store of cultural vitality and to make health messages vivid and meaningful. Systems for testing, evaluating and monitoring will be placed strategically throughout the HEU structure.

Research plays an important role in the design of messages and the evaluation of their impact. The interface between mother and health worker is key. The effectiveness of these interactions will be measured. The HEU will carry out pre- and post-testing of materials to ensure that they are understood and accepted by the target audience. Operations research undertaken by the MOH Research Unit under this project will also generate useful information for the design of appropriate messages.

The current HEU staffing level of 16 professionals and 11 support staff will not permit the expansion of services required by the National Health Plan and by this project. Nor will it allow the HEU to respond quickly and effectively to emerging national health problems such as AIDS. Therefore, during the course of the project, approximately 30 additional professional staff will be added at the central, regional, and district levels of the HEU. The new personnel will receive training in such technical areas as film, radio, and video production, repair of electronic and audio-visual equipment, audio-visual education, and printing and graphics. In addition, the project will provide long-term training in health education at the MA, BA, and diploma levels to selected HEU staff. Training for HEU personnel will be conducted externally and internally

Cooperating institutions will include the Lilongwe School of Health Sciences, Chancellor College, the Malawi Polytechnic and the Malawi Institute for Education. Closer ties will be created between the HEU and other development agencies, such as the Malawi Broadcasting Corporation, the Extension Aids Branch of the Ministry of Agriculture, the Department of Information, the Ministry of Education and Ministry of Community Services. It is expected that the technical training will take place at Malawian institutions while the health education training will take place in regional or U.S. institutions as appropriate.

Under this activity, A.I.D. will finance the following capital costs: short-term technical assistance; short- and long-term training; vehicles; production equipment for the HEU, Extension Aids Branch, and Malawi Broadcasting Corporation; other equipment including radios, cassette players, and batteries; and remodeling and expansion of the HEU facility. A.I.D. will also fund, on a declining basis, the additional recurrent costs incurred by the HEU under this activity including: the remuneration of additional staff; contracted production work; working materials and supplies; and vehicle operating and maintenance costs.

2. Activity Two: Service Delivery Support (MOH)

In recent years, the MOH has made progress in developing capacity in the areas of research, monitoring, and evaluation of operational and field activities. With support from the A.I.D.-funded CCCD project and other donors, the Ministry has begun to carry out studies, collect and analyze data, and design policies, strategies, and programs based on these data to improve the effectiveness and efficiency of its operations. Further strengthening of these capacities and their institutionalization is necessary as the MOH moves forward with expanded CS programs. For example, there will be a need for operational research on a range of issues relating to the community-based service delivery approaches to be implemented under the PHICS project. Instruments for monitoring the impact of MOH programs on health status and knowledge, attitude and practice (KAP) must also be improved and refined. This activity will strengthen three MOH units with responsibilities in these areas: Research, Epidemiology and Health Information.

a. Research Unit

With the assistance of the CCCD project, the MOH carried out numerous operations research studies which were instrumental in guiding policy and program development, particularly regarding the control and treatment of malaria and diarrhea. In order to ensure an institutional capacity to

continue this type of research, the MOH created the Research Unit under the Controller for Health Technical Support Services in February 1988. The Research Unit currently has one professional and few resources. The PHICS project will strengthen the Research Unit and provide resources for a wide range of research activities. By the end of the project, it is expected that the Research Unit will have the capacity to: coordinate within the MOH the identification and prioritization of research topics; provide support services to local health researchers including literature reviews; coordinate the research proposal solicitation, review and approval process; coordinate the implementation of research and ensure the quality of results; and, channel research findings into MOH policy, planning and programming processes.

The project will focus on strengthening the capacity of the Research Unit to coordinate the research process rather than to conduct research. The actual research will be awarded to qualified Malawian institutions and individuals. The Center for Social Research at Chancellor College (University of Malawi) and the Lilongwe School of Health Sciences (LSHS) are two possibilities. The Unit, with PHICS-funded technical assistance, will assist the researchers, as necessary, in designing and refining protocols. It is recognized that Malawian research entities may require some support. In addition to funding for operating costs, the project will provide technical assistance and limited commodities to research entities as needed. The purpose of this assistance is to enable the researchers to carry out appropriate research identified under the project in a satisfactory manner, not to strengthen their general research capacity.

Child Survival Research Program: The project will support the establishment of a child survival and child spacing research program to be administered by the MOH through the Research Unit. There follows a summary of the program:

(i) Purpose: To furnish information to GOM policy makers and program planners with which to help formulate child survival and child spacing program plans and policies.

(ii) Objective: To identify child survival service delivery interventions which are acceptable, affordable, and effective in reducing child mortality and morbidity over the long term. Specific research program objectives include: (a) to solve the many obstacles, constraints, and operational problems that interfere with effective CS program functioning and service delivery; (b) to collect baseline information on child survival and child spacing knowledge, attitudes, and practices; (c) to

evaluate current child survival programs and approaches in terms of their impact, effectiveness, cost, sustainability, etc.; and (d) to test innovative approaches to the delivery of child survival services at the community level using alternative service delivery designs and models focussing on providers (e.g. HSAs, mothers, TBAs, Homecraft Workers), media and methods, and management and support systems (e.g. supervision and evaluation, medical back-up, training, logistics, transport, compensation/motivation).

(iii) Types of Research: Quantitative and qualitative research of the following types (not mutually exclusive) will be supported under the project: (1) operational; (2) applied; (3) health services/systems; (4) social and behavioral; (5) epidemiologic; and (6) demographic. The program will not support bio-medical research.

(iv) Level of Financial Support: The typical study funded under this program will be in the \$10,000 range.

(v) Criteria with which to Evaluate Research Proposals:

a. Conformance with the stated purpose and objectives of the research program and compliance with relevant GOM and A.I.D. policies, rules and regulations.

b. The extent to which proposals focus on: (i) priority diseases and policy-relevant service delivery issues as identified in the GOM National Health Plan and Statement of Development Policies; (ii) the attainment of measurable results such as increases in health knowledge, improvements in health care skills of providers (including mothers), increases in the use of child survival services, reductions in morbidity and mortality; (iii) primary and preventive health care as opposed to curative care; (iv) how to deliver services as opposed to what to deliver; (v) home and community-based care as opposed to clinic-based care; and (vi) interventions and strategies which Malawi can realistically afford to sustain.

c. The extent to which proposals focus on priority childhood diseases and services as identified in the National Health Plan and Statement of Development Policies, namely, child spacing, malaria, diarrheal diseases, infectious diseases preventable by immunization, malnutrition, acute respiratory infections (ARI), and AIDS.

d. Utility of research findings to the GOM in the formulation of preventive and primary health care policies and program plans which the Government can afford to sustain.

e. Likelihood that proposed interventions will improve knowledge, attitudes, and practices related to child survival (including child spacing) and reduce childhood mortality and morbidity.

f. Quality of the proposal in terms of completeness (meets minimum MOH requirements regarding format and contents).

g. Capacity of the researcher(s) or research organization(s) to perform the research and in a timely manner (e.g. ability to furnish required staff, materials, equipment).

(vi) Eligibility: Health professionals in the public and private sector in Malawi in policy-making, program planning, and program management and service delivery positions. A limited amount of training and technical assistance is available under this program to assist in the design, implementation, and evaluation of research studies.

(vii) Procedures: The Research Unit will publicize the program nationally, using appropriate methods of publicity. The MOH Research Review Committee (RRC) will receive and screen proposals for formal review at monthly meetings using the criteria listed above. Participants in the formal CS proposal review meetings may include representatives from the MOH Preventive Health and Nursing Services Divisions, Planning Unit, the NRCM, the Demographic Unit of the National Statistical Office, the Nutrition Section of the Ministry of Agriculture, the Medical Association of Malawi, the Private Hospital Association of Malawi (PHAM), and the Rural Water Section of the Ministry of Works. The RRC will recommend proposals for approval and clearance to the National Research Council of Malawi (NRCM). Upon receipt of NRCM approval and clearance, the MOH Research Unit, working with the MOH Accounts Section, will enter into technical agreements with successful applicants. The MOH Epidemiology and Planning Units are expected to play key roles in the development of research agenda, research committee deliberations, and the utilization of findings.

Any substantive revisions in the Child Survival Research Program purpose, objectives, or proposal selection criteria stated above will require A.I.D. concurrence. A listing of the research activities contemplated by the MOH for support under the PHICS child survival research program during project year one is to be found in Table 7.

The Research Unit will monitor research, vet results, and disseminate findings through a variety of means. Workshops and seminars will be held for MOH planners and decision-makers and other interested parties. Monographs of each study will be published and widely circulated. In addition, the Research Unit will publish a periodic bulletin with abstracts of research and epidemiologic information. The Unit will establish a document depository and install a computerized system for tracking and cataloguing research. The project will provide the RU with a microcomputer system to be used for tracking research and for desk-top publishing. The project will also provide the MOH Library Services Unit with a micro-computer and CD-reader with subscriptions to international medical databases (e.g. MEDLINE, AIDSLINE, and POPLINE). On site access to these data bases will enable the MOH to provide researchers in Malawi with timely reviews of the literature and will ensure that bibliographic citations of research conducted in Malawi are accessible to the international public health community.

The project will strengthen the capacity of the Research Unit to perform the functions outlined above. A position will be established for an Assistant Documentation Officer which the project will support. The project will fund a masters degree in library science for the documentation specialist. The project will provide short-term technical assistance in library science and documentation and in specific research areas.

Under this activity, A.I.D. will finance the following costs: technical assistance and training; a vehicle; microcomputer systems, a CD-reader and software; and direct research costs. A.I.D. will fund the additional recurrent costs resulting from this activity on a declining basis. These include the additional staff and the costs of disseminating research findings. The direct research costs are not considered to be recurrent. It is assumed that by the end of the project, the Unit will have demonstrated its ability to manage research effectively and will be able to solicit funding from donors to sponsor specific research.

b. Epidemiology Unit

The MOH does not currently have an epidemiology section. The epidemiologist assigned to the CCCD project served as the MOH epidemiologist for four years. The MOH will now establish and staff an Epidemiology Unit which can perform epidemiological functions and channel epidemiological information into MOH planning and programming processes.

Under the project, the MOH will establish the Epidemiology Unit which will be responsible for investigating disease outbreaks, providing technical inputs into the MOH policy and program planning process (particularly with respect to the control and treatment of malaria and diarrheal diseases), collaborating with the Research Unit in the design, review, and utilization of research related to child survival, ensuring the integrity of the Health Information System, supporting child survival interventions, and coordinating epidemiology training for MOH staff. In addition, the Unit will provide required support to the EPI program for continued monitoring of program impact and target attainment.

The project will provide a long-term advisor in epidemiology to head the new Unit. A Malawian will be sent abroad for training at the D.Sc. level in epidemiology and will return to assume leadership of the Unit. Two Malawians will be trained at the masters degree level and will also take positions in the Unit. In addition, to carry out the work of the Epidemiology Unit at the regional level, three Regional Surveillance Officers (RSOs) will be appointed.

The Epidemiology Unit, in collaboration with the LSHS and the University of Malawi, will plan and manage a number of training courses to upgrade the knowledge and skills of MOH service delivery staff in epidemiology. A diploma-level course will be developed for which curricula and materials have already been prepared. The course will be geared to Public Health Nurses and Health Inspectors and will include field-based practical learning. Approximately 45 persons will receive diploma-level epidemiology training during the life of the project. It is expected that the three RSOs will be selected from among the first graduates of this course. A project-funded public health advisor will assist in the design of the course and in the first year of implementation. Because arrangements with the University of Malawi to provide epidemiology training at the diploma-level are not yet finalized, it is expected that the LSHS will initiate a certificate-level course in the interim

which the first batch of project staff would attend. In addition, the project will include a one-month abbreviated version of the diploma-level course at the LSHS for MOH field personnel, and three-day orientation workshops for all districts to be conducted at the district-level during the first two years of the project.

To develop an Epidemiology Unit in the MOH, A.I.D. will finance technical assistance, off-shore training, and vehicles. In addition, A.I.D. will finance, on a declining basis, the recurrent costs of the additional personnel, in-country training (travel and per diem, room and board, training materials, tuition), and vehicle operation and maintenance.

c. Health Information System

The Health Information System (HIS) is located under the Controller for Preventive Health Services. With the support of the CCCD project and other donors, the HIS has developed into a strong unit. A three year backlog of data recording and reporting has been cleared up. The HIS routinely collects from fixed facilities in-patient and out-patient data related to the incidence of childhood diseases. Through a sentinel system, data on community practices for treatment of diarrhea and malaria are also collected. These data assist with the monitoring of EPI, malaria, and diarrheal diseases control targets established in connection with current MOH five year implementation plans. The PHICS project will support technical refinements to the system and increased use of the HIS for MOH decision-making.

The present HIS configuration involves several stand-alone microcomputers which, taken together, are not able to handle the large volume of monthly reporting data. Under the project, a more rational and efficient configuration will be designed and installed. This may involve a minicomputer or a network of microcomputers. The project will finance short-term technical assistance in the design, procurement, and installation of the new configuration as well as the procurement of the additional hardware and software. In connection with this activity, it will be necessary to look more broadly at MOH microcomputer needs relative to the number, distribution and use of existing computers, most of which were supplied to the MOH by A.I.D. under the CCCD project.

The project will also support the decentralization of data input and processing which will increase efficiency, relieve pressure on the central system, and facilitate use of data for decision-making in the field. Microcomputers will be installed at the three main hospitals in the country which,

together, generate about a third of the in-patient data. These hospitals will hire additional data clerks to input the data. Hospital record keeping will also be improved. The three regional offices of the MOH will be linked into the central HIS through their own microcomputers and modems. With this capacity, the regional offices will assume the responsibility for processing data from their own districts. The project will finance the computer hardware and software as well as short-term advisors to assist in the design, procurement, and installation of the decentralized computer system and training of users. The project will provide the HIS Unit with a vehicle to facilitate the training and supervision of HIS personnel at the regional, district, and hospital levels. Other small items needed in the field, such as file cabinets and hand-held calculators, will also be financed.

The project will support improved use of HIS information and analyses for MOH programming and policy-making. The data currently being collected will be reviewed in relation to management needs and revised accordingly. A short-term advisor in management information systems will assist in this exercise. Senior staff from the HIS Unit will attend offshore courses on data analysis and interpretation. The capability of regional and district personnel to analyze and interpret the data will also be upgraded through in-service training.

A.I.D. will finance technical assistance, offshore and in-country training, computer hardware and software, a vehicle, and other commodities. A.I.D. will also finance, on a declining basis, the additional recurrent costs generated by this activity, including in-service training, salaries of data clerks, operation and maintenance of computers and the vehicle, and telephone charges for modems.

3. Activity Three: Rural Piped Water (MOW)

Malawi has a long history of developing self-help piped water supply projects in rural areas. Starting in 1968, the GOM, through a variety of ministries and departments, has developed a decentralized process involving a high level of community participation in the planning, mobilization, construction, and maintenance of simple gravity-fed community water systems. These systems emphasize low cost technologies. Water is taken from protected forest catchments and, with few exceptions, is untreated. No charge is levied for the water, but the beneficiary communities are expected to organize themselves into committees to provide self-help labor inputs, local construction materials, and long-term maintenance. To date, a total of 50 schemes have been completed with another five under construction. These schemes are providing water of

generally good quality and ample quantity and have a design capacity of about 1.2 million persons. Since 1980, A.I.D. has financed 18 of these schemes. It is estimated that one million additional people could be reached by gravity-fed systems similar to those in use today. The MOW, through the Rural Water Section (RWS), is responsible for designing and supervising the construction of the schemes and training villagers in their operation and maintenance.

This project activity will provide further assistance to the rural piped water program. Fourteen new systems with a design population of 245,000 people will be constructed and pipe will be replaced in one older, deteriorating scheme. The project will also strengthen the capacity of the MOW in the areas of engineering, water quality monitoring, management information systems, and system design.

Piped water is an integral part of the PHICS project strategy. The MOH views rural water as a critical element of its child survival program, along with ORT, immunizations, and other interventions. Furthermore, demand for piped water among Malawian villagers is very strong, and the community organization engendered by piped water can be capitalized upon to introduce other health activities. For these reasons, the project will, to the extent practicable, link piped water with the service delivery activities described in Activity 4.

The new piped water systems will be constructed using the same technology and self-help approaches that have been developed and refined over two decades. The RWS has identified and prepared designs for the new schemes. The main constraint to undertaking their construction is the lack of RWS staff and material resources.

There is a severe shortage of engineering staff within the RWS. Of the nine engineering positions only a few are filled. At least three additional engineers are needed to implement the new schemes under PHICS and to supervise maintenance of the growing number of completed schemes. Long-term training in civil and sanitary engineering for four Malawians is proposed for funding under the HRID project (See Table 1). Upon completion of their training they will assume positions in the RWS. In the meantime, the PHICS project will support long-term technical assistance in engineering supplied by expatriate consultants and the U.S. Peace Corps.

The specific number and type of field staff required to manage this expansion remain to be determined. The largest categories are Rural Water Operators (RWO's) who supervise project construction, and Monitoring Assistants (MA's) who oversee monitoring and maintenance activities on the completed schemes. A manpower assessment will be conducted early in the project to determine whether field support for the new schemes can be accommodated within current staffing levels or whether additional staff will be required. The project will provide in-service training for senior RWS staff, supervisors, RWO's MA's, and local leaders and repair teams. The training will cover project management, construction and maintenance techniques, and village mobilization.

The RWS will require various commodities and materials for construction of the new piped water schemes. The project will finance trucks, four-wheel drive vehicles, concrete mixers, vibrators, drills, and other tools and equipment, cement, and PVC pipe. The communities will provide local materials (sand and gravel) and self-help labor.

The project will support the maintenance of both new and old schemes. Minor repairs, such as mending of broken pipes and replacement of taps, are the responsibility of the community. Major maintenance activities are the responsibility of the RWS. Such activities include the replacement of pipelines and the repair of washouts and damaged intakes. This will be funded partly out of the MOW maintenance budget. The project will provide spares and replacement parts, motorcycles for MA's, and funds for vehicle operation and maintenance. The communities will contribute self-help labor where appropriate.

The project will support studies designed to address the long-term sustainability problem of rehabilitating and maintaining water systems. The feasibility of establishing community-supported capital funds to finance system repair and maintenance is an approach that will be explored under the project.

In addition to construction and maintenance of piped water schemes, the project will strengthen MOW capacity in key support areas, including water quality monitoring, project design, management information systems, and applied research. Water quality in existing schemes is generally very good, and a vast improvement over traditional unprotected sources. However, as the piped water program extends into marginal catchment areas, there will be increased need to monitor quality. Malawi does not have routine monitoring of rural water supplies at present, although the Central Water Laboratory (CWL) in Lilongwe, a part

of the MOW, analyzes water samples on request. Under the project, the CWL will establish a comprehensive program of monitoring the quality of all rural piped schemes. Water samples will be tested on site for fecal contamination, and the feasibility of the community doing this testing will be explored. Where necessary, samples will be brought back to Lilongwe for further testing. The CWL will add staff to carry out the monitoring program. The project will provide motorcycles, field test kits, supplies, refrigerators, and materials for training new staff. In conjunction with this, the MOW will formally adopt temporary water quality guidelines as presented in the National Water Resources Master Plan (1986). These guidelines are considered to be more practical and enforceable than WHO standards.

The efficiency of the RWS engineering staff will be increased through the introduction of computer-assisted project design and cost estimation techniques. Standard software is available and RWS staff have received some prior training in these methods. The project will provide a microcomputer and peripheral equipment and short-term consultants to conduct a training course.

The RWS will also institute improved information systems. The information needs of the RWS include a system for easy collection, retrieval, and reporting of information on the status of piped water schemes, and a library of reference materials and reports. The project will provide a short-term information systems expert to assist the RWS to design its information systems. The microcomputer procured for computer-assisted design could also be used in the information management system.

Applied research will address a number of key technical and administrative issues affecting the piped water program. Examples include a study of the willingness of villagers to pay for the long term maintenance of the schemes, low cost water treatment methods, and system reliability surveys, in addition to the manpower assessment mentioned above. The research will be undertaken by the RWS, sometimes in collaboration with a local research organization. The project will provide short-term technical assistance and funding for local costs.

Under this activity, A.I.D. will finance vehicles; construction equipment, tools, and materials; motorcycles, tools, and parts for system maintenance; motorcycles, test kits,

refrigerators, and supplies for water quality monitoring; partial funding of in-country training; costs of temporary engineering staff; short-term technical assistance; vehicle fuel and maintenance; and local costs of applied research.

The MOW counterpart contribution will begin at the project's commencement and consists of salaries and allowances of all headquarters and field staff; in-service training; and community self-help labor and material inputs for construction and maintenance of the piped water systems.

4. Activity Four: Service Delivery (MOH)

The strategy of the project's service delivery component is to provide the MOH with the means to implement and evaluate innovative approaches to the delivery of child survival services at the community level, and, in so doing, identify service delivery approaches which are both effective and affordable and can be replicated nationally.

Objectives of the project's service delivery component include:

(i) To maximize the health impact of the national PHC program by demonstrating through large-scale field-tests and health systems research cost-effective ways of delivering child survival services at the village level which the GOM can replicate elsewhere.

(ii) To maximize the health impact of piped water schemes constructed and maintained by the GOM and local communities with support from A.I.D. and other donors.

(iii) To use the community organization on which the construction and maintenance of water systems depend, to initiate and sustain additional village-based health services.

There are sound reasons for promoting community and family-based service delivery. It allows a more efficient use of health sector resources. Priority diseases such as diarrhea and malaria can be prevented or treated at the community and family level, thus avoiding the need to refer individuals to a health center. This, in turn, reduces congestion and expenditures at the relatively high cost clinical facilities and promotes the sustainability of services. Village-based approaches also permit the community to participate more fully in its own health care. These approaches are in the National Health Plan which calls for further decentralization of health services and the strengthening of primary health care in rural areas.

The institutional strengthening activities under the PHICS project will directly support the service delivery objective. The strengthened HEU will produce educational materials that reinforce knowledge and behaviors related to the child survival and hygiene services delivered to the target areas. Technical and operational research coordinated by the Research Unit with the Epidemiology Unit will identify approaches that increase the cost-effectiveness of the village-based service delivery system. Other research, along with outputs of the improved Health Information System, will allow monitoring of the behavioral and health impacts of service delivery activities. Furthermore, service delivery will be linked, to the extent practicable, with rural piped water systems to enhance community participation and health impact.

The service delivery activities fall into two categories: sanitation and hygiene services implemented through the Hygiene Education and Sanitation Promotion Section (HESP) of the MOH Environmental Health Unit, and child survival services managed by various MOH technical units. Both HESP and child survival services are the responsibility of the MOH Preventive Health Services division.

a. Hygiene and Sanitation

The HESP program was initiated in the early 1980's under the A.I.D.-financed Rural Self-Help Water Supply project (612-0207). HESP seeks to complement piped water through the promotion of latrines, washing slabs, and a variety of hygiene practices intended to maximize the health benefits resulting from improved water supplies. HESP functions through a chain of command that is essentially parallel to the normal MOH structure. HESP senior professionals coordinate the program through District Health Officers who, in turn, oversee a three-tier structure of supervisors, Health Assistants (HA's), and male Health Surveillance Assistants (HSA's). The latter are the frontline of the HESP program and work directly with villagers to promote hygiene and sanitation. HESP coverage to date has been limited to 18 of the 55 existing piped water schemes, mainly due to staffing constraints.

Under the PHICS project, HESP will be expanded and integrated with water and child survival activities at the village level in project areas. The MOH will increase the number of HESP personnel to allow better coverage in those areas. The additional personnel will include four senior professionals (one at headquarters and one at each regional office), and increased staffing of PHC teams. The HAS and HSAs

will be added in phases during the first four years of the project. At these staffing levels, a ratio of one HSA per 5,000 people will be attained, which will be evaluated in terms of its affordability and effectiveness.

HESP will promote the installation and use of latrines. Average latrine coverage in rural areas of Malawi is about 50%. Efforts will be made to achieve comprehensive latrine coverage and use in selected project areas, and to document the efforts and resources required to do this. Latrines are thought to be in relatively high demand. The main constraint to more widespread use has been the cost of cement. A low-cost latrine model, the "San-plat" (an abbreviation for "sanitation platform"), has been developed under a UNDP/World Bank-financed project in Malawi. The latrine slab is a relatively small, reinforced concrete platform, which is unventilated and has a tight fitting cover. When manufactured in village workshops, the San-plat costs only K7.00 (less than US\$3.00) for cement, reinforcing bars, and materials transport. The HESP personnel will organize communities to manufacture the San-plat slabs. The project will provide cement and bars, while the community will provide self-help labor and local materials. An estimated 62,500 latrines will be installed with project support.

It is recognized that the San-plat may not be suitable in all areas of the country. Therefore, the Environmental Health Unit will undertake applied research to develop and refine alternative latrine models. The project will provide tools, materials, and supplies needed for this research and for training villagers to construct alternative models.

HESP will also promote the installation of washing slabs at piped water tap sites. For sanitary reasons, women are not allowed to wash clothes at the tap apron. Conveniently located washing slabs eliminate the need to carry clothes to traditional sources, which is time consuming and exposes women to the risk of schistosomiasis and other water-related diseases. HESP will organize construction of the slabs at all existing tap sites in the project areas. For the sake of efficiency, the MOW will routinely install slabs at all new taps. The project will provide cement and PVC drain pipes. The communities will provide self-help labor and local materials. In all, some 8,000 washing slabs will be installed with project support.

Other HESP activities will include promotion of dish drying racks, refuse pits, proper water storage and handling, and other hygiene behaviors. These efforts will be reinforced by the IEC materials produced by the HEU and will be conducted in close coordination with the child survival personnel working in the same villages.

The new HESP field personnel (supervisors, HAs, and HSAs) will receive structured training in such areas as water, sanitation, and hygiene, San-plat construction, ORT, community organization, hygiene education and promotion techniques, and other components of PHC. Regional study tours for HESP senior professionals and graduate training in environmental health are proposed for funding under the HRID project (see Table 1).

A major constraint to attracting trained health personnel to relocate to the field is the lack of housing. This is particularly a problem for the HAs who, unlike the HSAs, will not necessarily be selected from among the local population. Therefore, the project will support the construction of basic housing for the HAs as needed. The project will provide materials and the communities which stand to benefit from the services of the HA will assist in the construction.

A.I.D. will finance trucks and four-wheel-drive vehicles for the movement of materials; motorcycles for supervisors and HAs; bicycles for HSAs; cement, reinforcing bars, PVC pipe, and materials for the construction of HA housing; and tools and supplies for the latrine research and training component. A.I.D. will also finance, on a declining basis, the additional recurrent costs generated by the project, including staff salaries and allowances and in-service training. The counterpart contribution will include the MOH share of the additional recurrent costs mentioned above. In addition, the beneficiary communities will contribute self-help labor and local building materials.

b. Child Survival Services

The MOH Primary Health Care (PHC) team is currently composed of five categories of health worker: the Clinical Officer (CO), the Medical Assistant (MA), Health Assistant (HA), the Enrolled Community Health Nurse (ECHN), and the most peripheral --- the Health Surveillance Assistant (HSA). The MOH plan is to provide community-based training for the members of the PHC team at rural health training centers. Community-based, rural training of health workers as a PHC team is expected to significantly improve health workers' effectiveness. MOH PHC training plans are being supported by the A.I.D.-funded Health Institutions Development (HID) project.

To date, the delivery of child survival services has taken place largely at health centers and other fixed facilities. In some cases, such as immunizations, this is necessary to ensure quality control. However, there is considerable potential for

decentralizing service delivery to the community and family level. The main constraint to doing so has been the lack of field personnel to serve as the critical link between health centers and communities. The project will support the decentralized delivery of child survival services in the target areas within the context of PHC. The emphasis of the project will not be on the particular interventions themselves --- which for the most part have been well tested in Malawi --- but on the cost-effectiveness and sustainability of various service delivery approaches.

The delivery system will consist of several elements:

Community-level Child Survival Service Delivery

The MOH will hire, train, and post to the project areas 300 new community-based health workers (HSAs). The current ratio of HSAs to population is 1:40,000. With the additional HSAs in the project areas, the community health worker to population ratio will improve significantly, and each worker will be responsible for a more manageable number of villages. Health workers will be hired locally from the communities in which they will work and phased-in over the first five years of the project. To improve mobility, the project will provide them with bicycles. Workers will act as the link between the formal health system and the community. Their main role will be to support village committees and families in their efforts to reduce child mortality and morbidity through community and home-based prevention and treatment activities; e.g. how to prevent childhood diseases (immunizations, safe water, good nutrition, sanitation and hygiene), how to space and limit births, and how to diagnose and treat diarrheal diseases, malaria, and ARI. The impact of the project will be evaluated in terms of measurable improvements in child-survival related knowledge and skills and utilization of services among village women (e.g. vaccination coverage, use of child spacing, demonstrated competence in ORT, demonstrated competence in the diagnosis and treatment of malaria and ARI, etc.). Health workers will be given basic first aid supplies (e.g. eye ointment, aspirin, bandages and disinfectant).

Community-level Supervision: The project will support the hiring and placement of up to 35 additional HAs and ECHNs to supervise and support HSAs. Local housing will be constructed for the new HAs and ECHNs with materials provided by the project and labor and local materials by the community. Motorcycles will be provided to HAs and ECHNs to improve their mobility and effectiveness as supervisors.

District-level Service Delivery Support: Seven Public Health Nurses (PHNs) will be supported by the project to assume primary responsibility for the planning and implementation of PHC service delivery in the seven project districts. Central to this responsibility is the supervision and technical support of community-level service delivery staff (ECHNs, HAS and HSAs). Short-term technical assistance is available to help plan and initiate services, assess and strengthen logistical and other management support systems, etc. One vehicle for each of the seven project districts will be provided to facilitate the planning and implementation of service delivery and to improve PHNs' ability to supervise ECHNs, HAS, and HSAs.

In sum, through the project's service delivery and research components, the MOH will attempt to improve the health status of selected vulnerable populations in seven districts with the highest reported infant mortality, by increasing the quantity and quality of PHC services provided, increasing the number of community health workers (300 new HSAs), increasing the quantity and quality of training for PHC teams (in new rural health training centers), and increasing the quantity and quality of HSA supervision (35 new HAS and ECHNs and 7 PHNs).

Specific operational issues which may be examined in project service delivery areas with support from the Child Survival Research Program include: (1) the number of people/households a health worker can effectively serve; (2) the extent to which health workers can identify and serve the most vulnerable households within their respective areas of responsibility; (3) determinants of the frequency and effectiveness of health worker interactions with village health committees, families, and especially mothers; (4) the feasibility of charging fees for certain medicines and services; (5) health workers requirements in terms of supervision, transport, medical back-up, logistics, and motivation/compensation; and (6) effectiveness of PHC training at rural health training centers to be established.

c. **Location of Project Service Delivery Areas**

During its eight-year life, the project will support service delivery activities in seven districts. Mzimba in the Northern Region, Salima, Dedza and Dowa in the Central Region, and Machinga, Mangochi and Mulanje in the Southern Region (see table below).

| <u>Region</u> | <u>District</u> | <u>Total Pop.</u> | <u>IMR</u> | <u>IMR Rank Nationally</u> |
|---------------|-----------------|-------------------|------------|--------------------------------|
| 1. North | Mzimba | 432,437 | 208 | 2 |
| 2. Central | Salima | 188,255 | 195 | 5 |
| 3. Central | Dedza | 410,847 | 212 | 1 |
| 4. Central | Dowa | 322,112 | 197 | 4 |
| 5. South | Mangochi | 495,876 | 184 | 6 |
| 6. South | Mulanje | 638,326 | 178 | 8 |
| 7. South | Machinga | 514,569 | 200 | 3 |

The central criterion agreed upon and used by the MOH and A.I.D. to select the seven districts was infant mortality. Districts selected have the highest infant mortality rates in the country.

Project supported services will be delivered to a portion of each district's population, not the entire population. Project services will be directed to the most vulnerable and under-served populations within each district. The objective of the service delivery component is to implement innovative service delivery approaches and evaluate them in terms of their replicability nationwide. The project will avoid areas within selected districts in which there are large refugee populations. The presence of refugees and donor-funded programs to assist them would complicate project implementation and evaluation and make it difficult to discern the costs and impact of the GOM program. Other criteria with which to select project areas within the seven districts will include: (1) high infant mortality; (2) low access to health services; (3) high proportion of the population owning less than .5 hectare of land; and (4) high proportion of female-headed households.

The MOH has selected Dedza district in which to commence activities during the project's first year. Criteria used for the selection of district one included the level of infant mortality (Dedza has the highest IMR in the country), accessibility, and the cost and feasibility of conducting

baseline surveys and field-tests. Because district one is the "case study" district and the site of intensive process documentation, research, technical assistance and training activities, the district selected is reasonably accessible to MOH headquarters. Prototype service delivery approaches and support activities (e.g. training and supervision) will be first field-tested in Dedza district. The implementation process will be carefully documented and operational issues diagnosed and resolved. Using Dedza district as the test case will facilitate the implementation and replication of services in districts two through seven in subsequent years. The process of replicating approaches in other districts which are found workable in district one will be carefully documented and evaluated. Baseline and KAP studies will be conducted in Dedza district to document the effect and affordability of various service delivery approaches. Based on lessons learned from district one, a comprehensive plan will be finalized for the siting of child survival service delivery activities for the duration of the project. Technical assistance will be available under the project to plan and initiate baseline surveys and services.

Wherever feasible within selected districts, the MOH will explore relating service delivery models to the rural piped water schemes that the GOM has promoted over the past two decades. There are currently 50 such schemes completed and another five under construction. The PHICS project will support 14 new schemes. There are two reasons for linking the piped water with other health and hygiene interventions. First, there is some evidence that a package of interventions which includes potable water, sanitation, and CS interventions will be more effective in reducing morbidity and mortality than any particular intervention in isolation. In particular, it appears that a combination of water, latrines, and hygiene education is needed to break the cycle of water-borne diseases. At the same time, other interventions are needed to address non-water-borne diseases. Second, the rural piped water program in Malawi has proven to be an excellent means of mobilizing village self-help efforts for the construction and maintenance of the water systems. There is evidence that this mobilizing effect may increase community participation in other health activities, such as immunization programs.

Monitoring and evaluation of the service delivery activities will be managed by the Research Unit with funds provided under Activity 2. Operations research and monitoring techniques will be employed to document the service delivery process and generate information on what does and does not work.

A.I.D.-financed inputs for child survival service delivery will include the costs of technical assistance, training, vehicles, bicycles, first aid supplies, and housing construction materials. A.I.D. will also finance, on a declining basis, the salaries and allowances of the additional MOH personnel.

5. Activity Five: Project Management, Evaluation and Audit

The GOM through the MOH and the MOW is responsible for the management and implementation of the PHICS project. The Project Implementation Unit (PIU) within the MOH Planning Section has responsibility for the administration of all externally-funded health projects. The project will support the addition of two new staff to the Planning Section/PIU to work full-time on the project, a Project Coordinator responsible for overall project implementation and an Accountant responsible for project financial management. These two staff, and other Planning Section staff with part-time project responsibilities, will receive short-term training in project management including A.I.D. project procurement and implementation. The Chief Water Engineer and Rural Water Supply section within the MOW will have primary responsibility for the implementation of the project's piped water component.

To strengthen GOM and USAID capacity to manage the PHICS project, A.I.D. will fund additional project management staff for both MOH and USAID, short-term training in project and financial management, and a lap-top computer and transport to support USAID project management. In addition, the project will support the costs of technical assessments, evaluations, and audits necessary to monitor and manage the project.

IV. COST ESTIMATES AND FINANCIAL PLAN

A.I.D. anticipates providing \$15.0 million to support the five project activities (See Tables 4, 5 and 6 for a summary of the project budget and anticipated expenditures). The inputs financed by A.I.D. include technical assistance, training, commodities, operating expenses, and project management, evaluation and audit.

Although the 25% host-country contribution requirement has been waived for Malawi, the Government and people of Malawi will make a significant contribution to the project. The host country and community contribution totals \$2.5 million or 14% of the \$17.5 million total cost of the project.

The GOM will contribute approximately \$1.3 million during the life of the project to cover recurrent costs associated with new staff, in-service training and some operating expenses. The GOM contribution will be phased-in according to a schedule agreed-upon by both parties so that by the first post project year the GOM will assume in full the recurrent costs associated with PHICS. Added to the GOM's direct contribution is the value of in-kind contributions for institutional support such as office space, utilities, supplies and clerical support for technical assistance personnel. Given the difficulties of quantifying this contribution, no estimate of the value of institutional support has been made.

The rural communities where water, sanitation, and health services will be delivered will contribute approximately \$1.2 million worth of labor and materials towards the construction of water systems, washing slabs, latrines, and health worker housing. Communities will also raise some cash for the repair and maintenance of piped water systems.

A. Costs of Inputs

1. Technical Assistance: A.I.D. anticipates providing \$2,340,000 for approximately 150 person months of short- and long-term technical assistance during the eight year duration of PHICS. The cost of the long-term technical assistance is based on an estimated price of \$120,000 per person year and \$15,000 per person month for short-term technical assistance.

2. Training: A.I.D. anticipates providing \$1,959,000 for training. Of this amount, \$793,000 would be for off-shore training and \$1,166,000 for in-country training. Long-term off-shore training is budgeted at \$29,000 per year. The project anticipates supporting one Ph.D, six Masters degrees, six

Bachelor's degrees, twelve diplomas, and short-term certificate level and workshop training for several hundred others. In addition, A.I.D. anticipates providing support for key Malawian staff involved in health policy-making, program planning, and service delivery in the participation of conferences, workshops and seminars relevant to the attainment of project goals and objectives.

3. Commodities: A.I.D. anticipates providing \$6,148,000 for the procurement of project commodities. These commodities consist mainly of computer software and hardware; vehicles; water and sanitation systems construction materials and tools; photography, video and audio equipment; printing and graphics materials; and housing materials (see section VI for details concerning commodities).

4. Operating Expenses: A.I.D. anticipates providing \$3,491,000 for operating expenses. Total operating expenses (salaries, maintenance, supplies, fuel, etc.) amount to \$5,611,000. Certain recurrent costs of the project, mainly those associated with new staff, will be assumed by the GOM according to an agreed-upon schedule.

5. Project Management, Evaluation and Audit: A.I.D. anticipates providing \$774,000 for the costs of project management, monitoring, evaluation and audit. Of this amount, \$142,000 would be for the costs of GOM project management including two new full-time Malawian project management staff and the costs of management training for these staff and others involved on a part-time basis with PHICS project management. A.I.D. anticipates providing \$292,000 for the costs of USAID/Malawi project management, including one full-time U.S. PSC Assistant Project Manager and a vehicle and lap-top computer. A.I.D. anticipates providing \$340,000 for the costs of meeting A.I.D. project evaluation and audit responsibilities, including mid-term and final evaluations, periodic technical assessments and financial reviews and audits, as and if required.

B. Methods of Implementation and Financing

The GOM through the Ministry of Health and the Ministry of Works will implement the project. There is no contractor for this project. To support the GOM with project implementation, funds are available under the project for additional Malawian management staff at the MOH, and for management training, including A.I.D.-specific project implementation and procurement training. Technical assistance in project management is also available if requested by the GOM.

A review of MOH financial accounting and control systems was performed by the USAID/Malawi Financial Management Office to ascertain the adequacy of the current MOH financial management system to account for USAID funds to be provided under this project. Accounting and payment procedures followed by the MOH were found satisfactory and in compliance with Treasury regulations. Controls exercised from initiation of a transaction to payment were properly segregated such that no unauthorized payment would pass unnoticed. Project funds for all local currency costs will be disbursed through periodic advances to be deposited into a separate account with the Reserve Bank of Malawi. The MOH will also maintain a separate ledger account and sub-accounts for expenditures under this project. The MOH will account for advances by submission of reimbursement claims on a periodic basis. Detailed procedures for requesting and accounting for advances will be spelled out in Project Implementation Letters (PILs).

Project commodities (except electronics, computers, vehicles, and bicycles) and operating expenses will also be funded by the method explained above. Electronics and computer equipment will be procured through a Procurement Services Agent (PSA), whereas vehicles, motorcycles, and bicycles will be procured directly by A.I.D. Training supported under PHICS will be carried out in conformance with A.I.D.'s Handbook 10.

1. Technical Assistance and Training: The project includes considerable support for technical assistance and training. The GOM will select short- and long-term advisors and off-shore training programs. To assist the GOM to identify candidate advisors and training programs and to provide administrative and logistical support to advisors and trainees, A.I.D. has offered the services of the prime contractor under the A.I.D.-funded HRID Project which is being implemented by the Academy for Educational Development (AED). The GOM will use AED services on a provisional basis during the initial project year to determine the cost-effectiveness of the AED mechanism and the extent to which it meets GOM technical assistance and participant training needs. If the AED mechanism proves unsatisfactory to the GOM, other mechanisms for meeting GOM technical assistance and participant training needs under the PHICS project will be explored, including competitive contracting.

a. Off-Shore Participant Training: For short- and long-term U.S.-based training under the AED mechanism, A.I.D. will submit a delivery order to AED in which the types, duration and dates of training required by the GOM are stipulated and training costs estimated (e.g. application and GRE exam fees, travel, per diem, monthly subsistence allowance

for long-term trainees, etc.). Delivery orders will be based on terms of reference and budgets developed by the GOM. AED will assist the MOH with the preparation of terms of reference and training budgets, if requested to do so. AED will furnish the GOM with a list of possible training programs from which the GOM selects the most suitable program. If the GOM knows at the outset the most appropriate training program to meet a specific need, the program is then suggested in the initial terms of reference. Once the training program is selected, AED will provide all administrative and logistical support necessary for the successful completion of training including support for the application/enrollment process, testing, travel and subsistence while in the U.S., etc.

The GOM, through the PHICS project, will support only the actual costs of short- and long-term off-shore training. There will be no additional costs to the GOM for services provided by AED in support of PHICS-funded off-shore training.

b. In-country Training: For in-country training, A.I.D. will provide funds to the GOM through periodic advances to be deposited into a separate account with the Reserve Bank of Malawi as explained in Section C. These advances will be accounted for by the MOH by submission of reimbursement claims on a periodic basis for actual expenses incurred under the project.

c. Technical Assistance:

i. AED: Under the AED mechanism, short- and long-term technical assistance will be obtained through the submission of delivery orders by A.I.D. to AED. Delivery Orders will be based on terms of reference developed by the GOM. The GOM will stipulate in the terms of reference the type, duration and dates of technical assistance required and the estimated cost. If requested, AED will assist the GOM with the development of terms of reference and budgets. AED will furnish the GOM with a list of candidate advisors from which to choose. If the GOM knows at the outset the most appropriate individual to provide technical assistance, the individual is suggested by the GOM in the terms of reference. Once the advisor is chosen by the GOM, AED will provide all necessary administrative and logistical support to ensure the technical assistance is successfully rendered including ascertaining advisors' availability, contracting, travel, remuneration, per diem, and, in the case of long-term advisors, housing.

In addition to the actual costs of technical assistance, AED will charge the project 2% of the total actual costs of long-term technical assistance, and 28% of the total actual costs of short-term technical assistance for the costs incurred by AED in providing administrative and logistical support services.

ii. Buy-ins to A.I.D./W Centrally-funded Projects: An array of technical assistance is available to the GOM from projects supported by A.I.D./Washington with central funds under the Offices of Health, Population and Nutrition. It is expected that certain technical assistance needs identified by the GOM during the eight-year life of the PHICS project can best be addressed by these specialized centrally-funded projects. Technical assistance obtained from these projects would be funded under the project through bilateral "buy-ins". The GOM will specify technical assistance needs to be met through "buy-ins" in its detailed project implementation plans.

The following chart summarizes the anticipated methods of implementation and financing to be used in this project.

| <u>Method of Implementation</u> | <u>Method of Financing</u> (US\$000) | <u>Estimated Amount</u> |
|---|---|-------------------------|
| <u>A. Technical Assistance</u> | | <u>2,340</u> |
| 1. AID Direct Contract (AED) | Letter of Credit | 1,461 |
| 2. AID Direct Contract (Buy-ins to AID centrally-funded projects) | Direct Pay | 879 |
| <u>B. Training</u> | | <u>1,959</u> |
| 1. Off-Shore/AID Direct Contract (AED) | Letter of Credit | 793 |
| 2. In-country/HC Implementation | HC Reimbursement | 1,166 |
| <u>C. Commodities</u> | | <u>6,148</u> |
| 1. Electronics and Computers: | | 717 |
| a. HC Contract (PSA) | Direct Pay | |
| b. HC Contract (Commodities) | Bank L/Comm | |
| 2. Local Shelf Items: HC Procurement (Purchase Orders) | HC Reimbursement and Direct Pay | 3,880 |
| 3. Vehicles, Motorcycles, and Bicycles: AID Procurement | Direct Pay | 1,551 |
| <u>D. Operating Expenses</u> | | <u>3,491</u> |
| HC Implementation | HC Reimbursement | |
| <u>E. Evaluation and Audits</u> | Direct Pay | <u>340</u> |
| <u>F. Contingency</u> | | <u>722</u> |
| Total AID Contribution | | <u>15,000</u> |

2. Procurement of Commodities: The Bank Letter of Commitment will be used for procurement of commodities, since the Procurement Services Agent (PSA) requires the issuance of individual Bank Letters of Credit to suppliers. As explained above, a separate project account will be established by the GOM to handle A.I.D. funds for local currency costs under this project. The financing and implementation methods described above have been used in previous A.I.D. projects with the MOH and MOW. The MOW has well established procurement and accounting procedures which meet A.I.D requirements. The MOH has an accounts section and a project implementation unit which manages project procurement and financing.

C. Financial Review and Audit

USAID/Malawi will request the Office of the Inspector General (IG) in Nairobi to arrange for periodic non-federal audits of the dollar and local currency accounts under the project. The scope of work and contract for the local accounting firm is limited to financial compliance matters and will be approved by the AID Inspector General's Office in Nairobi. The findings of financial reviews and audits, workpapers, and reports will be reviewed by the same office. The IG/Nairobi will also ensure that the accounting firm qualifications and performance standards of non-federal auditors are met. Approximately two person-months are budgeted for each audit with funds provided under the project.

D. Budget Allocations

The focus of project-funded technical assistance, training, and service delivery is on improving child survival services and practices. An A.I.D. working definition of Child Survival categorizes water and sanitation within "Group II"; interventions which have direct impacts on child survival though they may not be explicitly stated in the Agency's April 1986 Child Survival Strategy. Because approximately 20% of Malawi's population is under five years of age, 20% of the funds budgeted for the water component are attributed to health in general. Institutional strengthening activities supported under the project's Information, Education and Communication (IEC) component are critical to the implementation of Malawi's medium term strategy for AIDS. It is anticipated that 5 percent of the project's overall budget will be spent on AIDS over the eight-year life of the project. Child spacing will be an integral part of the project's service delivery and operations research components as well as focus of IEC activities. Therefore, 10% of project funds have been allocated to child spacing.

A.I.D. funding for PHICS is attributed to budget categories as follows:

| | <u>Budget Share</u> | <u>Amount</u> (US\$000) |
|----------------|---------------------|----------------------------|
| Child Survival | 50% | 7,500 |
| Health | 35% | 5,250 |
| AIDS | 5% | 750 |
| Child Spacing | 10% | 1,500 |
| | <hr/> | <hr/> |
| | 100% | 15,000 |

V. SUMMARIES OF ANALYSES

A. Technical

1. The Siting and Strategy of Service Delivery

Activities: The project's service delivery activity is composed of three components: potable piped water; sanitation and hygiene education (i.e. the Hygiene Education and Sanitation Program/HESP); and a basic set of preventive and curative Child Survival (CS) interventions. The initial conception of the project's service delivery model was for these three components to be delivered together as an integrated package. The siting of project-funded service delivery activities was to be determined by the location of piped water schemes of which there would be 69 by project's end located in 17 of Malawi's 24 districts. The strategy behind the siting plan was to add HESP and child survival services to piped water in an effort to maximize health impact among those rural Malawians with access to piped water. The strategy is based on the assumption that the community organization on which the construction and continuation of piped water systems depend could be utilized to initiate and sustain HESP and child survival services.

While the strategy is sensible to pursue under the project where feasible, the presence of piped water should not be the determining factor in project site selection. Several reasons argue against an exclusive focus on areas served by piped water. First, infant mortality levels vary widely across districts in Malawi and the 69 piped water schemes will not necessarily be located in areas with the highest infant mortality. Project impact on infant and child mortality may be greater were the project's relatively scarce resources to be channeled towards populations with the highest infant mortality rates. Second, there are concerns about project management and implementation. The 69 areas served by piped water will be located in seventeen different districts. Within most of these seventeen districts, piped water systems reach a minority of the total district population. Planning, implementing and evaluating the addition of two service delivery components (HESP and child survival) to piped water schemes in 69 areas scattered among and within 17 different districts would be a formidable management challenge. Third, there are concerns about equity. Resources available for primary health care and child survival are limited in Malawi. Giving communities which already enjoy the benefits of piped water access to enhanced HESP and child survival services may be inequitable in a country with so few resources. Finally, there are concerns about maximizing project impact on national-level child survival policies and program designs. There are many major service delivery questions which

need to be explored in Malawi, to name but a few: the feasibility of community-based child-spacing services, the viability and effectiveness of a national primary health care program based almost exclusively on volunteers, and the possibilities for cost containment and recovery. The project's service delivery component is intended to offer the GOM an opportunity to systematically address these and other critical questions through health systems research. The point of such research is to identify sustainable service delivery approaches for the national program which have program-wide applicability. Because gravity-fed piped water can reach at most 20% of Malawi's population, lessons learned from service delivery approaches centered on the presence of piped water schemes may not be representative, and therefore may not be as useful for national-level policy and program formulation as those gleaned from more typical service delivery areas without access to piped water.

In light of the disadvantages of channeling project services to the 69 sites where there are (or will be by project's end) piped water schemes, other service delivery options were identified and evaluated with the MOH using an agreed-upon set of prioritized criteria to assist in site selection. Agreement was reached on the basic design of an alternative service delivery model to be tested under the project. This model has been summarized in Section III. In brief, infant mortality rates rather than the presence of piped water schemes are used as the controlling factor in district selection. To facilitate project implementation, particularly the evaluation of service delivery strategies, service delivery activities will take place in a limited number of districts well-distributed nationally and, hence, reasonably representative. The main rationale and assumptions on which the strategy is based include: (1) to promote equity and to optimize the utility of findings from field tests and health systems research, project service delivery areas will be distributed across Malawi's three regions and should include communities without access to piped water as well as those with access; (2) offering project services to communities with low access to health services and which have the highest infant mortality rates will be more effective in contributing to the project goal of decreasing child mortality and morbidity; (3) the hypothesis that community mobilization for piped water can be used to facilitate the initiation of sanitation and child survival activities is valid and will be tested wherever feasible within the districts selected; and (4) the project can make a useful contribution in testing the extent to which community

organization surrounding the construction and maintenance of other types of water systems (i.e. other than piped water) can be used to initiate and sustain community-based sanitation and child survival services.

2. Sanitation - Technology, Coverage, and

Implementation: Three approaches were considered regarding the type and number of latrines to be supported under the project's sanitation component. First, support for latrine research. The intention of this approach was to assist the MOH, through the HESP program, to identify new latrine designs suitable for use in Malawi. The HESP program would then demonstrate the design and construction of new models in a limited number of districts. The ventilated improved pit latrine (VIP), though relatively expensive, was seen as one model worth promoting on a demonstration basis. This approach was not expected to result in significant increases in latrine coverage at the conclusion of the project. Second, the project would support a large scale replication of the successful sanitation project in Liwonde Agricultural Development Division (LADD). The project is centered around an inexpensive latrine model called the "San-Plat". Labor and local materials needed to construct San-plats are provided by the community while the project provides cement and reinforcement bars. After several years of effort on the part of the LADD, San-plats have gained considerable popularity and are widely used in certain parts of the district. Based on the San-plat's success in Liwonde, and its simplicity and low cost, it was concluded to be a latrine model worth replicating on a much wider scale under the PHICS project.

Approximately half of Malawian households currently have a latrine of one type or another. Increasing latrine coverage well above the 50% level is a goal of the Project. Based on practical experience gained by the MOH Environmental Health Unit, the HESP project, and the Liwonde ADD project, local wisdom (though largely undocumented) holds that attaining 75% latrine coverage may be feasible given time and adequate resources. Therefore, project funds were provided for cement and reinforcement rods needed to construct 62,500 San-plats which would increase latrine coverage in project areas from 50% to the 75% level.

The third approach is for the project to support universal latrine coverage in select project areas. This approach grows out of a concern that even an increase of 25% in latrine coverage to the 75% level will not break the transmission cycle of water and fecal borne diseases. Therefore, full coverage is imperative for the achievement of significant and sustainable health impact. What it takes in terms of time and human and

financial resources to achieve latrine coverage levels above 75% is unknown. Liwonde ADD project staff suspect it will be a long and difficult process. MOH Environmental Health Unit staff feel comprehensive latrine coverage is not a realistic goal for the PHICS project. Given the paucity of documented efforts to achieve full latrine coverage, and given the level of support for and interest in operations research under the project, systematic efforts on the part of the HESP program to achieve universal latrine coverage in localized areas would appear worth trying to document the level of effort and resources required.

Implementation of this component is the responsibility of the MOH Environmental Health Unit and the HESP program. The HESP program has considerable experience with sanitation program "software" -- hygiene and sanitation promotion and education -- but to date have had little experience with the "hardware" -- latrine production. The project will permit the HESP program to add this capability using the existing MOH rural service delivery structure supplemented with the project inputs. With funding from the UNDP and with the recent acquisition of technical expertise in the construction of the San-plat, the Ministry of Local Government (MOLG) plans to expand its urban-based sanitation program. Coordination between the MOH and the MOLG will be important to ensure complementarity of efforts and to utilize the ministries' comparative advantages. Concerns of duplication of effort may arise if the MOLG gets involved in HESP-like sanitation promotion and education efforts and if the MOLG expands into rural areas. However, at present, the MOLG lacks the service delivery structure to do this. The two sanitation programs' relative progress and the extent to which they coordinate with and complement one another will be evaluated in connection with the first technical assessment of the PHICS project.

B. Social Soundness

1. Context: Most Malawian households depend on agriculture for their livelihood. Some 50 percent of the small-scale farming households are unable to meet their domestic food needs from household production and on average they earn only \$50 in cash annually. Wage rates for workers on agriculture estates are sufficient to cover the basic needs of the worker, but not a family.

In spite of progress made by the MOH in the provision of health services and by the MOW in provision of improved rural water supplies, a high proportion of children under the age of five are ill and die from preventable or treatable diseases. Some 50% of the children are stunted, and studies indicate that approximately 50% of the under fives are under 80% weight/age.

Women bear the main responsibility for child care, in addition to their responsibilities for household maintenance and production activities (primarily agricultural production) to provide food and other basic needs. These responsibilities usually compete for allocation of women's time and for scarce financial resources. The poor health of many women is reflected in low birth weights, stillbirths, and infant deaths. Child spacing services were initiated in 1983, but most women and men continue to lack knowledge about modern methods and access to services. It is estimated that approximately three percent of eligible couples in Malawi use a modern contraceptive method.

2. Social Considerations of Project Activities: The PHICS project can be divided into two broad components: institutional development and service delivery. Institutional development activities are focused on MOH organizational units which are responsible for supporting child survival activities and informing decision-makers as to how Ministry programs should be designed, implemented and managed. The support provided by PHICS to the HEU (to develop and disseminate educational materials in support of priority child survival interventions), to the Research Unit (to conduct operations research on various aspects of child survival programs), to the Epidemiology Unit (to establish a capability to train health personnel in the epidemiological perspective and support child survival programs), to the HIS Section (to collect and analyze child survival data to improve program management) and to the Planning Unit (to plan child survival projects and programs more effectively and to ensure the PHICS project is implemented on schedule and according to design) will improve child survival-related services to priority target groups. In this way, the PHICS project will contribute to the attainment of MOH objectives of improving health status and decreasing infant and child mortality. The Project Paper has considered Ministry needs and the feasibility of a number of possible project inputs. The result is a set of activities which are programmatically sound and have a reasonable chance of being implemented effectively.

The second component, service delivery, includes the construction of gravity-fed piped-water systems in 14 areas serving a design population of approximately a quarter million, priority child survival services including child spacing, and hygiene education and sanitation services.

There is evidence to support the further development of a community-based approach to provide a critical core of services to the most vulnerable segment of the population. Several health projects (e.g. Liwonde ADD, Salima ADD, Save the Children (SCF) Child Survival Project) have demonstrated that communities

are willing and capable of participating in health programs. Sustained volunteer activity appears not as rare in Malawi as in other countries and cultures. The critical features are proper community orientation and the assignment of specific, limited responsibilities to the volunteers, including TBAs and traditional healers. The community-based projects mentioned have experimented with cost-recovery for simple curative medicines and initial results show that the community is willing and able to pay some of the costs involved. More experience is needed in this area, however.

One explanation for the relative success achieved by projects such as those in Liwonde and Salima ADD and in Mbalachanda appears to be the additional resources available in terms of paid, professional field staff to train, support, and supervise community-level health workers. For example, the SCF child survival project in Mbalachanda has 20 female supervisor/trainers to work with 120 community health workers. Such a high supervisor to worker ratio would be advantageous but perhaps not affordable nationally. The project will support the study of innovative projects like those in Liwonde and Salima ADDs and in Mbalachanda (SCF) to identify workable approaches which the Government can afford to implement nationally. The project will seek to determine the optimal health worker to volunteer ratio which will result in adequate community support and which the Government can afford to sustain.

Emphasis will be placed on community orientation, mobilization, and organization in the project's service delivery component. The experience of Liwonde should guide this effort, especially the use of folk dramas and dance to educate and energize the villagers to support health activities. Secondly, support provided to a research organizations to enable the monitoring and evaluation of the service delivery component will provide the MOH with information on performance and constraints as the strategy is being implemented. This timely feedback will enable the project to make regular corrections and modifications, thus eliminating the need to wait for the mid-term or final evaluations to determine whether the approach as designed is viable.

Considering the high level of rural poverty, it is important to consider if the project's design makes unrealistic demands upon households, especially those headed by females. It must be assumed that target groups have little or no disposable income which can be spent on improving diets (quantity or quality) or other activities which might improve health awareness practices (e.g. purchasing a radio). The design of the HEU and service delivery components of PHICS take this condition into account. For example, health and nutrition

messages will emphasize ways to increase the effective use of the family's limited income or ways to improve health-related habits at no additional cost. In addition, much of the IEC activity will be aimed at increasing the population's awareness and knowledge so that they can practice more self-treatment and make more effective use of existing health services. Once the demand is generated, the services will be provided, more accessible than before. With ORT, chloroquine and simple curative care available in the community, the need to travel to health centers will be reduced. This saves time, thus reducing opportunity and transport costs. The end result should be better health, meaning less lost labor due to child sickness and a reduction in the suffering so common in the lives of the rural population, especially among women.

C. Administrative Analysis

The PHICS project is designed to help fill critical gaps in donor support to the GOM for child survival. One of the most critical needs is for a general strengthening of the MOH service delivery infrastructure. In addition to the need for more financial resources to be devoted to preventive and primary health care and the need for more trained service providers, there is the need to improve overall MOH capacity to implement programs. One of the central objectives of A.I.D. support to the MOH under the PHICS and the HRID projects is to strengthen MOH capacity to plan, implement, and evaluate health and child survival services. Attainment of this objective is fundamental to the institutionalization and sustainability of child health services. As a result of this support, the MOH will be better able to manage health services and projects for which it is responsible, including the PHICS project.

Implementation of the PHICS project is the responsibility of the Government of Malawi working through the MOH and the MOW. There follows a brief description of the allocation of project implementation responsibilities and functions between the MOH and the MOW, and an assessment of capabilities to perform these functions.

1. Ministry of Health: MOH implementation capacity is of general concern as well as of specific concern to this project. The National Health Plan 1986-1995 recognizes the institutional constraints to program implementation in the MOH, such as the over-centralization of decision-making, inadequate management skills, excess "red tape", insufficient staff, complex organizational structures, and inadequate pay and career incentives. The Plan proposes to remedy these problems by

adding staff, decentralizing program management, increasing and improving management training, adopting appropriate organizational structures, and instituting effective management controls over staff, money, capital and materials.

Both the HRID project and the PHICS project are designed to help strengthen MOH implementation capacity and in so doing address needs identified in the National Health Plan. The HRID project will assist the MOH and other critical development ministries to strengthen overall management capacity. Based on needs identified in MOH staff development proposals, HRID will provide training and technical assistance. Needs identified during the PHICS project development for possible HRID support, which centered on the Planning Section, will be factored into MOH staff development proposals. As a result of the general upgrading of MOH management capability supported by HRID, MOH capacity to manage specific donor-funded projects, including PHICS, will be enhanced.

MOH project implementation responsibilities will include: the establishment of approximately 700 new positions; the hiring and training of new staff; the selection of technical advisors; the selection of staff for off-shore training; the establishment of an Epidemiology Unit; the decentralization of the Health Information System (HIS); major expansions of the Research, Environmental Health, and Health Education Units; the implementation of a large scale service delivery project in seven districts in collaboration with the MOH; the management of a substantially increased health research program; and the review and utilization of the results of health systems research in policy and program formulation.

The Ministry's overall organizational structure consists of two branches, Administration and Technical. Under the Technical Branch there are four divisions headed by Controllers; Technical Support, Preventive Health, Clinical Services, and Nursing. Also under the Technical Branch is the Planning Section which is headed by a Chief not a Controller. MOH plans involve the posting of a Controller for Planning under whom would be a Chief of Planning and a Chief of the Project Implementation Unit (PIU). Small project assistance will go primarily to units in the Preventive Health Services division. However, the project also supports activities in other divisions such as the Research Unit located in the Technical Support Division. The Nursing Services Division will be involved in the project to the extent that the project will support the hiring of additional Enrolled Nurse Midwives (ENMs) and/or Enrolled Community Health Nurses (ECHNs). The project will play an important role in supporting the health education component of the GOM Medium Term AIDS Strategy.

Overall responsibility for the day-to-day administrative management of the project will be assumed by a full-time Malawian Project Coordinator located in the MOH Planning Section. The position will be filled by a senior-level manager with considerable government experience. The Project Coordinator will report directly to the Chief of the Planning Section. Supporting the Coordinator will be a project-funded Accountant working full-time on project financial management. These two staff and two other staff from the Planning Section who will be working part-time on the project, will receive short-term training in A.I.D. project implementation.

The Controller of Preventive Health Services will have overall responsibility for the technical oversight, coordination and direction of the project. The Preventive Health Services Division includes the key operational units on which the Project will focus: Malaria/DDC, EPI, Epidemiology, Environmental Health, HIS, PHC, MCH, Child-Spacing, and Nutrition. The Controller of Preventive Health is well situated to coordinate support to these units all of which are within his/her division.

The Project Coordinator will manage the work plan development process with support from A.I.D. and the Project Implementation Committee. Work plans will specify tasks to be accomplished, responsible persons/unit, and deadlines.

The principal GOM mechanism for project coordination and the promotion of inter-ministerial coordination will be the Project Coordination Committee. The main purpose of Committee meetings is to monitor project progress against work plans and to identify and resolve implementation problems. The Committee will be composed of MOH and MOW and USAID representative staff with primary responsibility for the implementation of the project activities. The Project Coordinator will be responsible for arranging Committee meetings, preparing agenda, and preparing and distributing minutes of meetings.

There follows a list of MOH management issues of concern to the PHICS project and how they will be addressed:

a. There are an insufficient number of trained staff at the community level to deliver services, and an insufficient number of trained staff at the district, regional, and central levels to provide supervisory, administrative, and technical support to service delivery staff. The project will support the hiring and posting of approximately 700 new service delivery and support positions at central (12), regional (15), district (24), and field levels (630). Over 90% of the new positions are community-based, service delivery personnel who

will be recruited and trained at the local and district level.

b. While the project focus is on the Preventive Health Services Division, two or three other MOH divisions will have responsibility for the implementation of certain project activities. The Project Coordination Committee mechanism will ensure a reasonable level of coordination among the divisions involved. In addition, standard MOH procedures for monitoring and implementation of donor-supported projects, such as routine monthly meetings of division heads chaired by the P.S./MOH, will be followed for the PHICS project. Of particular importance is adequate coordination between the Research Unit, the Planning Section, and the yet-to-be-established Epidemiology Unit regarding the selection of research topics and the utilization of results in the formulation of program plans and policies. In addition to the above-mentioned mechanisms, representatives from the Planning Section and Epidemiology Unit will participate in research review committee proceedings.

c. Two ministries, the MOH and the MOW, are involved in project implementation. MOW representation on the Project Coordination Committee will assist coordination between the MOH and the MOW.

d. The project involves the procurement and management of a large amount of technical assistance and off-shore training. Through PHICS-funded delivery orders, AED will provide the GOM with administrative and logistical support services to manage most technical assistance and training supported under the project. This arrangement, or an alternative should the AED mechanism prove unsatisfactory to the GOM, should relieve the MOH (and the Mission) of a substantial management burden associated with the implementation of PHICS.

2. Ministry of Works (MOW): MOW responsibilities will include the construction of 14 gravity-fed piped water schemes; the management of an expanded in-service training program for MOW staff; and the conduct of a number of water-related studies. The MOW will be implementing an activity with which it has had considerable experience over the years.

The Rural Water Section (RWS) in the MOW has the responsibility for developing and implementing the gravity-fed piped water and sanitation schemes under PHICS. RWS has held this responsibility for more than 18 years and, as a result, has put into place a well-established set of procedures which incorporate A.I.D. review, approval, and funding requirements.

The design and construction of the water systems is performed by the RWS. Both of these functions have been affected recently by a shortage of project engineers. The RWS has only two engineers at headquarters and one in the field. These two must carry out all designs with assistance from field supervisors who hold engineering diplomas from the Polytechnic in Blantyre. The shortage of engineers has also caused a shift in construction supervision in the field. Previously, the engineer who designed a system remained in the field to supervise construction. Now that this is no longer possible, either the senior technical officer, technical officer or senior technical advisor must perform day-to-day supervision as well as construction management. They are assisted by water project operators who are responsible for directing the village self-help activities and monitoring the progress of paid contractors. Although the reduction in engineering staff has placed somewhat of a strain on remaining staff, recent evaluations showed that the quality of design and construction has remained high. Two recently-qualified engineers have been recruited and are expected to join the RWS soon. To deal with the shortage of engineers over the short-term, funds have been budgeted for expatriate technical assistance from consultant advisors and/or the Peace Corps until slots can be filled with Malawian engineers. However, continued dependence on expatriate engineers has cost implications and disrupts the continuity of operational experience. The project will support RWS efforts to recruit, train, promote and retain Malawian engineers.

D. Financial and Economic Analysis

This financial analysis addresses the macroeconomic and fiscal-policy background and the question of the recurrent-budget resources that will be available to MOH over the coming eight years or so as anticipated by Malawi's National Health Plan. The economic analysis is in the main concerned with comparisons of the costs and benefits of the PHICS project and with problems confronting such analysis.

In the past decade, the economy of Malawi has encountered formidable problems, the real rate of economic growth has fallen behind the rate of population growth. The Government continues to confront these difficulties and to respond to them in the context of structural-adjustment agreements with the IMF and the World Bank. Pursuant to this, the Government has recognized the critical importance of achieving fiscal discipline; the total expenditure of Government will be strictly contained and tight fiscal stringency will be very much the order of the day for some time to come.

However, it is important to remark that the implications for health-sector financing may be less ominous than this overall picture might suggest. For one thing, the health sector is seen by the GOM as an important and integral part of the overall development program and effort. Thus, according to the Policy Framework statement:

"Malawi's large unexploited human resource investment opportunities offer significant potential for economic growth. Levels of education, health and nutrition in Malawi are some of the lowest in sub-Saharan Africa. Thus the Government places high priority on expanding the social sector infrastructure..."

The fact that the health sector is regarded as an important development sector augers well for public-resource availability to the sector. In addition, the GOM hopes to overcome Malawi's serious economic development problems while at the same time not deteriorating the position of the most vulnerable and disadvantaged groups. As part of this, the Government's program seeks to improve the provision of social services including health services.

These policies are reflected in the official projections of the Government's recurrent budget. For the 1987-1996 period, the MOH budget is projected to increase from about 7.0% of the total recurrent budget to about 10.7% of the budget. This implies an average annual rate of growth of the MOH budget in real terms over this period of 6.3%, a significantly faster rate of growth than is projected for GDP or for overall Government expenditure.

These facts bear on the issue of sustainability. That is, some of the project inputs to the health programs being assisted by the project are of the kind that logically would continue to be used by these programs in the post-project years. In this way, PHICS may imply some increase in the recurrent-cost burden to be borne by the MOH (or by some other source) in the post-project years when PHICS funding will no longer be picking up these expenses.

PHICS plans to phase MOH assumption of these costs; for example, 25% in the 5th project year, 50% in the 6th project year, 75% in the final project year, and 100% in the first post-project year and thereafter. One measure of the burden implied by this phased assumption of recurrent costs may be had by looking at the percent the incremental recurrent costs owing to the project will be of the projected MOH recurrent budget in these years. From this point of view, the burden implied by PHICS for the MOH recurrent budget is minor -- the incremental

recurrent costs increase from 0.3% of the budget in the 5th year to 1.1% when 100% of these costs are assumed. For another dimension of this burden, we may look at the percent the incremental recurrent costs owing to PHICS will be of increments to the MOH recurrent budget over these years. This percent rises from 5.2% in the 5th project year to 15.7% in the first post-project year when 100% of these costs will be assumed. Looked at from this point of view, the burden still does not appear ominous.

Turning to the economic analysis, we may first provide an introductory comparison of the costs and benefits of PHICS in general terms. For a project such as PHICS, attempts to do straightforward cost-benefit (C-B) and cost-effectiveness (C-E) analysis run into a number of difficulties. These will be briefly discussed.

In discussing these problems, it is important to recognize (and as the literature in this domain bears witness) that it will be rarely, if ever, that a meaningful C-B and C-E analysis of the performance of health programs can be accomplished by what has become the conventional approach -- notably, an itinerant, short-term investigator trying to rush through such a study. If policy makers feel that C-B and C-E findings are worth assembling, then an effort should be made to assemble them in a proper way. This will require far more time and attention than usually is given to the task. Indeed, making these findings should be a regular, ongoing observation program accompanying project implementation as an integral part of the implementation. PHICS, by incorporating this feature, will thereby make an important contribution to project design.

Particularly for some of the institution-strengthening components of PHICS, it would be fair to identify the whole population of Malawi as beneficiaries, indirectly and over the longer run. However, for present purposes, it will be better to identify beneficiaries in a more proximate way. The project's service delivery component will reach approximately 1.5 million people. Populations to be served will include those living in the seven districts selected on the basis of their high infant mortality, and those who will be reached by the new piped water schemes.

Turning first to the water-cum-health-package beneficiaries, we find an adjusted (to reflect the present value of project outlays over the seven year period) cost of about \$23 per beneficiary for this cohort. In evaluating the benefits yielded by this expenditure, we must take account of the fact that the beneficiaries will be receiving benefits over a number of years. We adopt a 20 year benefit-yield horizon for this exercise.

A large number of favorable health effects can be expected from a program such as PHICS which fields a package of water/sanitation/health services. For example, decrease in morbidity owing to shistosomiasis, malaria, hookworm, diarrhea and other diseases for all age groups in the population -- infants and children as well as those who comprise the agriculture workforce. There is good reason to believe that the combination of clean water, sanitation (latrines) and improved household KAP can reduce the risk of childhood diarrhea substantially. Similarly, a more effective community-based PHC system complementing services delivered by peripheral MOH facilities (health centers) should result in more effective delivery of EPI, ORT and malaria-control services.

Is it worth an average cost of \$23 per beneficiary to achieve these benefits? A good way to gain some perspective on the answer to this question is to ask what the value of the benefit yield would have to be, in money-value terms, over the 20-year benefit period with, say a 12% rate of discount, to make the expenditures for PHICS worth it. The answer turns out to be about \$3.08 per beneficiary per year. (That is, an investment of \$23 today which yield 20 annual payoffs valued at \$3.08 each would have an internal rate of return of 12%).

That is, the expenditure for PHICS can be regarded as costworthy if the payoffs in each of the benefit years can be valued at least \$3.08, per beneficiary. To inform judgment on this score, and recalling that in Malawi the health sector is regarded as a crucial and integral part of the overall economic development effort, it will be appropriate to look at this matter from the point of view of health as a producers good. It is plausible to suppose that PHICS inputs to the health-services sector will result in a favorable impact on the health status of the agriculture work force. It may be estimated that if, owing to this impact, total factor productivity per worker in agriculture were just 5.0% higher in each of the benefit years than it otherwise would have been, the yield would be the equivalent of about \$5 per worker per year. Thus, even a very modest expectation about the impact of PHICS on productivity argues strongly for the costworthiness of expenditures on PHICS.

Health services and better health tend to be valued as "producers" goods in the context of economic analysis of health programs. But, health services and better health are also important as "consumers" goods -- indeed, most would contend that this is their major value. Programs such as PHICS which seek significant reductions in infant and child mortality and morbidity are apt to be particularly important from this point of view.

This analysis has been addressed to the water-cum-health-package beneficiaries. We find for the health-package-only beneficiaries of PHICS an adjusted cost of about \$5.20 per beneficiary. A yield per beneficiary per year which could be valued at about \$0.70 over the 20 year payoff period would be enough, assuming a 12% discount rate, to make the outlay of \$5.20 worth it.

From this point, the analysis for this cohort of beneficiaries is the same as that already provided for the other cohort except that, of course, far more modest expectations about the impact of the project will lead to the conclusion that the outlays for the health-package-only beneficiaries are worth it.

In summary for both cohorts of beneficiaries, it would seem clear that the project expenditures should be regarded as costworthy in light of the expected value of the benefits anticipated from the project.

For health programs, a major problem for straightforward C-B and C-E analysis ex ante program implementation is uncertainty with respect to the program production function. This general problem is exacerbated in the case of a program such as PHICS. PHICS is not the typical health project represented by a comprehensive delivery system providing health services of some kind, for which in principle (albeit probably not in practice) a production function might be written. For PHICS, none of its components by itself is a delivery system for health services nor do its components collectively comprise a delivery system for health services for which, even in principle, a health-service production function might be written. Rather, PHICS components are expected to have their favorable impact on health status -- as complementary inputs, along with non-project inputs, to those health programs which are the delivery systems providing health care.

The project design and its relationship to ongoing health-sector events in Malawi, are such that there is not much scope for useful economic analysis ex ante project implementation beyond that presented above.

There will be, however, excellent prospects for learning much from the project of importance for the development of health services in Malawi if, as is intended, the implementation of the project is accompanied by carefully planned base-line and follow-up evaluation of the performance of the health programs PHICS seeks to complement. The cost and performance data to be collected in this way will inform really meaningful C-B and C-E analysis of project performance ex ante its implementation.

VI. IMPLEMENTATION AND PROCUREMENT

Section V. C., the Administrative Analysis of this paper, includes a narrative description of the roles to be assumed by the MOH and the MOW during project implementation, and an assessment of capacities to perform these roles. Included in this section is a summary implementation plan and a discussion of procurement under the project.

A. Implementation

The following is a summary outline of anticipated implementation actions to be taken during the first project year. Actions scheduled for one quarter may occur in an adjoining quarter. An illustrative implementation plan for the entire project will be completed by the end of the first year, and detailed work plans will be developed on an annual basis.

1. First Quarter: Anticipated implementation actions will include: (1) the posting of key project staff including the MOH Project Coordinator and Accountant, and USAID Project Manager; (2) the convening of Project Coordination Committee to review and finalize project management and coordination procedures and a detailed work plan for year one; (3) coordination meeting(s) with staff from the Health Institutions Development (HID) Project and the Lilongwe School for Health Sciences (LSHS) regarding HSA training; (4) a review of the implications of the June 1989 MOH Comprehensive Review of the Diarrheal Diseases and Malaria Control Programs for PHICS project implementation plans; (5) the recruitment and contracting of long-term advisors in epidemiology and water engineering; (6) the identification of short-term technical assistance needs for year one and an action plan for meeting them; (7) the selection of long-term trainees and off-shore training programs; (8) detailed implementation planning of the service delivery component in the first district (Dedza) and the initial piped water schemes; and (9) the ordering of commodities.

2. Second Quarter: Implementation actions will include: (1) the arrival of long-term technical advisors; (2) the finalization of procedures and proposal selection criteria for the child survival research program and the dissemination of the research program announcement and request for proposals; (3) the design and initiation of priority operations research studies and baseline, knowledge, Attitude and Practice (KAP) and cost recovery surveys; (4) the commencement of off-shore participant training; (5) assessments of the availability of health, sanitation, and water staff in selected project areas; and (6) the recruitment of the initial batch of new MOH service delivery staff.

3. Third Quarter:

Implementation actions will include: (1) completion of KAP and baseline surveys in selected project areas; (2) posting of service delivery staff and commencement of implementation of the service delivery component in Dedza District; (3) the conduct of orientation and training workshops for service delivery staff; (4) receipt of project commodities; and (5) commencement of work on initial rural piped water projects.

4. Fourth Quarter:

Implementation actions will include: (1) the monitoring of the service delivery component in Dedza District; (2) the finalization of detailed, full-term workplans; (3) the hiring and posting of additional trained service delivery staff; (4) the conduct of project orientation and implementation workshops in additional districts; (5) planning for the commencement of service delivery activities in an additional district(s); and (6) preparation of the first annual report.

B. Procurement

1. Responsible Agency: Overall responsibility for implementation of the PHICS project including the procurement of project commodities will rest with the Principal Secretary of the Ministry of Health for all project components except the rural piped water systems component. The Principal Secretary of the Ministry of Works will have overall implementation responsibility for the rural piped water systems component of the project. The Principal Secretaries will have the responsibility for authorizing the expenditure of project funds, for approving and signing Project Implementation Orders, Project Implementation Letters and other forms of obligating documents, for monitoring the procurement process, and for acknowledging receipt of goods to A.I.D. by issuance of receiving reports.

In the MOH, the Chief of Health Services and the Chief Planning Officer will hold the above listed responsibilities concurrently with the Principal Secretary and will also be authorized to sign project implementing and obligating documents. Additionally, the Administrative Officer in the Planning Section and the PHICS Project Coordinator, to be appointed and working within six months of authorization of the project, will have the primary responsibility for routine project implementation activities.

In the Ministry of Works, for the rural piped water systems component, the Water Engineer in Chief and the Principal Water Engineer will be delegated the authority to enter contracts and to approve obligations of project funds.

In order to strengthen the institutional capacity of the MOH and of the MOW, the REDSO/ESA Regional Commodity Management Officer will conduct a one to two day seminar in Malawi on commercial procurement practices and A.I.D. procurement requirements within six months after project authorization for Ministry staff involved in the procurement process. This seminar will be designed to assist the respective Ministry personnel involved with managing the A.I.D.-financed procurement activities to be undertaken by the project.

2. Purchasing Entities: Purchases of project commodities will be undertaken by a variety of entities. The PVC pipe, cement, reinforcing rods, hand tools and other materials required for the MOW rural piped water systems component of the project will be purchased by the Ministry of Works by international tender under A.I.D. HB 11 host country contracting procedures. The MOW has had recent experience in A.I.D.-financed purchases of these types of materials. Other building materials and supplies and the hand tools and the furniture to be financed in local currency under the Service Delivery and Sanitation and Hygiene Education components of the project will be purchased by the various purchasing sections of the Ministry of Health. The sections of the MOH directly responsible for the component involved will also be responsible for executing memorandums of understanding with the Ministry of Agriculture's Extension Aids Branch and the Government Printing Office, or for executing contracts for production services with private sector entities, for the production of the films and training materials to be financed under the information, education, communication and service delivery components of the project. The A.I.D. Executive Office will be charged with the purchase of all motor vehicles, including motorcycles, which will be financed under the project. The primary health care kits will be purchased by A.I.D./W from UNICEF. Because of the obvious complexity of the procurement component of this project

and in order to ensure that goods are purchased at the most advantageous prices, the majority of the other equipment financed by the project will be purchased by a professional procurement services agent (PSA) under an indefinite quantity contract with REDSO/ESA. In order to maximize MOH involvement in and control over the procurement process, work orders issued to the PSA will specify that the PSA is to report directly to the MOH unit concerned with the particular procurement component.

3. Equipment List: The following list is organized by project component or by MOH Section, as appropriate.

| <u>Item</u> | <u>Qty</u> | <u>Budget</u> | <u>Prob S/O</u> | <u>Proc entity</u> |
|--|------------|---------------|-----------------|--------------------|
| 1. Information, Education and Communications Section: | | | | |
| a. Cassette tape recorders for field use | 5 | \$500 | U.S. | PSA |
| b. Reel to reel tape player for editing | 1 | \$1,500 | U.S. | PSA |
| c. Microphones and accessories | 9 | \$3,000 | U.S. | PSA |
| d. Cassette tapes | 500 | \$500 | U.S. | PSA |
| e. Reel to reel tapes | 300 | \$1,000 | U.S. | PSA |
| f. Splicing tapes | 100 | \$250 | U.S. | PSA |
| g. Other audio supplies | | \$10,000 | U.S. | PSA |
| h. Musical instruments and equipment | | \$15,000 | U.S. | PSA |
| i. Cargo vans to be fitted locally into mobile cinema vans | 4 | \$65,000 | Japan | USAID |
| j. 9 passenger 4x4 utility vehicles | 2 | \$32,000 | Japan | USAID |
| k. Film enlarger w/ accessories | 1 | \$5,000 | U.S. | PSA |
| l. Film dryer | 1 | \$1,000 | U.S. | PSA |
| m. 35mm camera w/lenses | 5 | \$5,000 | Japan | PSA |
| n. Film and other photographic equipment | | \$5,000 | U.S. | PSA |
| o. Small refrigerator | 1 | \$300 | U.S. | PSA |
| p. Multisystem VHS recorders | 4 | \$2,000 | Japan | PSA |
| q. Video monitors | 4 | \$2,800 | Japan | PSA |
| r. Personal computers w/software for printing & Graphics Dept. | 2 | \$20,000 | U.S. | PSA |
| s. Typesetting machines | 1 | \$4,000 | U.S. | PSA |
| t. Camera, Lucides | 1 | \$4,000 | U.S. | PSA |
| u. Offset printing press | 1 | \$5,000 | U.S. | PSA |
| v. Silk screen equipment & supplies | | \$5,000 | U.S. | PSA |
| w. Drafting tables | 3 | \$3,000 | U.S. | PSA |
| x. Misc. graphics supplies | | \$50,000 | U.S. | PSA |
| y. Contract production of Films and information materials | | \$150,000 | local | MOH |
| <u>Subtotal</u> | | \$390,850 | | |
| 2. Research Unit: | | | | |
| a. Personal computer, data base and CD reader | 2 | \$30,000 | U.S. | PSA |
| b. 8 Passenger 4x4 utility vehicle | 1 | \$16,000 | Japan | USAID |
| <u>Subtotal:</u> | | \$46,000 | | |

| | | | | | |
|----|--|--------|-----------|------------|---------|
| 3. | 8 passenger 4x4 utility vehicle | 4 | \$80,000 | Japan | USAID |
| 4. | Health Information Systems Section: | | | | |
| a. | Personal computer system | 9 | \$97,000 | U.S. | PSA |
| b. | Modems and phone Links for data processing equipment | | \$10,000 | Local | MOH |
| c. | 8 passenger 4x4 utility vehicle for epidemiology unit | 1 | \$16,000 | Japan | USAID |
| d. | 8 function calculators | 90 | \$1,000 | U.S. | PSA |
| e. | Scientific calculators | 10 | \$1,000 | U.S. | PSA |
| f. | Furniture for hospital document centers | | \$10,000 | Local | MOH |
| | <u>Subtotal</u> | | \$208,000 | | |
| 4. | Service Delivery Section: | | | | |
| a. | Building materials | | \$150,000 | local | MOH |
| b. | Primary health care kits | 4,000 | \$100,000 | Various. | UNICEF |
| c. | Motorscooters | 30 | \$50,000 | Japan | USAID |
| d. | Bicycles | 300 | \$35,000 | U.S. | PSA |
| e. | Training book production 2000 copies of 10 booklets | 20,000 | \$35,000 | local | MOH |
| | <u>Subtotal</u> | | \$370,000 | | |
| 5. | Sanitation and Hygiene Education Section: | | | | |
| a. | 7 Ton truck | 1 | \$30,000 | Japan | USAID |
| b. | 9 passenger 4x4 utility vehicle | 1 | \$20,000 | Japan | USAID |
| c. | Compact pick-up trucks | 10 | \$120,000 | Japan | USAID |
| d. | 125 CC motorcycles (trail bikes) | 50 | \$75,000 | Japan | USAID |
| e. | Bicycles | 250 | \$37,500 | U.S. | PSA |
| f. | Wheelbarrows, hammers, trowels, shovels, other tools | | \$30,000 | Local | MOH |
| g. | House building materials | | \$100,000 | Local/U.S. | MOH/PSA |
| h. | San plat latrine materials | | \$122,000 | Local | MOH |
| i. | Wash slab building materials | | \$250,000 | local | MOH |
| | <u>Subtotal</u> | | \$784,500 | | |
| 6. | Ministry of Works Water Programs Component: | | | | |
| a. | Towing tractor w/ water tank and general utility trailer | 1 | \$10,000 | U.S. | PSA |
| b. | 7 Ton pipe carrying truck | 2 | \$60,000 | Japan | USAID |
| c. | 7 Ton dropside trucks | 3 | \$90,000 | Japan | USAID |
| d. | 7 Ton tipper truck | 1 | \$30,000 | Japan | USAID |
| e. | 9 passenger 4x4 utility vehicle | 1 | \$20,000 | Japan | USAID |
| f. | Compact pick-up trucks | 4 | \$48,000 | Japan | USAID |
| g. | 125 cc motorcycles | 8 | \$16,000 | Japan | USAID |

| | | | | |
|---|----|-------------|-------|------------------|
| h. bicycles | 30 | \$4,500 | U.S. | PSA |
| i. 1/4 cu yd concrete mixers | 6 | \$80,000 | U.S. | PSA |
| j. Poker vibrators | 6 | \$40,000 | U.S. | PSA |
| k. Portable rock drills | 2 | \$5,000 | U.S. | PSA |
| l. Other tools and equipment (welding Machines, pressure testers, water pumps, etc.) | | \$100,000 | U.S. | PSA |
| m. Water field test kits | 3 | \$11,000 | U.S. | MOH |
| n. Refrigerators | 3 | \$3,000 | U.S. | PSA |
| o. PVC pipe, reinforcing rods, cement | | \$3,000,000 | Local | MOH |
| <u>Subtotal</u> | | \$3,517,500 | | |
| 7. Project Management: | | | | |
| a. Personal computer for PSC | 1 | \$10,000 | U.S. | USAID |
| b. 5 passenger 4x4 utility vehicle | 1 | \$15,000 | Japan | USAID |
| c. Office supplies | | \$5,000 | U.S. | USAID |
| <u>Subtotal</u> | | \$30,000 | | |
| <u>TOTAL</u> | | | | \$5,346,850 |
| Contingency: | | | | <u>801,150</u> |
| <u>TOTAL COMMODITY LINE ITEM BUDGET:</u> | | | | <u>6,148,000</u> |

4. Development Fund for Africa Certification: This project will be funded at least through the first two years of implementation by Development Fund for Africa (DFA) resources. Following the Congressional guidelines set forth in the legislation authorizing the DFA, all reasonable efforts have and will be made to maximize procurement of U.S. source/origin commodities. The above list was prepared with the assistance of the REDSO/ESA Regional Commodity Management Officer. All vehicles to be financed by the project will be purchased under the authority of the worldwide right-hand drive vehicle waiver. A yearly report of all such vehicle purchases will be sent to AFR/PD. Only those other items which are not currently made in the United States or those items which because of the very nature of the items involved can not be purchased and shipped to Malawi from the U.S. at reasonable cost (for example, cement, PVC pipe, building materials, etc.) have been designated for purchase from non-U.S. source/origin. Therefore, the USAID/Malawi Mission Director, in accordance with A.I.D. Africa Bureau guidelines, will maximize U.S. procurement whenever practicable. The A.I.D. Project Officer assigned to monitor this project will keep records of all commodities purchased by the project by A.I.D. Geographic Code and will report this information on a yearly basis to A.I.D./W, AFR/PD.

5. Office of Information Resources Management Review: In order to assist the Ministry with further defining their needs for data processing equipment and to assure that the most appropriate hardware and software is procured, the REDSO/ESA IRM representative will review with appropriate Ministry of Health representatives the above listed requirements for data processing equipment within six months of project authorization.

6. Commodity Marking: Commodities purchased by the project will be appropriately marked with the A.I.D. hand clasp symbol. The PSA will be charged with ensuring that all goods it purchases are marked at source. A.I.D. will purchase a supply of emblems for distribution to the MOH and the MOW for marking commodities purchased locally as well as for marking the vehicles purchased by A.I.D. for the project.

7. Procurement Schedule: The most time-critical procurement to be undertaken by the project will be the procurement of the materials for the construction of the wash slabs and san plat latrines by the MOH under the sanitation and hygiene component and the procurement of the PVC pipe, reinforcing rods, and cement under the MOW water works component. The international tenders for the MOW yearly requirements for water supply construction materials will have to be issued by August of each year to ensure that the required materials arrive in Malawi by the end of January to be available

at the various project sites by the beginning of the dry season (about March 1). Likewise, the MOH project manager will have to plan and execute the purchases of cement, rebar, tools and other supplies well in advance of planned construction projects. The MOH Project Coordinator will complete a time-phased procurement plan within 8 months of project authorization. Assistance in completing this plan will be requested of the REDSO/RCMO.

8. Gray Amendment: The HRID contractor will play a central role in the procurement of project-financed technical assistance and training from individuals and organizations in the U.S. In addition, a procurement services agent (PSA) working under an IQC from REDSO/ESA will play a central role in the procurement of project-financed U.S. commodities. A.I.D. has directed contractors assisting with the procurement of project-funded technical assistance, training, and commodities to assure that maximum consideration and efforts are made to use minority and women-owned firms, historically black colleges and universities, and minority-controlled PVOs. In connection with its routine monitoring of Gray Amendment compliance, USAID/Malawi will track contractor performance.

VII. PROJECT MONITORING AND EVALUATION

A. Monitoring

Monitoring is that aspect of a project which enables implementors to track the project's activities and progress toward meeting objectives, remain current, and anticipate technical, administrative and other problems. In PHICS, monitoring takes on added importance since a key element is concerned with the testing of health, water, and sanitation service delivery approaches, and the acquisition and interpretation of information needed to guide policies, strategies and programs.

The PHICS monitoring system will serve two purposes, i.e., administrative and programmatic. With regard to administrative monitoring, A.I.D. will ensure that standard A.I.D. policy, project implementation, and financial requirements are met. Financial monitoring will take place in the form of audits and financial and management reviews as needed.

The implementing ministries (MOH and MOW) will develop annual workplans consistent with the project's implementation schedule. Both ministries will prepare quarterly progress reports. The format for these reports should be simple and should focus primarily on questions such as the following:

1. Is the project exceeding budgeted costs?
2. Is the project departing from schedule?
3. What are the foreseeable bottlenecks? What has been learned about addressing such problems?
4. What new actions need to be taken? What are the next steps?

The quarterly progress report for the last quarter of each year will serve as the annual review. In addition to answering the questions listed above, this review will concentrate on measuring the project's progress toward meeting established targets.

The Project Coordination Committee will also play a central role in project monitoring. The Committee will be supported by the MOH Project Coordinator and membership will include representatives from the MOH, and USAID representative MOW and the MOF. The Committee will meet regularly to discuss progress reports, identify and resolve problems, coordinate work programs, and address other implementation issues such as the selection of technical advisors, the selection of off-shore training programs, and the planning of evaluations.

Additional information on which to monitor and evaluate PHICS will be generated from a number of sources. The MOH Health Information System (HIS), including the twelve-site sentinel surveillance system, compiles clinic-based data on childhood mortality and morbidity nationally and by district, and on malaria and diarrhea treatment practices at the twelve sentinel surveillance site areas. With the standard caveats, HIS data is useful to discern general mortality and morbidity trends on national and district levels and as such will serve as an indication of project impact. Data from the sentinel surveillance system will be used as a more direct measure of the impact of national-level health communications efforts on malaria and diarrhea treatment practices. At the project's commencement, baseline surveys and KAP studies will be done in selected areas in which project service delivery activities and operations research will be focused. This will allow the effect of various service delivery strategies on health knowledge, behavior, and status to be measured. Baseline data disaggregated by age and sex will be collected to enable a focus on the project's impact on women and children.

The Rural Water Section (RWS) of the MOW collects information on individual water schemes and receives monitoring and maintenance reports from the field. Information generated by the RWS will be incorporated into the PHICS monitoring system primarily through the Project Coordination Committee and quarterly reports.

In sum, program monitoring will be realized through special studies and surveys, the MOH's HIS system, and the MOW's RWS information system. Special surveys and studies will focus on information requirements outside of the HIS and RWS information systems. In this way each system should complement the other.

B. Evaluation and Technical Assessments

PHICS project evaluations will assess whether planned targets are being met and what impact the project is having on health in Malawi. The evaluations will also examine the validity of key project assumptions and suggest modifications where warranted.

There is a close link between project monitoring and evaluation. Information on specific aspects of the project generated by progress reports, studies, surveys, and information systems will be brought together and analyzed in the evaluations. Evaluations will assess the availability, installation, and utilization of inputs and production of outputs and overall progress in achieving project objectives. Based on these assessments, evaluations will determine project impact. In the PHICS project, impact on health status will be determined by monitoring health and child survival status indicators throughout the project. Mortality and morbidity will be tracked in children less than 5 years of age. Disease-specific mortality will be assessed when valid data are available. The project will support annual child survival technical assessments and furnish child survival data to A.I.D./W on an annual basis. Throughout the PHICS project, changes in knowledge, attitude, and practices will be assessed in addition to clinical impacts. Annex C provides an illustrative listing of factors that should be monitored and evaluated.

In addition to assessing progress toward targets, examining project assumptions and measuring impact, evaluations will look at project administration. A key concern here is the adequacy of the project's management and financial arrangements.

The project will be evaluated on an annual basis for the first three years by technical assessment teams composed of representatives from the GOM, A.I.D./W or REDSO/ESA, and USAID/Malawi. Mid-term (July 1993) and end-of-project evaluations (January 1997) will be conducted by a team of people external to A.I.D. and the PHICS project, preferably with substantial Malawian participation. A detailed evaluation plan will be developed by the GOM and A.I.D. as part of the PHICS project's implementation plan.

To support MOH and MOW project implementation and monitoring efforts, the project will support the costs of a Personal Services Contractor (PSC), hired by USAID/Malawi to work in the HPN Office. The PSC will assist the responsible A.I.D. project officer to meet A.I.D. project monitoring and evaluation requirements and will also play a central role in meeting Mission project implementation responsibilities by preparing and processing in-house documentation related to project procurement, participant training, technical assistance, and project modifications.

VIII. CONDITIONS, COVENANTS AND NEGOTIATIONS STATUS

A. Conditions Precedent

(1) Conditions Precedent to First Disbursement

Except as A.I.D. may otherwise agree in writing, prior to the first disbursement under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall furnish or have furnished to A.I.D., in form and substance satisfactory to A.I.D.

(a) A written statement setting forth the names and titles of persons holding or acting in the office of the Grantee and of any additional representatives, and representing that the named person or persons have the authority to act as the representative or representatives of the Grantee, together with a specimen signature of each such person certified as to its authenticity.

(2) Conditions precedent to Disbursement for Service Delivery Support (Research Unit, Epidemiology Unit and Health Information System) Activities

Except as A.I.D. may otherwise agree in writing, prior to any disbursement for Service Delivery Support Activities under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall furnish or have furnished to A.I.D., in form and substance satisfactory to A.I.D.:

(a) Written evidence that the Grantee has: a) established an account at the Reserve Bank of Malawi for the deposit of funds provided by A.I.D. to the Grantee for the implementation of the Project; b) assigned a separate vote number and account; and c) for funds provided through each PIL, established a subsidiary ledger account and separate file for paid vouchers supporting expenditure transactions.

(b) Written evidence that a Ministry of Health (MOH) Project Coordinator and Accountant have been appointed and assurance that they will commence work within 60 days of their appointment.

(c) Written evidence that a Project Coordination Committee comprised of appropriate representatives from both Parties has been formally constituted.

(3) Conditions Precedent to Disbursement for Information, Education and Communication (IEC); Hygiene Education and Sanitation (HESP); and Child Survival Services Activities

Except as A.I.D. may otherwise agree in writing, prior to any disbursement for IEC, HESP and Child Survival Activities under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall furnish or have furnished to A.I.D., in form and substance satisfactory to A.I.D.:

(a) Written evidence of a time-phased plan for creating and filling with qualified individuals the new positions within the MOH as required under the Project.

B. Covenants

(1) Policy Dialogue. The Grantee agrees to involve A.I.D. in discussions of policy issues which are likely to affect implementation of the Project.

(2) A.I.D. Concurrence. The Grantee agrees to obtain A.I.D. concurrence for significant project implementation actions including: (a) the plan for the phased creation and filling of new positions; (b) project management and coordination procedures; (c) annual workplans; (d) position descriptions for key staff such as the Project Coordinator and health surveillance assistants; (e) procedures and proposal selection criteria for the child survival research program; and (f) the selection of technical advisors and trainees.

(3) Recurrent Costs. The Grantee agrees to undertake in Project's second year a review of the Government's program for assuming the Project's recurrent costs. The Grantee will then advise A.I.D. on the program and take all necessary actions to implement it.

(4) Project Coordination Committee. The project Coordination Committee which will convene at least twice a year will, at its initial meeting(s), develop procedures for the management and coordination of the Project. The Committee regularly will review project progress, address and resolve problems, and plan and coordinate future activities.

(5) Annual Workplans. The Grantee agrees to submit to A.I.D. annual workplans which describe quarterly objectives, estimated financial expenditures, anticipated implementation problems, outstanding actions, and a time frame for proposed activities indicating responsible parties.

(6) Annual Reports. The Grantee agrees to submit with each annual workplan, a short annual report on the preceding year's progress, achievements, and problems.

(7) Use of Project Goods. The Grantee agrees to assure that all vehicles and equipment procured for the Project will be used exclusively for Project purposes and that usage will be carefully monitored and controlled.

(8) Long-Term Trainees The Grantee agrees to financial support Government employee participants during their absence on long-term training in accordance with existing Government regulations.

(9) Employment of Trainees. The Grantee will ensure that all A.I.D.-financed trainees, upon completion of their training, will serve the Government in an appropriate position commensurate with their newly acquired skills.

(10) Project Evaluation. The Parties agree to establish an evaluation program as part of the project. Except as the Parties may otherwise agree in writing, the program will include during the implementation of the Project:

(a) evaluation of progress towards attainment of the objectives of the Project;

(b) identification and evaluation of problem areas or constraints which may inhibit such attainment;

(c) assessment of how such information may be used to help overcome such problems; and

(d) evaluation, to the degree feasible, of the overall development impact of the Project.

C. Status of Negotiations

The above Conditions Precedent and Covenants have been developed in conjunction with Government officials, and the CPs reflect major written understandings reached with the GOM.

The Project was developed in close collaboration with the Ministries of Health, Works and Finance and accurately reflects the desires of both A.I.D. and the GOM.

Table 1: MOH and MOWS Technical Assistance and Training
Needs Identified by PHICS for Possible HRID Support

| <u>MINISTRY/UNIT</u> | <u>TA/TRAINING</u> | <u>POSITION</u> | <u>DURATION (Months)</u> | <u>COST \$000</u> |
|--|-----------------------------------|-------------------------------|------------------------------|-------------------|
| 1. MOH/Planning | OPEX | Senior Planner (1) | 48 | 400 |
| 2. MOH/Planning | PhD | Senior Planner (1) | 36 | 75 |
| 3. MOH/Planning | MPh | Planning Officer (1) | 24 | 50 |
| 4. MOH/Environmental Health Section | M.Sc. (Environmental Health) | Senior Staff (1) | 12 | 35 |
| | Regional Study Tours | Senior Staff (18) | .75 | 12 |
| | MEDC Courses | Regional Staff (3) | 1.5 | 9 |
| | CEFIGRE Courses | Senior Staff (3) | 1 | 16 |
| | | | | <u>597</u> |
| 5. MOWS/RWS | M.Sc Sanitary Engineering | Engineers (2) | 12 | 50 |
| | B.Sc Civil Engineering | Engineers (2) | 36 | 125 |
| | Diploma: Evaluation Methods | Senior Staff (1) | 12 | 11 |
| | Regional Study Tours | Engineers/ Supervisors (9) | .25 | 36 |
| | Management Courses on MS and S | Senior Staff (2) | 1.5 | 53 |
| | Conferences/Seminars | Senior Staff (2) | .25 | 24 |
| | | | | <u>299</u> |
| | | MOH/MOWS Total | | <u><u>896</u></u> |

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TABLE 2

INCREASES IN RECURRENT COSTS ASSUMED BY MOH (K)

| PHICS Project Component | Project Year / Calendar Year | | | |
|---|------------------------------|-----------|-----------|-----------|
| | 5/1992/93 | 6/1993/94 | 7/1994/95 | 8/1995/96 |
| IEC | 46,500 | 96,000 | 148,500 | 192,000 |
| Water/HESP | 41,080 | 82,160 | 123,240 | 164,320 |
| Research, Eval, Plan, Services * | 135,750 | 271,500 | 407,250 | 542,975 |
| | 223,330 | 449,660 | 678,990 | 899,295 |
| Row A % Incremental Recurrent Cost of MDH recurrent Budget | 0.4% | 0.8% | 1.1% | 1.3% |
| Incremental Recurrent Budget | K 3.5m | K 4.0m | K 4.0m | K 4.5m |
| Row B % Incremental Recurrent Cost of MDH Incremental Recurrent Budget | 6.4% | 11.3% | 17.0% | 20.0% |
| Projected MDH Recurrent Budget ** | K55.4m | K58.5m | K62.5m | K67.0m |

* Research Unit 12,500
 Epidem 53,750
 HIS 20,000
 Plan Unit 8,500
 Service Delivery 41,000

** Development Policies (1, p. 188)

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| MOH UNIT | Recipients | No. | TRAINING Subject | Loc. | Degree | Mos. | |
|---|---|-------------------------------|--|-------------------------------------|-----------|------------|--|
| Office of the Controller of Preventive Health Services | Sr. Health Ed. Officers | 2 | Health Education | US | MA | 24 | |
| | Sr. Health Ed. Officers | 2 | Health Education | Reg. | MA | 24 | |
| | Regional/Dist. HE Officers | 6 | Health Education | Reg/local | BA | 48 | |
| | District HE Officers | 12 | Health Education | Reg./local | Diploma | 24 | |
| | District HE Officers | 24 | Health Education | Local | Certif. | 6 | |
| | | | | CS Workshops/ Courses/Conference | Off-shore | | |
| | Epidemiologist | 1 | Epidemiology | U.S. | Ph D | 48 | |
| | Epidemiologist | 1 | Epidemiology | U.S. | MA | 24 | |
| | Public Health Nurses, Senior Health Inspectors | 45 | Epidemiology | Local | Diploma | 24 | |
| | Field-Level health Personnel | 360 | Epidemiology | (Intro.) | | local | |
| | District Health Personnel | | Epidemiology (Orient.) | local | | 0.1 | |
| | Senior HIS staff Regional and district health staff | 2 | Data Analysis Data collection and analysis | Region local | | 1.2 0.1 | |
| | MOH staff | TBD | CS conferences and seminars | Off-shore | N/A | TBD | |
| | HSAs | 300 | CS services | local | | 3 | |
| | Community Health Workers | TBD | CS services | local | | TBD | |
| | Trainers (MOH, MDHS, CS) | 15 | Training of Trainers | local | | 0.5 | |
| | VHC members | 420 | w/s on Water, San. and Hygiene | local | | 0.25 | |
| | Women and Tap Comms | 420 | w/s on Water San. and Hygiene | local | | 0.25 | |
| | New HSAs | 250 | w/s on Water, San. and Hygiene | local | | 0.25 | |
| | HAs, HSAs, MAs | 320 | Refresher w/s on water etc. | local | | 0.25 | |
| HSAs | 250 | w/s on san plat. | local | | 0.25 | | |
| Supervisors & Trainers | 30 | w/s on san-plat. | local | | 0.25 | | |
| Supervisors | 10 | w/s on Hygiene, Ed., & San | local | | 0.25 | | |

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| MOH | Recipients | No. | <u>TRAINING</u> Subject | Loc. | Degree | Mos. |
|--|---|------------------|--|-------------------------------|--------|-----------|
| Office of the Controller of Health Technical Support Services Research Unit (RU) | Documentation officer Health Staff (all levels) | 1 180 | Library Science Research Orientation w/s | US Local | MA | 24 0.1 |
| | Planning Unit | Planning Officer | 2 | Microcomputer and Planning | US | |
| | Accountant, Procurement Officer & 2 admin. officers | 4 | AID Orientation and Procedures | Region | | 0.5 |
| | | 2 | Project Management | U.S. | | 1.5 |

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MINISTRY OF WORKS: TRAINING FUNDED BY PHICS PROJECT

| MOH UNIT | Subject | No. | <u>TRAINING</u> Loc. | Degree | Mos. |
|-----------------------|-----------------------------|-------|-------------------------|-------------------|------|
| Rural Water Supply | Technical Refresher | 105 | local | Refresher | 0.25 |
| | Supervisors Workshop | 15 | local | Workshop | 0.25 |
| | Senior Staff Workshop | 10 | local | Workshop | 0.25 |
| | Supervisor Technical Course | 12 | local | Technical course | 7.5 |
| | New Operator | 20 | local | Technical course | 1 |
| | Systems Operator Repair | 400 | local | Orientation | 0.25 |
| | Local Projects visits | 200 | local | Orientation | 0.03 |
| | Training of Trainers | 12 | local MOH MOSC | Joint Training wk | |
| Joint Field Training | 18 | local | Field Training | | |

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TABLE 3b. MINISTRY OF HEALTH: NEW POSITIONS AND TECHNICAL ASSISTANCE FUNDED BY PHICS PROJECT

| MOH Unit | MOH Position | NEW POSITIONS | | TECHNICAL ASSISTANCE | |
|---|--|---------------|---|----------------------|--|
| | | No. | Title/Purpose | Mos. | |
| Office of the Controller of Preventive Health Services | Senior Health Education Officer (HQ) | 4 | | | |
| | Regional Health Ed. Officer | 3 | S-T IEC | 22 | |
| | District Health Ed. Officers | 24 | | | |
| | Principal Epidemiologist | 1 | L-T Epidemiology (PEX) | 60 | |
| | Epidemiologist | 1 | L-T Public Health Advisor | 24 | |
| | Regional Surveillance Officers | 3 | | | |
| | HIS Statistical Clerks (central hospitals) | 6 | S-T Computer specialist (HQ) | 2 | |
| | | | S-T Computer specialist (central hospitals) | 4 | |
| | | | S-T Documentation Expert | 4 | |
| | Malaria/CUJ Program Manager | 1 | | | |
| | | | S-T MCH/CS service delivery (ex: logistics) | 3 | |
| | HSA's | 300 | S-T T.A. to develop HSA job descriptions and HSA/community worker training programs | | |
| | Enrolled Community Health Nurses (ECHNs) | 30 | | | |
| | Public Health Nurses (PHNs) | 6 | | | |
| | Sr. Environmental Health (HESP) Staff (HQ) | 1 | | | |
| Regional HESP Coordinators | 3 | | | | |
| Supervisors | 10 | | | | |
| HAs | 50 | | | | |
| HSA's | 250 | | | | |

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| MOH Unit | MOH Position | <u>NEW POSITIONS</u> | | <u>TECHNICAL ASSISTANCE</u> | |
|---|---------------------------------|----------------------|---|-----------------------------|--|
| | | No. | Title/Purpose | Mos. | |
| Controller of Health Technical Support Services Research Unit (RU) | Assistant Documentation Officer | 1 | | | |
| | | | S-T Documentation Expert (librarian/computer expert) | 12 | |
| | | | S-T T.A. to support research | 6 | |
| Planning Unit | PHICS Project Coordinator | 1 | | | |
| | PHICS Accountant | 1 | | | |

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TABLE 4: SUMMARY COST ESTIMATES AND
FINANCIAL PLAN
(US \$000)

| SOURCE | AID | | AID TOTAL | GOM LC | COMM. CONT.* LC | PROJECT TOTAL |
|--------------------------|-------|-------|-----------|-----------|--------------------|---------------|
| | FX | LC | | | | |
| 1. Technical Assistance | | | | | | |
| a. Long Term | 1,461 | - | 1,461 | - | - | 1,461 |
| b. Short Term | 879 | - | 879 | - | - | 879 |
| Sub-Total | 2,340 | - | 2,340 | - | - | 2,340 |
| 2. Training | | | | | | |
| a. Off-Shore | 793 | - | 793 | - | - | 793 |
| b. Local | - | 1,166 | 1,166 | 380 | - | 1,546 |
| Sub-Total | 793 | 1,166 | 1,959 | 380 | - | 2,339 |
| 3. Commodities | 3,498 | 2,650 | 6,148 | - | - | 6,148 |
| 4. Operating Expenses | - | 3,491 | 3,491 | 947 | 1,173 | 5,611 |
| 5. Evaluation and Audits | 340 | - | 340 | - | - | 340 |
| Total | 6,971 | 7,307 | 14,278 | 1,327 | 1,173 | 16,778 |
| 6. Contingencies (5%) | 353 | 369 | 722 | - | - | 722 |
| Grand Total | 7,324 | 7,676 | 15,000 | 1,327 | 1,173 | 17,500 |

* Community Contribution

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TABLE 5: AID COST ESTIMATES

(US \$1000)

| | IEC | RU | EU | HIS | RWS | HESP | CS | MEA | TOTAL |
|--------------------------|------------|------------|------------|------------|------------|------------|-----------|------------|---------------|
| 1. Technical Assistance | | | | | | | | | |
| a. Long-Term | - | - | 840 | - | 381 | - | - | 240 | 1,461 |
| b. Short-Term | <u>330</u> | <u>270</u> | <u>-</u> | <u>150</u> | <u>64</u> | <u>-</u> | <u>45</u> | <u>-</u> | 879 |
| | 330 | 270 | 840 | 150 | 465 | - | 45 | 580 | 2,340 |
| 2. Training | | | | | | | | | |
| a. Offshore | 177 | 54 | 332 | 30 | - | - | 105 | 95 | 793 |
| b. Local | <u>386</u> | <u>16</u> | <u>422</u> | <u>14</u> | <u>31</u> | <u>297</u> | <u>-</u> | <u>--</u> | 1,166 |
| | 563 | 70 | 754 | 44 | 31 | 297 | 105 | 95 | 1,959 |
| 3. Commodities | 594 | 60 | 120 | 147 | 3,584 | 981 | 617 | 45 | 6,148 |
| 4. Operating Expenses | 318 | 702 | 97 | 130 | 1,019 | 572 | 599 | 54 | 3,491 |
| 5. Evaluation and Audits | <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | <u>340</u> | <u>340</u> |
| Sub-Total | 1,805 | 1,102 | 1,811 | 471 | 5,099 | 1,850 | 1,366 | 774 | 14,278 |
| 6. Contingency (5%) | <u>91</u> | <u>56</u> | <u>91</u> | <u>25</u> | <u>256</u> | <u>94</u> | <u>69</u> | <u>45</u> | <u>722</u> |
| Total | 1,896 | 1,158 | 1,902 | 496 | 5,355 | 1,944 | 1,435 | 814 | <u>15,000</u> |

IEC - Information, Education, Communication
 RU - Research Unit
 EU - Epidemiology Unit
 HIS - Health Information System

RWS - Rural Water Supply Section (MOW)
 HESP - Hygiene, Education and Sanitation Promotion
 CS - Child Survival
 MEA - Project Management, Evaluation and Audits

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TABLE 6: PROJECTION OF EXPENDITURES BY
U.S. GOVERNMENT FISCAL YEAR

(US\$000)

| SOURCE | USAID CONTRIBUTION | | | -----GOM CONTRIBUTION----- | | | |
|--------|--------------------|--------------|---------------|----------------------------|------------|------------------|--------------|
| | <u>MOH</u> | <u>MOW</u> | <u>TOTAL</u> | <u>MOH</u> | <u>MOW</u> | <u>COMMUNITY</u> | <u>TOTAL</u> |
| 1989 | 1,336 | 1,197 | 2,533 | 0 | 69 | 35 | 104 |
| 1990 | 2,891 | 1,114 | 4,005 | 0 | 88 | 195 | 283 |
| 1991 | 1,748 | 921 | 2,669 | 0 | 94 | 195 | 289 |
| 1992 | 1,164 | 668 | 1,832 | 30 | 86 | 195 | 311 |
| 1993 | 1,038 | 651 | 1,689 | 102 | 55 | 195 | 352 |
| 1994 | 898 | 454 | 1,352 | 240 | 52 | 195 | 487 |
| 1995 | 566 | 354 | 920 | 471 | 40 | 163 | 674 |
| TOTAL | <u>9,641</u> | <u>5,359</u> | <u>15,000</u> | <u>843</u> | <u>484</u> | <u>1,173</u> | <u>2,500</u> |

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**Table 7: Child Survival Research Program Activities
PHICS Program Year One***

I. 1ST YEAR OF PHICS

1. Child spacing KAP
2. Reasons for child spacing dropouts
3. AIDS knowledge and sexual practices study
4. Formative research on child survival/MCH/interventions for HEU
5. TBA survey to determine number, traditional practices and potential roles in community
6. Health care KAP - problems, attitudes and behavior at the village level
7. Health staff work patterns - determine personnel pattern (direct service vs. supportive activities, travel, non-productive) - break service component down (curative, preventive, communicable disease control, environmental sanitation).

II. LONG TERM TOPICS

1. Health care finance
2. Health services utilization and expenditure
3. Listenership patterns, diffusion of information, and health educator KAP
4. Service delivery at the community level (baseline and process documentation).

* See Annex A.2 for more details concerning the abovementioned long term research.

PD-AAx-590

PROMOTING HEALTH INTERVENTIONS FOR CHILD SURVIVAL'
(PHICS)

612-0231

PROJECT PAPER

ANNEX A

JUNE 1989

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PROMOTING HEALTH INTERVENTIONS FOR CHILD SURVIVAL

ANNEXES

- A. Project Analyses
 - 1. Information, Education & Communication (IEC)
 - 2. Research, Monitoring, Evaluation & Planning
 - 3. Rural Water, Sanitation, Hygiene Education
 - 4. Service Delivery
 - 5. Financial and Economic
- B. IEE
- C. Monitoring and Evaluation Checklist
- D. Memorandum of Conversation on Project Objectives
- E. PID Approval
- F. Statutory Checklist
- G. Government of Malawi Request and Written Assurances
- H. Section 611(E) Certification
- I. Logframe
- J. MOW Organizational Chart
- K. MOH Organizational Chart
- L. Maps of Water Sites
- M. Section 110 Waiver
- N. Commodities List
- O. Detailed Budget
- P. Persons Consulted in the Preparation of the PHICS PP
- Q. Gray Amendment Certification

ANNEX A
PROJECT ANALYSES (A1-A5)

ANNEX A.1

INFORMATION, EDUCATION AND COMMUNICATION

ANNEX A.1

PROJECT ANALYSES

INFORMATION, EDUCATION AND COMMUNICATION

Introduction

The potential for effective communication with rural Malawians in support of health education is great. The constraints delineated in the Ministry of Health's National Health Plan (1986-1995) are formidable but not insurmountable, given careful planning and the wise investment and management of resources.

The goal of health communication with rural Malawians is to encourage and equip them to assume greater responsibility for their own good health, and especially the health of children under five years of age. As pointed out in the National Health Plan, a lack of health-based child rearing and child survival skills is a major factor in Malawi's high child mortality and morbidity rates. Health education will promote the Ministry of Health's goals of increased levels of prevention and early treatment, thus reducing demands upon the country's professional medical services. Areas of major emphasis in the information, education and communication (IEC) project component will include malaria, measles, diarrheal diseases, child spacing and AIDS.

Support must be provided to give personnel of the MOH's Health Education Unit (HEU) and Hygiene Education and Sanitation Promotion Section (HESP) the managerial and technical skills they need to design, produce, deliver and evaluate a wide variety and large volume of educational materials in a cost-effective manner. Two-way communication up and down the system between all elements of the health communication chain, from policy maker to villager, must also be strengthened and streamlined.

Training for many MOH personnel in effective communication techniques must also be conducted, along with workshops to publicize the results of research activities on a regular basis.

Links with all health education agents outside the MOH, existing and potential, must be explored and cultivated. Formal and informal channels of communication must be strengthened, particularly at the local level. Training, tools and materials must be provided wherever appropriate.

Given Malawi's rich oral tradition, music and drama should be used extensively in both face-to-face and mass media channels to heighten audience interest, participation and learning.

All planning must be conditioned by the probability that a wide range of IEC activities may be undertaken at short notice in response to the challenge of AIDS. Therefore project design must be done in such a way that across the board incremental expansion of project support can be made without requiring extensive redesign.

While it is important to consider the role of IEC in increasing demand for health services as a way of promoting greater participation in health programs, the subject must be approached cautiously because of the possibility of exceeding the MOH's service delivery capacity. Efforts to increase demand must be synchronized carefully with expansion of services.

The sections that follow will deal with: (1) the present state of IEC activity in the health sector, particularly the functioning of the MOH's Health Education Unit; (2) an analysis of Malawi's communication channels and an examination of factors which constrain more effective utilization; and (3) recommendations for strengthening the MOH's informational, education and communication capabilities.

An Overview of IEC Activities in the Health Sector

A. Ministry of Health

1. Health Education Unit

The Health Education Unit was established in 1971 to coordinate the Ministry of Health's education programs. Since that time the HEU has undertaken a number of activities in support of the National Health Policy of 1980 which seeks to raise the level of health of all Malawians through a far reaching primary health care (PHC) program.

The Ministry of Health considers IEC activities essential to the accomplishment of health goals but recognizes several major constraints limiting the effectiveness of health education:

- (a) Absence of a clear health education policy;
- (b) Inadequate mastery of the skills and techniques of information and education for health by a majority of those involved;
- (c) Inadequate coverage of the target population which should be reached with the necessary health information and appropriate technologies to help them handle their problems;
- (d) Shortages of qualified health educators at different levels to handle the tasks of organizing, promoting, and directing health education programs and activities to reach the target population;

- (e) Lack of adequate facilities to produce and distribute appropriate health information and education materials to reach target groups, especially at risk families;
- (f) Lack of sufficient knowledge about social, cultural, economic, behavioral, environmental and service related aspects of these priority problems;
- (g) Absence of an effective mechanism to coordinate the efforts being made by different sectors and organizations to inform and educate the people on health;
- (h) Absence of an effective managerial system in health information and education programs and activities;
- (i) The inferior status and weak structure of the health education unit within the MOH and the absence of a career structure for health educators.

The Ministry of Health and the Health Education Unit have already undertaken steps to address these constraints. The PHICS Project proposes to reinforce and further these efforts through a combination of institution building, training and technical support within the Health Education Unit and the Hygiene Education and Sanitation Project (HESP). Recommendations concerning HESP will be discussed in the Rural Water, Sanitation and Hygiene Education component of the Project Paper.

The first constraint, absence of a health education policy was removed in January 1988 with the approval of a policy statement by the Office of the President and Cabinet (Memorandum No. 7563/B/175). The Health Education Policy is:

To create public awareness, facilitate community involvement and participation, and promote activities which will foster healthy behavior and encourage people to want to be healthy, know how to stay healthy and do what they can individually and collectively to maintain health and seek help when needed.

Other constraints have been responded to by MOH administrative actions which allow for the establishment of additional posts within the HEU and recognize the need to elevate the status of the unit and create an equitable career structure for its personnel. The MOH, HEU and USAID through the PHICS Project in collaboration with other donors will cooperate in addressing the remaining constraints.

The Health Education Unit is a component of Preventive Health Services within the Ministry of Health. It presently has a professional staff of 16 and a support staff of 11. The professional staff are:

Acting Senior Health Education Officer
 Radio Production Officer (2)
 Materials Production Officer
 Graphic Artist (2)
 Photographer
 Publications Editor
 Band Leader
 Band Members/Actors (7)

Two Peace Corps Volunteers are also assigned to the HEU. One is a graphic artist, the other an administrator. UNFPA/WHO currently provides a resident advisor to the Acting Senior Health Officer. A HEU resident advisor was provided through the HEALTHCOM Project. This advisor will depart mid-1988. Operating funds for the HEU are now part of the Community Health Sciences Unit (CHSU) budget. Approximately K330,000 (US\$137,500) was spent by the HEU in 1987.

The HEU's activities to date have included the production of two magazines, Moyo, a bi-monthly publication for health workers (circulation 2,800) and Family Health Newsletter, which reports on new medical developments and is more technical in its approach (circulation 1,500). The HEU also prepares a health education article for a monthly newspaper in the Chichewa language, Boma Lathu, widely circulated as part of the Ministry of Community Services adult literacy project.

Four regular radio programs are produced by the HEU in cooperation with the Malawi Broadcasting Corporation. They are "The Radio Doctor," "Health and Community Development," "Ophiri" and "Health of the Nation."

The unit also produces a number of posters, pamphlets and other graphic materials as well as a Ministry of Health calendar. In the past the HEU operated mobile cinema vans, but none are now in service due to mechanical problems. The HEU also had difficulty finding appropriate health-related films to show.

An extremely popular health education activity is the HEU band and drama group. In 1987 it performed in 14 of Malawi's 24 districts.

The HEU conducts research and trains local health workers and other staff through seminars and workshops. A series of 30 audio cassettes designed to teach improved planning and communications skills have recently been completed with the help of the HEALTHCOM advisor. A number of graphic materials have been produced and now await distribution.

2. HESP

The HESP program began in 1982 as part of the USAID financed Malawi Self-Help Rural Water Supply Program. Its purpose is to promote and teach hygiene and sanitation practices to increase the health benefits derived from improved water supplies. Field work is done by Health

Surveillance Assistants and Health Assistants who use demonstrations and direct teaching to promote the construction and use of sanitary facilities such as improved latrines and washing slabs.

The HESP unit utilizes some teaching materials produced by the HEU, but until now HEU has not had sufficient production capacity to meet all the needs of HESP. It is anticipated that under the PHICS Project HESP will concentrate on direct field work such as the building of latrines and washing slabs and that the HEU will assume greater responsibility for more general training and promotion relating to hygiene and sanitation. The expanded capacity of the HEU will allow a greatly increased supply of teaching materials and audio/visual aids to assist HESP in its work. Some audio/visual presentation equipment will be provided to strengthen HESP local training programs.

3. IEC Inputs from Other Donors

Several international donor agencies have proposed inputs relating to health and hygiene/sanitation education. The programs and direct IEC inputs are as follows:

(a) UNICEF--A program for Child Survival and Development 1988-1992

Preparation and distribution of DDC posters in villages and schools. Preparation and distribution of DDC brochures and booklets to health workers and communities. Design, publication and distribution of nutrition posters and brochures. Maintenance training and hygiene education for HSA and village PHC committees as part of shallow well projects.

(b) UNICEF--EPI/MCH Program 1986-1989

Technical assistance, workshops, training of trainers and training materials for MCH. Design and printing of EPI materials.

(c) UNICEF--A Program for Child Survival and Development: Proposals for Supplementary Funding 1988-1992

Training of community level health personnel to utilize the health education program to mobilize community participation. Design and development of appropriate health education messages and materials. Development and production of materials, supplies/equipment and training for district health educators.

Improvement of the Malawi Family Health Bulletin, including increased emphasis on EPI.

Training, social mobilization and logistics and supplies to extend improved sanitation and health messages for the prevention of water transmitted diseases and to ensure adequate facilities to complement the HESP program funded by UNICEF. Supplies, audio-visual and training materials, vehicles and personnel.

A hygiene education and sanitation component for the Nsanje District Drinking Water Supply Project.

(d) World Bank--Second Family Health Project 1988-1993

Printing of IEC and training materials developed for MHC program. Printing of IEC materials for child spacing program. Implementation by the Department of Information OPC: Mass media for child spacing messages (newspapers, poster boards, radio programs, films.) Overseas IEC training for Department of Information staff.

(e) UNFPA--Comprehensive Population Program in Malawi 1987-1991

Technical assistance, training, equipment for a population IEC program. (Technical advisor is Mr. Joe, who is already in place.)

(f) WHO--Proposed Child Survival Program (currently under review)

Radio listenership study and study of traditional media for communication of health messages. (It has been agreed with the donor that the PHICS Project will incorporate these activities.)

While some areas of correspondence exist, steps will be taken in design of the PHICS Project to insure that there will be no significant overlap with the programs of other donors.

B. Other Institutional Health Education Activities

The Malawi Broadcasting Corporation (MBC), linked to government through the Office of the President and Cabinet (OPC), broadcasts health-related radio programs on a regular basis, some produced in cooperation with the HEU and others produced entirely by MBC. Health messages are also included frequently in other types of programs, such as "Dawn Over Malawi," a weekly thirty-minute program covering a broad range of development topics.

Production of health programs for broadcast by MBC is done in MBC's Lilongwe studio. An MBC producer provides assistance to HEU personnel. Both the Acting General Manager of MBC in Blantyre and the manager of the

Lilongwe studio expressed interest in broadcasting additional health programs if the HEU's output and production could be improved. The PHICS Project will propose ways to increase the use of radio for health education.

The Extension Aids Branch of the Ministry of Agriculture produces radio programs broadcast by MBC and operates mobile cinema vans in rural areas. Health messages are sometimes a part of these presentations. The Extension Aids Branch also has produced 16mm films for the Ministry of Health. Increased use of EAB for contract production of educational materials, particularly films, will be proposed.

The Department of Information operates mobile cinema vans and produces publications presenting health messages, usually connected with news events. Linkage to government is through the OPC. Increased cooperation with the Department of Information can be of great benefit to the Ministry of Health's educational program.

Some formal and informal health teaching is carried out in Malawi's schools, both as part of the regular curriculum and by visiting health educators. The use of schools as a forum for health education should be greatly expanded.

Some industrial firms in the country have sponsored health-related messages and have underwritten health publications through advertising. This is a sector which must be exploited aggressively as a means of furthering health education cost recovery.

II. Communication Channels and Constraints

Radio is an under-utilized medium with tremendous potential for dramatically increasing the impact of health education messages throughout the country. Malawi is fortunate to have in place a well-developed and experienced broadcast system that covers an estimated 80% of the country through a network of seven medium wave and two short wave transmitters. Plans are being made to increase coverage further by the construction of an additional 20 kilowatt transmitter. Nineteen hours and fifteen minutes of programming are broadcast daily, mostly in the Chichewa language. MBC is the only broadcast service in Malawi and each station in the network carries only the national program originating at the studio center in Blantyre. Approximately one-third of the network's annual operating costs of MK 3.3 million (US\$ 1.25 million) are generated through commercial advertising (1986 figures).

MBC has more than 20 years of experience producing and delivering programs and messages on a wide range of development themes. Headquarters and the main studios of MBC are now in Blantyre but will move to Lilongwe when the Malawi Parliament is relocated there. There are regional studios in Zomba and Lilongwe.

Because of its coverage and the fact that development agencies are not charged for air time, MBC is potentially the most cost effective means of health message delivery available to the MOH.

The major constraint to the full exploitation of radio is a shortage of radio receivers, particularly in rural areas. Estimates of radio ownership vary considerably. MBC estimates 1.6 million receivers, while Graphics-Lintas, an advertising agency in Blantyre, estimates the total to be between 2.5 and 3 million.

A study by the Extension Aids Branch found that radio ownership averages about 15%. However, this does not reveal how many people may actually be listening, nor does it take into account how many of these radios are in working condition. Another study reported the ownership figure at 25%, but points out that an estimated 75% of these radios belong to civil servants and tradespeople. Other surveys indicate a rural listenership of only 1% to 7%. There is also concern as to the extent to which rural women, a prime target for health messages, exercise influence over listening patterns.

A major reason for the scarcity of radios is the high cost of receivers and batteries in Malawi. Imported radios cost a minimum of several hundred Kwacha, more than the annual wage of many Malawians. Radios are manufactured locally in Lilongwe and Blantyre, but are still priced beyond the reach of many. The least expensive radio, a two-battery pocket receiver manufactured by the Sorex Company of Lilongwe, costs approximately MK70 (US\$ 30). In spite of the high cost, 18-20 thousand radios are bought in Malawi each year, approximately one radio per 380 people. (Estimated by Mr. Sidik, Managing Director of Sorex.)

Most radios in Malawi require four D-size batteries which cost an average of MK 1.89 each. The cost for a new set of batteries is approximately US\$3.06. Average battery life is about four months when the radio is used at normal listening levels five hours daily. Thus battery costs for most radios in rural areas (where batteries must be used because commercial power is not available) would be more than US\$ 12 annually. For this reason, many radios are probably in operation only during the time of year immediately following harvest when income has been generated by the sale of agricultural products.

If the potential of radio for health education is to be realized, it is imperative that a comprehensive survey of radio ownership and listenership be undertaken early in the PHICS Project and that ways be found to increase substantially the number of radio receivers available for rural listening.

While there are several national periodicals in addition to newspapers, the usefulness of the print media for delivering health messages to rural areas is severely constrained by restricted circulation

and low literacy. The Chichewa newspaper, Boma Lathu, has a circulation of approximately 80,000, the highest in Malawi. Other publications produced in the country are the Malawi News (30,000), the Malawi Times (27,000) and the magazines Moni (30,000) and Quest (5,000). (ATT estimates by Mr. Stan Littleton, General Manager of Graphics-Lintas Worldwide Ltd., Blantyre).

Even with a circulation of 80,000, Boma Lathu can reach only about 1% of Malawi's citizens. Delivery of print materials to rural areas is made difficult by transportation problems.

The national literacy rate is estimated at 25%. The urban rate is 45%, the rural 23%. The overall estimate for literacy among women is 21%. While higher than in some developing countries, the level of reading skills further constrains the use of print media in Malawi.

Films are extremely popular in rural areas. As many as 1000 people attend screenings presented by the Extension Aids Branch "Yellow Vans" which have been operating throughout the country for more than 26 years. The EAB currently has 17 vans which present puppet shows during the day and films at night. The EAB film unit produces about twelve films each year. Some costs are recovered through the screening of advertising films and contract production for other agencies.

Campaigns are carefully planned so that the appropriate agricultural practices are featured at the correct time of year in each region. The 1988 schedule calls for screenings in almost 350 locations.

While highly effective in the promotion of agricultural development, the system is of limited value to health education because of the volume of agricultural information it must deliver. The EAB has an extensive library of films to show, so there is little time for screening materials on behalf of others.

Another constraint in respect to use of the "Yellow Vans" is the fact that so few relevant and culturally appropriate health films are now available for showing. The greatest potential represented by EAB is for the production of films on behalf of the HEU, as will be proposed as a component of PHICS.

It is proposed that the HEU field its own fleet of mobile cinema vans to present health films and live performances by the HEU bands and dramatic groups, since the value and popularity of village shows have been so clearly demonstrated over the years. The vans also can be used to distribute a wide range of print and other materials to rural areas.

Some media support services are available in Malawi which can be of value in the production of health education materials. Graphics-Lintas Worldwide Ltd., a Blantyre advertising agency, has facilities and well-trained personnel who can assist HEU with conceptualization, design

and production of graphic and photographic materials, particularly in the early stages of the project when HEU capabilities are being expanded.

Graphics-Lintas can also advise and assist with solicitation of advertising and underwriting support as a means of cost recovery. The agency bills approximately MK 2.2 million a year and is highly respected for the quality of its work. There is a branch office in Lilongwe. The manager of Graphics-Lintas has agreed to consider support of the HEU through training workshops, rate discounts and donations.

Traditional interpersonal systems of communications are clearly important to health education at the local level. Mass media systems alone can accomplish a great deal, but the effects are greatly multiplied when combined with face-to-face communication. The greatest constraints are a lack of field personnel and lack of knowledge about the operation of interpersonal systems in various parts of Malawi and how these systems may interact with mass media and other information delivery system. A proposal to study these questions is part of the PHICS Project.

A number of other channels for dissemination of health messages exist in Malawi. They include signs on buses, bus placards, tape messages played on buses, messages printed on plastic bags and match boxes, calendars, posters, pamphlets and messages printed on product containers, to name only a few. The constraints are a lack of designs for such messages, a lack of facilities for producing them and a lack of arrangements for placing and delivery. It is recommended that attention be given to all such delivery systems as part of a coordinated approach to health education by the HEU.

A highly detailed plan for the introduction of television in Malawi has been prepared by the ITU under the sponsorship of UNDP. The proposal is reportedly under consideration at the highest levels of government. If the project is implemented, it will probably include a major component for schools broadcasting. This will present an opportunity for the introduction of video health education materials into schools at low cost. The HEU should watch developments in this area closely and be ready to introduce health education in schools using the television medium, since video equipment and training are to be provided under PHICS.

III. IEC Project Proposals

The Health Education Unit is presently under-staffed, under-trained and under-equipped to deliver the quantity and quality of output sought by the Ministry of Health, especially in light of demands that may arise from concern with AIDS. The PHICS Project will strengthen the HEU in respect to management skills, staffing levels, training, production resources, delivery systems and evaluation capability. Additional support will be provided to HESP, especially tools for presentation of hygiene/sanitation teaching materials at the local level. The HEU's increased capacity also will allow much closer support of HESP in a range of education activities.

The size of the HEU will be expanded over the life of the project to increase staff by at least 100%. The cooperation of the MOH is required to assure that organizational structures are modified and adjusted to provide established posts for new staff and to assure that an adequate career structure system is in place, as already agreed by the Ministry.

A long term goal will be to elevate the status of the HEU to the same administrative level as other major MOH components to facilitate direct horizontal communication so that HEU will be able to respond with greater speed and efficiency to demands made upon it and have greater autonomy in managing its financial and administrative affairs. The expectations placed on the HEU require that it be given its own budget to allow for orderly and effective planning and implementation of the many tasks assigned.

The HEU strategy paper of December 1985 sets forth a well-developed plan for the expansion and upgrading of the unit, keyed to the MOH Ten Year Plan. The PHICS Project will assist with the implementation of this plan, up to the limits imposed by the duration of the project and funding levels, to strengthen the headquarters unit and allow expansion at the regional level and beyond. It is anticipated that the HRID Project will implement some training and technical assistance recommendations.

Sometimes in the past it has been necessary for the HEU to contract with outside agencies such as MBC, EAB and government and commercial printers for the production of certain kinds of educational materials. The HEU has expressed frustration over the high costs and long delays that are frequently encountered. This has led to the request for expanded production capabilities within the unit to make HEU more nearly self-sufficient and better able to respond quickly and professionally to requests from MOH clients.

While the need for fast production and delivery of materials is acknowledged and appreciated, the following points argue against the total duplication of major media production capabilities already existing in other institutions:

- (1) It is more cost effective to improve existing facilities to allow faster turn around of contracted work than to duplicate them.
- (2) The time required to establish complex production facilities such as those for motion picture production and to fully train producers and technicians is very long. This would delay the production of such materials by the HEU for an unacceptable length of time.

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- (3) Existing facilities such as EAB and MBC have had more than 20 years of experience with development education and have developed systems for dealing with logistics and maintenance that would be very difficult and costly to duplicate.
- (4) Strengthening existing facilities to make them more responsive to HEU's needs will also benefit the educational programs of those agencies and others who use their services.

It is therefore recommended that MBC and EAB be given some basic equipment to increase their capacity to service the MOH. The HEU, however, should train a cinema writer/producer to work closely with EAB when health films are being made and to act as a liaison person for the establishment and maintenance of an efficient working relationship with that agency. A similar liaison person also should be identified and trained to work with MBC. Project funds will be provided for contracting work to outside agencies.

The HEU will be equipped and trained to produce video materials with the hope that sufficient expertise will be developed to allow the unit to become a center for quality video production, perhaps with capacity to serve other agencies. Facilities and training for the production of a range of audio materials will also be provided, along with color slide processing and duplicating capabilities, expanded graphics and printing facilities, mobile cinema vans, radios and cassette players and funds for remodeling and construction to accommodate expanded technical, training and research operations.

The Malawi Polytechnic in Blantyre has expressed great interest in the possibility of training technicians in maintenance and repair of electronic and audio-visual equipment. Mr. Stan Morrow, a representative of the Association of Canadian Community Colleges who is teaching at the Polytechnic and directs ACCC programs in Malawi, stated that it would be possible to train HEU technicians at the Polytechnic at no charge under ACCC auspices.

Chancellor College in Zomba is interested in providing training at the M.A., B.Sc. and certificate levels. The institution will soon begin a master's degree program in audio-visual education, which, a faculty spokesman said, could be modified to include students from the HEU. The Educational Media and Technology faculty can also offer a range of specialized technical short courses. The department is well staffed and has good audio-visual production facilities, including a video production complex.

The Malawi Institute of Education in Domasi, is a well-equipped printing facility which can offer instruction to HEU personnel in printing and graphics. The Institute also would be able to print some HEU health materials while the unit's print/graphics facilities are being upgraded. The Lilongwe School of Health Sciences will also be a training site for HEU personnel.

Long and short term technical assistance will be provided to help the HEU achieve its goals. The long term technical advisor (48 months) will work alongside the Chief Education Officer and will act in that position while the CEO is absent for training.

A major task for the technical advisor will be helping insure that management systems are developed and in place early in the project as expansion of the HEU begins. The TA will also assist with the selection of candidates for employment and training and will help identify and choose appropriate training courses and institutions. Another major responsibility will be helping implement and monitor the timely procurement of commodities and advising on the integration of new equipment into the HEU system.

Short term technical assistance (43 months) will be provided to further strengthen the HEU's management and operational capabilities. It will include: (1) helping identify and specify commodities, particularly new production hardware; (2) helping install new equipment and conducting initial training in its operation and maintenance; (3) conducting a series of workshops and training courses to improve production skills in all areas, including campaign planning, design, testing and evaluation as well as technical aspect; (4) helping establish and maintain sound financial planning and management systems, including strategies for cost recovery; (5) assisting with impact evaluations and the wide dissemination of results; and (6) helping with long term planning to sustain the HEU beyond the end of the PHICS project.

IEC components of the PHICS Project and estimated costs:

1. Training for MOH Health Education Unit

One PhD.

Four MAs.

Six BSc for Regional Health Education Officers.

Twelve diploma level for District Health Education Officers.

Twenty-four certificate level for technical specialists.

Workshops/Seminars/Field Trips.

Number Trained (less Workshops, etc.) 39

2. Personnel--Salaries for New HEU Positions (MOH assumes 25% per year in years 5, 6 and 7).

Year 2 -- 5 new positions
Year 3 -- 10 new positions
Year 4 -- 10 new positions
Year 5 -- 5 new positions

New Positions 30

3. Technical Assistance

Forty-eight months long term
Forty-eight months short term

Total Months TA 96

4. Commodities

Four Cinema Vans and two utility vehicles and operating costs (MOH assumes 25% per year of operating costs in years 5, 6 and 7).

Funds for contract film and graphic production (MOH assumes 25% per year in years 5, 6 and 7).

Equipment and software for video, color slide, audio and expanded graphics/printing (MOH assumes 25% per year of software costs in years 5, 6 and 7).

Film production equipment for EAB for use on HEU productions.

Radio production equipment for MBC for use on HEU productions.

Remodeling of HEU premises.

Radios, cassette players and batteries

5. Research and Evaluation - operational studies and pre and post testing of educational materials. Costs for major studies such as the MBC listenership/health KAP study will appear in the Research, Monitoring, Evaluation and Planning component of the Project Paper.

It is recommended that the long term Technical Advisor recruited to work with the HEU be a specialist in media management and production who also has training and experience in health education. The immediate need is to create systems to facilitate the increased output, delivery and evaluation of high quality materials on a timely basis. Initial management inputs will be media-general rather than health-specific, particularly during the early years of the project. Content guidance will come from health specialists within the Ministry. The HEU will

concentrate on developing the means to respond to requests quickly and professionally. Since most of the present HEU staff has some health background, training will emphasize technical aspects of media production until such a time as the quality and output of materials reach a satisfactory level. Operational research will continue to be sure the materials produced are easily understood, appropriate and medically correct.

Implementation

Two steps should be taken as early in the project life as possible. First, a radio listenership/health KAP study should be undertaken. The data it provides will be essential for planning and as a baseline for later assessment of health education impact. The study should include the following:

- (1) Urban and rural listenership in each region by season of year, day of week and time of day.
- (2) Number of working radios.
- (3) Preferred listening times.
- (4) Favorite programs.
- (5) Access of women to radios.
- (6) An analysis of how messages from radio and other mass media are diffused through the community, i.e., links between mass media and interpersonal systems at the village level. The key question is the extent to which interpersonal systems amplify or multiply the effects of the mass media.
- (7) Knowledge, attitudes and practices relating to selected health concerns, including AIDS.
- (8) Sources of health information ranked by importance.
- (9) Perceived credibility of each channel.

Second, the HEU technical advisor or a short-term consultant should immediately inventory HEU's equipment and, in close cooperation with HEU personnel, draw up a detailed list of required commodities and begin the procurement process. A tentative list of specific short-term consulting needs in various technical specialities also should be prepared at this time.

A detailed plan of work should be drafted by the technical advisor taking into account the needs and priorities expressed by HEU and MOH senior officers. Early attention should be given to the identification of promising candidates for newly created positions and for training. Candidates for long-term external training should be identified first whenever possible.

Another important activity early in the implementation phase of the project will be coordination with other donors to brief them on USAID plans and invite participation in areas not covered by PHICS. Because of the urgency, scope and complexity of Malawi's Health education needs, careful donor coordination will be essential throughout the life of the project if maximum impact is to be realized.

A number of health education materials have been developed by HEALTHCOM but have not yet been widely distributed. Early attention should be given to their distribution, following any additional testing and revision which may be required.

A system for the provision of radios and batteries to local health workers will be designed and implemented. The radios can be a symbol of recognition and support for local health workers as well as a tool to increase the impact of health education. Local health personnel will be encouraged to organize radio listening groups, especially among women. Operational research will be undertaken to help design formal plans for group listening.

The use of radio can reinforce significantly the impact of Health Surveillance Assistants who are at the front lines of local health education and are called upon to represent the programs of many health activities. Radio can reward the HSAs and increase their status by calling attention to their value and importance in the community. Radio also can assume part of the burden for more general health education, allowing the HSAs more time to deal with specialized topics relevant to particular areas in which they are based.

Arrangements for recruiting and training repair/maintenance technicians at the Malawi Polytechnic will be made as early as possible with the hope that some personnel will be trained by the time production commodities begin to arrive.

The long term Technical Advisor will work closely with senior HEU and MOH officers to insure that all implementation is in accordance with the policies and plans already established by the Ministry for the coordinated expansion of the Health Education Unit.

As a background to the continuing educational efforts of the HEU, a campaign should be mounted early in the project to create a new public attitude toward health. Its purpose would be to increase dramatically the public's perception of health as a major development undertaking

deserving of full and enthusiastic public participation and to stress the idea that individuals share responsibility for their own health and that of their families. This will be achieved through an extensive mass media campaign using radio, posters, booklets, placards and recorded messages on busses along with all available interpersonal techniques including music, drama and discussion groups.

The campaign should mark a "New Beginning" in health education. The goal will be, as Mr. Chandiyamba of HESP so clearly puts it, to "Make a big noise about health!" There should be a feeling among all the public, rural and urban alike, that health activities enjoy the full support of all development-oriented institutions in the country--political, traditional and professional--and that no effort will be spared until better health has been achieved by everyone.

This enthusiasm, visibility and momentum will be important for securing the support of people, donors and the government as the HEU struggles for its share of scarce resources needed to begin and continue the growth that is so important to its mission.

ANNEX A.2

RESEARCH, MONITORING, EVALUATION, PLANNING

ANNEX A.2

PROJECT ANALYSISRESEARCH, MONITORING, EVALUATION, PLANNINGA. Introduction

In the last several years, the MOH has begun to make progress in developing a capacity in the area of research, monitoring, evaluation and planning of field and operational activities. The Ministry, with the financial and technical support of donors, is in the process of developing an institutional capacity to carry out studies, collect and analyze data, and design policies, strategies and programs that improve the effectiveness and efficiency of its operations. Special emphasis has been placed and will continue to be placed on the three most common causes of childhood mortality in Malawi, malaria, diarrheal disease and immunizable childhood diseases (especially measles and neo-natal tetanus). The activities funded under the Research, Monitoring, Evaluation and Planning component of the PHICS Project are in many respects a follow-on to and are built-upon the foundation laid by the Combatting Communicable Childhood Diseases (CCCD) Project (1984-88). The effort begun in the CCCD Project will be developed and institutionalized, enabling the government to plan, manage and evaluate its own program and helping them achieve the goal of their 10-Year Health Plan (1985-95) to reduce the infant and child mortality rates.

While recent advances in the Ministry's capacity in the research, monitoring, evaluation and planning fields can be observed, it suffers from a lack of resources, both financial and human, to sustain the progress achieved to date much less improve on the current situation. What the Ministry has requested and AID will support is institutional development of the units and sections in the MOH which are directly responsible for these four activities, namely the Research Unit, the Epidemiology Section, the Health Information Systems (HIS)/Statistics Section and the Planning Unit. The primary forms of assistance will be technical assistance (both long and short term), training (off-shore, internal, in-service, both degree and non-degree), equipment, and financial resources to permit the Ministry to carry out field activities to guide policy development and strengthen the government's ability to deliver priority services to the most vulnerable sectors of the Malawian population (i.e, children under five and mothers).*

* The MOH's 10-Year Plan identifies 6 "core" interventions which will be given special emphasis the plan period (immunization, ORT, malaria treatment, health/nutrition education, child spacing, growth monitoring).

This annex is divided in four sections. Each section will focus on one of the units or sections of the MOH which will receive support under the PHICS Project. The current situation existing in each of these units and the constraints being faced by each will be described. This background serves as the basis or justification for the support activities included in the project which will be detailed. The final issue addressed in each section is the recurrent costs which will be faced once project funding stops.

B. Research Unit

1. Current Situation

The MOH has carried out a variety of bio-medical and action-oriented operations research studies which guided policy and program development. The CCCD project played a key role in the conduct of many of the MOH studies. In the four years of the project, 29 operations research studies were carried out (see list, Attachment A.2.#1). The studies focused on malaria (16), diarrheal disease (8) and immunizable diseases (4).^{*} Malaria became a high priority when the number of reported under-five deaths due to malaria rose by over 250% between 1980 and 1982 when chloroquine resistance was first recognized. The studies provided information to the Malaria Control Committee on drug usage, distribution, community involvement and the effectiveness of anti-malarial prophylaxis to select groups (e.g., under fives and pregnant women). In accordance with the findings, policies and programs were modified.

There is a need to strengthen the MOH's capability to carry on this important action-oriented, policy/program-shaping work, particularly with the phasing-out of the CCCD Project. The newly formed Research Unit will play a central role. In the MOH organogram the Research Unit is attached to the Controller of Health Technical Support Services. It was

* Some examples of the types of studies carried out illustrate the practical action-oriented nature of the research. A study to determine the ability of families to prepare oral rehydration solutions (ORS) in their homes found that sodium concentration in most cases were either too low (30% below 80/MEG/L) thus ineffective or too high (50% over 100 MEG/L) thus potentially dangerous. In addition, field research discovered that 28% of households did not have sugar and 79% did not have salt making a home-mixed ORS program inadvisable. In malaria, the effectiveness of alternative anti-malarials (e.g. amodiquine and fansidar) was tested. Moreover, behavioral research was carried out to determine why pregnant women did not take prophylactic doses of chloroquine and to test the feasibility and effectiveness of having traditional birth attendants (TBA) distribute chloroquine to local pregnant women.

established in February 1988, with the appointment of a Malawian professional who had just returned to the country from an assignment teaching in a university in a neighboring country. This chief of the unit found nothing more than an office upon his arrival. No support staff existed and no facilities were available for him to work with.

Despite this, the chief of the unit was able to begin some research activities and establish procedures which resulted in several research proposals being designed and funded. One of the first activities undertaken by the newly formed Research Unit was to bring 20 health professionals together for a 2-week training course that oriented the participants on research methods and techniques and on proposal preparation. Proposals were drafted and submitted for funding, four of them receiving funding from WHO.* The cost of these studies range from \$4,000 up to \$21,000 each, totalling about \$40,000. The WHO funds came from the regional WHO office and is referred to as "seed money". It is not considered as a long-term source of support either for developing the capacity of the unit or funding studies. At present, data on the four studies are reportedly being collected and are scheduled to be processed by the end of this calendar year.

In the words of the chief of the Research Unit, the studies to be carried out under its auspices will be action or program oriented. His primary concern is that study results inform decision-makers on the correct course of action. He wants decisions to be based on fact, not speculation.

The Research Unit has established and convened a 4-member Research Committee to assist the director in the review of research proposals submitted to the Unit.

The Unit currently does not possess any equipment. It has no data processing capacity and no ability to produce monographs, reports, or abstracts on research being conducted and results found. The Malawi Epidemiological Quarterly which was published with the help of the CCCD Project and which would have served as an appropriate vehicle for the dissemination of research findings has not been published recently. In addition, the research unit has no equipment to produce such reports and must rely on the Government Printer which could delay the circulation of important research results.

* The topics of the funded research proposals are:

- Factors contributing to high neo-natal morbidity ratio;
- Oral health KAP;
- Housing care standards; and
- Reasons underlying the low utilization of child spacing methods (especially in Northern Region).

2. Support Activities

Being newly formed, the Research Unit has no staff other than its director. Moreover, it has no equipment or funds with which to support the training of MOH personnel or the support of research. Thus, in order to develop the Research Unit into a group which is able to promote research, orient MOH officials and staff on the necessity and value of active-oriented studies, fund and track research and disseminate study findings, the unit requires considerable assistance. It should be noted that it is not the mandate of the Research Unit to conduct field studies on its own. Rather, it will be staffed to help assist researchers; coordinate MOH research activities; design and review proposals; assist in the analysis and presentation of research findings and assure that they are known to decision makers so that their actions can be informed by the latest feedback from the field. The support required by the Research Unit takes the form of technical assistance, training, personnel, support of the Research Review Committee, studies, dissemination of findings, equipment and assistance to a research institution.

Technical Assistance - The technical assistance identified as being required by the Research Unit is in three forms:

- . Long-term Advisors - An Operational Executive (OPEX)* is called for to serve as the Principal Research Officer who will assist the chief of the Research Unit in the development, support and monitoring of research activities. The Unit has requested a senior public health research specialist to fill this position.** This person should be totally conversant with operations research techniques and methods and have spent considerable time in the field. His or her services will be required for five years. This will cover the four years his counterpart is being trained plus six months on either end.* The OPEX should be recruited as soon as the local candidate for training is identified.

* OPEX, or "Operational Expert", is defined as an expatriate expert who assumes an established government position while a Malawian is being trained to assume the position. The OPEX receives the government salary plus the differential and housing/benefits from the sponsoring donor agency.

** Six months overlap between OPEX and counterpart both before and after training is being recommended in all cases. The first six months orients the trainee to the job to be done, setting the framework for the forthcoming training. The final six months permits the graduate to be oriented to the job by the experienced OPEX advisor before the latter departs. This will allow for a turnover of responsibility with a minimum amount of disruption.

There is also a need for a documentation expert. This person with librarian experience will help establish a computer capability within the Unit so that it can track research. Moreover, the documentation expert will establish a depository as well as disseminate research findings. A total of 15 months of TA has been requested for this expert. She/he will work with the Documentation Officer (D.O.) who will be trained under the PHICS project and ensure before leaving the final time that the D.O. is fully capable of operating the system .

Short-term Technical Assistance (TA) -

The need for short-term TA is to support the research-studies that will be conducted over the six-year life of the PHICS Project. As stated below, an estimated 8 research projects will take place each year. Considering the expertise that will be available locally (in the MOH and at a research facility to be identified) plus the OPEX epidemiologist and Senior Public Health Research Specialist, 18 months worth of short-term T.A. have been budgeted. The specialists that will be required depend on the nature of the studies to be conducted, but would include experts in such fields as demography and/or economics.

Training: Two persons from the Research Unit will receive graduate training off-shore to give it the manpower required to carry-on its work. First is the principal research officer who should receive a PhD in Health Service Research Policy and Administration. An OPEX advisor would fulfill the functions of a principal research officer while the Malawian is earning a PhD.

The second position is the Documentation Officer who will require a 2-year course in Library Science. This will enable him or her to maintain the documentation system established with the help of the documentation consultant.

In addition to the off-shore training, orientation workshops will be required in Malawi in order to educate health staff at all levels (at headquarters, regional and district) on the need and value of action-oriented, operations research and to instruct them on how proposals should be developed. It is suggested that three 3-day workshops of approximately 20 persons each should be held during each of the first three years of the PHICS Project.

Personnel: The project will support an Assistant Documentation Officer who will support the Documentation Officer in the monitoring of proposals, research and reports and help in the preparation of reports.

Research Review Committee (RRC) Funds are needed to support monthly meetings of the RRC; this includes money to meet per diem and travel costs of members not otherwise covered. It is important that the RRC develop criteria for proposal review. Priority topics have been agreed upon by MOH and USAID. Research involving "core" interventions (especially malaria and diarrheal disease), the findings of which will support and help direct the community-level service delivery component of the PHICS Project (see Annex A.4), will be given priority.

Research A long-list of possible research topics have been identified that would assist in increasing the efficiency and effectiveness of MOH programming. An illustrative list of possible studies mentioned during the course of project preparation is provided as Attachment A.2 # 2. Studies considered important to conduct at the commencement of the Project include:

- . Health Care Finance Study;
- . Health Services Utilization and Expenditure;
- . Community-based Contraceptive Distribution;
- . Listenership Patterns, Diffusion of Information and Health Education KAP;
- . Service Delivery at the Community Level (baseline and process documentation).

An additional 35 studies (or approximately 5/year) will be conducted under the Project. The Project will finance field expenses, data collection and processing as well as supporting equipment and materials. Some funds will be utilized to contract with appropriate research institutions for research.

Dissemination Two means have been identified that will serve to disseminate the findings of the research studies to decision-makers and MOH personnel who must be informed. One is a series of workshops and seminars (approximately 20 participants in each). These forums will allow findings to be publicized and discussed.

It is considered essential that monographs and research findings be publicized by the Research Unit. A monograph reviewing each study (approximately 50) conducted and its findings should be produced and circulated. In addition, abstracts of studies along with epidemiologic information and pertinent data from the Health Information System (HIS) should be published on a quarterly basis. The Research Unit is the appropriate group to undertake this task. The Project will support the publication and distribution of the monographs as well as the Health Research/Epidemiological/HIS Bulletin.

Equipment To carry out its responsibilities the Research Unit requires a computer to track proposals and research, document findings and produce the monographs and periodicals described above. To facilitate the latter, the computer should be equipped with desktop-publishing capability to expedite the spread of information and decrease dependence on slower, more costly publishing operations. The hardware and software should be provided during the first year of the project so that the documentation consultant can utilize it and train others in its operation. A CD reader and appropriate medical data bases will also be funded to give the MOH and Malawian researchers access to research results.

Research Institution As mentioned, the Research Unit will not be conducting research itself. Others will be counted on to design (with the Units' assistance) and carry out the studies. There is a need, therefore, to identify local institutions who have, or with support could have, the capability to conduct high quality field and operations research. A number of options exist including the Center for Social Research, the Lilongwe School of Health Sciences and private firms. However, whichever institution is chosen, it will require some support in the form of technical assistance and operating costs to provide the MOH and the Research Unit the research capability it requires.

3. Recurrent Costs

Out of the total costs of the research component, the recurrent costs attached to the Research Unit are minimal. Components like technical assistance, training, orientation workshops and equipment are one-time costs. Most of the recurrent costs will be faced in personnel, the Research Review Committee (about a \$1,000 per year) and in the publication and dissemination of findings (close to \$17,000 per year). The total is approximately \$20,000 per year. It is expected that by gradually phasing out PHICS support over the last three years of the project, the MOH will be able to gradually absorb the extra cost. The major cost of supporting the field research itself is not included since it is assumed that a donor or donors will be willing and able to assume these costs once the Research Unit proves that it can identify, supervise and disseminate results of quality studies. The research institution, once it has demonstrated it is able to conduct high quality studies, will be in great demand and should be able to support staff from studies and research carried out for donors and the government.

C. Epidemiology Section

1. Current Status

At present the Epidemiology Section which according to the MOH organigram is attached to the Community Health Sciences Unit (CHSU), does not exist. The Epidemiologist assigned to the CCCD Project has served as the MOH Epidemiologist for the last four years. With the closing of the CCCD Project, it is incumbent upon the MOH to establish and staff the Epidemiology Section of the Ministry. There are no epidemiologists in the MOH at present who are serving as epidemiologists. WHO has assigned an epidemiologist to the MOH to work exclusively on the AIDS program.

2. Support Activities

The Epidemiology Section will facilitate bio-medical studies and operations research, carry out epidemiologic training, assist HIS efforts, investigate disease outbreaks and support priority child survival interventions. A graphic description of the main responsibility of the epidemiology service (in monitoring/evaluation, outbreak investigation, training) is presented in Attach A.2 # 3. The main activities which will support the epidemiology section under the PHICS Project include technical assistance (long and short-term), training (degree and non-degree, both off-shore and in-country), personnel and transportation.

Technical Assistance The need for both long and short-term technical assistance has been identified.

- Long-term Advisor - An Epidemiologist, preferably an M.D., will serve as an OPEX. She/he will be responsible for establishing the Section. A job description for the epidemiologist is found in Attachment A.2 # 4. She/He will facilitate bio-medical and operations research, field studies, support priority Child Survival interventions, assist the HIS Section (helping supervise sentinel sites, monitoring reporting and processing, analysis, forms development), participate in the epidemiology course, further develop course materials and help formulate a short (1 month) epidemiology course. The epidemiologist will be required for five years which allows for a 4-year PhD course in Epidemiology for his/her Malawian counterpart plus six months of overlap before and after off-shore counterpart training.
- Public Health Advisor - This advisor is needed for one year to help develop and manage the recently designed longer term epidemiology course that has been proposed to be given at Malawi University*. Since this is one of the first attempts to establish such a course anywhere in Africa and the developing world, it is expected that numerous issues will have to be resolved during the first year. For this reason, a

public health specialist is requested to help in refining the course and to assist in the initial round of field exercise in epidemiology and in training.

- Short-term TA - Specialists in various Child Survival-related diseases (e.g., measles, malaria, ARI, diarrheal diseases) will be required periodically during the 7-year project to assist the Epidemiology Section design studies and interpret data. It is estimated that three months of TA will be needed each year, a total of 18 months over the life of the project.

Training Two Malawian professionals will be trained in epidemiology at the graduate level to assume leadership of the Epidemiology Section upon the departure of the OPEX. One epidemiologist will be trained at the PhD level which will require four years. The second epidemiologist will be enrolled in a 2-year masters program in epidemiology. It is important that the courses chosen for these two trainees be as relevant to the Third World and as applied as possible.

Training Course Three types of epidemiologic training courses will be carried out in Malawi. The first is the long-term course (probably 24 months including 12 months in the field to complete a thesis/study) at the University for public health nurses and senior health inspectors. It is planned that approximately 45 persons will attend this course (see Attachment A.2 # 5 for list of modules). The project will cover the room and board of those attending for the first four years. After that, the MOH will gradually assume responsibility, at the rate of an additional 25% per year. This means that by year eight, the first post-project year, the Ministry will be paying the entire cost.

The MOH wants to develop a 1-month course in practical aspects of epidemiology for field-level health personnel. This course would be an abbreviated version of the long course and meant as an introduction to the epidemiologic perspective. It will be held at the Lilongwe School of Health Sciences. This course would be developed by the Public Health Advisor during the first year of PHICS and then run three times a year thereafter. Approximately 20 students will attend each session. The GOM would assume support according to the same phased schedule outlined above.

* The University is preferred over the Lilongwe School of Health Sciences so that participants can be granted a degree, rather than just a certificate. It is thought important that those attending this course have a degree to show for their work.

Finally, the MOH realizes it will take considerable time for all levels of the Ministry to be oriented in epidemiology. Therefore, it has requested funds to conduct 3-day orientation workshops in all the districts. Twelve districts will be covered a year, completing the introduction to epidemiologic principals within two years. It is recommended that the short orientation course be started in the second year after the before mentioned courses have been successfully launched.

Personnel To carry out the work of the Epidemiology Section at the regional level in support of the decentralization policy, three Regional Surveillance Officers will be appointed from the candidates completing the first Epidemiology Course.* The PHICS Project will pay their salaries for four years; the MOH will begin assuming responsibility from the fifth year at increments of 25% a year.

Transportation Field vehicles will be required for both the course and the regional epidemiologists. Two vehicles will be needed to transport students to the field to conduct studies and course exercises. One of these vehicles will also serve as the vehicle of the Epidemiology Section of MOH. When the regional epidemiologists are situated, they, too, will need vehicles to carry

3. Recurrent Costs

The recurrent costs for the Epidemiology Section come to approximately \$86,000 per year. Almost 90% of this amount is to support the three epidemiology training courses; the remainder supports regional epidemiologists' salaries and vehicle operating costs, out their responsibilities. The Southern and Northern Regions will have their own vehicles; the Central Region will share the MOH's. Vehicle maintenance costs are gradually phased-over to the MOH to ensure resources are available in the MOH budget when the Ministry assumes full support in year eight. Almost 90% of this amount is to support the three epidemiology training courses; the remainder involves the salaries of the regional epidemiologists and maintenance of the vehicles.

* The Complement and Grading Report (not yet approved) has not recommended the Epidemiologist posts. This brings into question the value of the training course if public health nurses and health inspectors, already having too many responsibilities, are to assume an epidemiologist role as well.

D. Health Information Systems (HIS) Section

1. Current Status

The HIS Section is currently found as part of the CHSU*. With the support of the CCCD Project and other donors, the HIS of the MOH has been greatly improved over the last several years. The three year backlog of data recording and reporting has been cleared. CCCD's assistance consisted of the provision of computers (7), the training of the staff and support and supervision by the CCCD Technical Officer and epidemiologist. The system is currently described as "potentially one of the best in Africa"**.

The routine data collection and processing (both in-patient and OPD) function of the HIS Section is complemented by a sentinel site system that monitors community practices for treatment of diarrhea and malaria. Twelve sites spread throughout the country are involved in this system which was developed and introduced by CCCD Malawi. With the termination of CCCD support, UNICEF will assume funding responsibility for the sentinel sites.

2. Support Activities

Short-term Technical Assistance Three types of short-term TA are needed to rationalize the HIS Section's computer system and to initiate documentation of some of the data being processed.

- . Computer Specialist (Central Office): A specialist is required to review the use of computer in the HIS Section and recommend ways in which it can be rationalized. At present they have too many PCs which are not linked and which cannot handle the volume of data which is submitted on a monthly basis. WHO requested a consultant to do the same thing. However, the MOH has expressed a preference for the USAID consultant since AID will be following up the study with the support required to carry out the recommendations. If the MOH requests AID to provide the consultant a full five months of consultancy will be required over the first three years of the PHICS Project. After the initial one month study, the second assignment would be three months to install the new system and train the HIS staff in its operation. In the third year it is expected that another one month of TA from the same consultant will be required to support the new system and address any problems which may have arisen.

* A recent recommendation suggested that the HIS Section be shifted to the Planning Unit; this change, if carried out, does not affect the section's duties or role.

** Stanley Foster "Malawi Africa Child Survival Initiative Combatting Childhood Communicable Diseases (ACSI-CCCD Supervisory Review)", February 8-12, 1988.

- . Computer Specialist (Decentralization): A consultant is needed to develop a data processing capability at the three main hospitals in the country (Queen Elizabeth Central Hospital, Kamuzu Central Hospital and Zomba Hospital). These facilities generate approximately a third of the in-patient data in Malawi. Developing a capacity for each of these hospitals to process their own data would relieve the pressure on the headquarter's HIS Section. Computers presently being used in the HIS Section would be shifted to the hospitals (one PC each). The consultant would be needed to help install the computers and train staff to use them. This would consume about two months during the first and second years of the project. During the third and fourth years, two more months would be required for each region which would each have a computer installed so that they can process the in- and out-patient data from the districts in their regions. The consultant would also develop a linkage capability with the central computer (through modems). A total of one year of TA is required in support of this decentralization effort.
 - . Documentation Expert - A consultant is required to assist the three main hospitals to design and institutionalize a record keeping system that will facilitate the filing and retrieval of records. Five months of TA will be needed - 2 months to design the system and one month in each hospital to install it.
- HIS Expert - While the HIS has made strides in the processing of data, there is a need to review what data are collected, comparing it to management needs. UNICEF is currently supporting a revision of forms and the field testing of them. If more assistance is required, the TA funds provided in PHICS support to the Epidemiology Section can be utilized.

Training Several types of training are required to strengthen the ability of the HIS staff at central, regional, and district levels to analyze and interpret data more effectively.

- . Off-shore - Two senior staff from the HIS Section of the MOH will attend a 6-month course on data analysis and interpretation. This will improve the utilization of the data that is currently being collected and processed.
- . In-service - The capability of regional and district staff must be upgraded so they can collect quality data and are able to analyze and interpret it. This will be an on-going effort requiring short (3 day) courses each year in each region. There will be an estimated 18 sessions over the 7-year life of the project. The MOH will gradually assume financial responsibility for the training (an additional 25% of the cost per year over the last three years of the project).

Personnel Six additional data clerks are required by the three main hospitals to process the data. This increase will ensure that each facility has four data clerks to handle the increased workload. The Project will support the positions in full for four years with GOM support phased-in over years 5, 6, and 7.

Equipment Additional equipment is needed by the HIS Section to enable it to decentralize.

- . Computer - Several types of computers will be required. At the Headquarters level, it is expected that a mini computer will be recommended by the consultant who is to study the system. This will allow a network to be established linking a number of terminals (possibly all terminals in the MOH including personnel and finance). If a mini is not recommended, four additional PCs will be procured to take the place of the computers being provided to the three hospitals and three more PCs will be purchased, one for each region.
- . Vehicle - One jeep is required for the headquarters HIS office to enable it to supervise and support the regional/hospital data processing units and to carry out training at the district level. The MOH will assume partial financial responsibility for maintenance from the fifth year on (at the rate of an additional 25% each year) so that by the eighth year, the MOH will be fully responsible.
- . Furniture - Five file cabinets (4 drawer) will be required for each document center in each of the three main hospitals. In addition, tables, chairs and shelves will be needed.
- . Calculators - One hundred simple hand-held, solar-powered calculators (with only basic functions) will be required for health field workers so that they can calculate and interpret data in the field quickly and accurately.
- . Modems - To link the computers at the 3 main hospitals and regional offices with the headquarters HIS section, each facility will require modems. The telephone service in Malawi is reliable enough to make such communications of data feasible and practicable.

Computer Maintenance/Supplies With such a reliance on computers, it is essential that the HIS have adequate computer services and supplies. Service capabilities exist in Malawi, but are expensive. In addition, basic supplies like computer paper and ribbons are needed to ensure the computers can be utilized on an on-going basis. It is estimated that \$20,000 a year will be required for service contracts and supplies for the HIS network at HQs, the three main hospitals and regional offices. The MOH will assume costs in 25% increments starting in the fifth year of the project.

3. Recurrent Costs

Recurrent costs are estimated to be \$32,000 per year. This amount includes resources for continued in-service training (\$3,000 a year), salaries of the data clerks (\$4,800 a year), vehicle maintenance (\$1,500), modem telephone link charges (\$3,000) and the service contract for computer maintenance (\$20,000). By gradually phasing fiscal responsibility into the MOH budget (at 25% per year during five through seven), it is hoped that the government will be more capable of assuming the total recurrent costs in the first post project year. Every effort will be made to avoid the sudden shock of turning over large recurrent costs to the government at the end of the project and, in the process, greatly reducing the chances of the project activities being continued and sustained.

E. Planning Unit

1. Current Situation

The Planning Unit of the MOH has produced a well-regarded 10-year plan (1985-95), but the Unit is understaffed. The post of Senior Planner remains vacant. The unit is staffed with three officers holding Masters Degrees and two more enrolled in Masters programs abroad, one returning later this year and one the following year.

The Project Implementation Unit (PIU) is part of the Planning Unit. At present the coordinator of the Family Health II Project (funded by the World Bank) serves as the head of this unit. Procurement Officer and Project Accountant positions are to be filled, most likely through secondment from other Ministries. While this arrangement leaves the MOH vulnerable to losing these important staff at any time, the Ministry feels it can live with this situation in the immediate future, until they can identify and appoint individuals on a permanent basis. The PIU is particularly understaffed in the monitoring section; only two Administrative Officers make up this section out of a planned strength of one Project Officer and three Administrative Officers. The current level of staffing makes it difficult to give the required attention to the host of donor-funded projects since each Administrative Officer must oversee four or five projects.

2. Support Activities

The Planning Unit requires long-term technical assistance and overseas training to strengthen its capabilities. The PIU needs additional personnel and a limited amount of training.

Long-term Technical Assistance - A senior planner is required to fill the post and lead the Planning Unit while a counterpart is studying for a PhD. This would be an OPEX arrangement. The position would be for four years, including six-months before the counterpart goes for study and six months upon completion. This long-term technical assistance is proposed for funding under the HRID Project.

Training Off-shore training is required for two members of the Planning Unit. A PhD or DrPH course in Health Planning for the senior planner. The person chosen for this training will likely hold a Masters degree (probably an MPH), therefore, the degree should be completed in three years. This PhD is proposed for support under the HRID project.

The second person to be trained is a Planning Officer. This person would study for a Masters, probably on MPH. This would require two years.

The MOH has requested short-term training in the use of micro-computers for project monitoring and planning. This training will be supported under PHICS.

Personnel To address the problem of an understaffed PIU, two positions will be filled. A Project Coordinator will be identified and assigned to the Unit to oversee Project administration and supervise the Administrative Officer. An Administrative Officer will be recruited to be responsible for the PHICS Project. The two posts will be supported by the PHICS Project for the first four years of the Project; starting in year five, the MOH will assume an additional 25% of their salaries each year.

Orientation Four members of the PIU will be oriented in AID Project implementation. The four are the PHICS Project Coordinator, the PHICS Administrative Officer (accounts and procurement), and two other PIU staff with part-time Project responsibilities. Training provided by AID in the region will ensure that those responsible for monitoring and overseeing AID Project implementation, understand AID policies and can discharge their duties effectively.

Financial Management There is a need to hire a local CPA firm to assist the PIU establish a financial management system and to supervise it quarterly throughout the life of the project. It is expected that six months of consultant time will be required for this activity over the course of the 7-year project.

3. Recurrent Costs

Only the salaries of the two officers added to the PIU constitute "recurrent expenses"; this amounts to approximately \$13,600 a year.

ANNEX A.3

RURAL WATER, SANITATION, AND HYGIENE EDUCATION
(Institutional Strengthening)

ANNEX A.3

PROJECT ANALYSIS

RURAL WATER, SANITATION, AND HYGIENE EDUCATION
(Institutional Strengthening)

OUTLINE

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 - 3. Current Program Operations
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RURAL WATER, SANITATION, AND HYGIENE EDUCATION
(Institutional Strengthening)

A. Project Description

A.1 Background

Malawi has a long history of developing self-help piped water supply projects in rural areas. Starting in 1968, the GOM through a variety of ministries and departments has developed a decentralized process involving a high degree of community participation in the planning, mobilization, construction, and maintenance of simple gravity-fed community water systems. These systems emphasize low-cost technologies, in that they take water from mountainous streams in protected forest catchments and pipe it by gravity to agricultural villages in the inhabited areas below. With few exceptions, the water is untreated. The systems are designed to deliver 36 liters/capita/day of water at communal standpipes. No charge is levied for the water, but the beneficiary communities are expected to organize themselves into a series of committees to provide self-help labor inputs, local construction materials, and long-term maintenance services. To date, a total of 50 schemes have been completed, with another five still under construction. These schemes are providing water of generally good quality and ample quantity to approximately 1,000,000 people. Table 1 lists all existing rural piped water schemes in Malawi.

In 1980, USAID agreed to provide the GOM a total of \$6,000,000 for support of the water program through 1985 (subsequently extended to December 1988). The USAID grant, however, strengthened the then-existing water program by incorporating into it a Health Education and Sanitation Promotion Component to be implemented by the MOH. The HESP component was given responsibility to promote improved latrines, washing slabs and a variety of behavioral practices intended to maximize the health benefits resulting from the improved water supplies. By mid-1986, the MOWS with USAID-financing had undertaken 18 new schemes serving 265,000 people, while the MOH had provided HESP services reaching an estimated 270,000 people. USAID mid-term (1983) and final (1985) project evaluations found the program in both ministries to be effectively implemented and, in general, to have achieved more than anticipated by the Project Paper. Of particular interest was the development within rural communities of widespread demand for HESP services as well as water supply services. Although HESP had received only 5 percent of the original USAID grant, the effectiveness of the MOH staff in providing focused hygiene and sanitation guidance to rural communities has resulted in the generation of widespread demand for such services in communities untouched by HESP activities. Moreover, both the MOH and the MOWS are pleased with the interministerial involvement they have had under the USAID grant and both have expressed strong interest in expanding the HESP component in order to fully complement the well established water program.

TABLE 1. EXISTING RURAL PIPED WATER SCHEMES

| No. | Scheme | District | Region | Design Population | Date Completed |
|---------------------------------------|-----------------|--------------------|---------|-------------------|----------------|
| <u>Non-USAID Financed (1968-1980)</u> | | | | | |
| 1 | Chingale | Zomba | South | 5,000 | 1969 |
| 2 | Chambe | Mulanje | South | 30,000 | 1970 |
| 3 | Migowi | Mulanje | South | 6,000 | 1971 |
| 4 | Chilinga | Mulanje | South | 2,000 | 1972 |
| 5 | Ng'onga | Rumphi | North | 2,000 | 1972 |
| 6 | Muhuju | Rumphi | North | 1,000 | 1973 |
| 7 | Chinkwezulu | Machinga | South | 1,700 | 1974 |
| 8 | Ighembe | Karonga | North | 4,000 | 1974 |
| 9 | Mulanje West | Mulanje | South | 90,000 | 1975 |
| 10 | Luzi | Mzimba/Rumphi | North | 8,000 | 1975 |
| 11 | Chinunkha | Chitipa | North | 4,000 | 1975 |
| 12 | Chilumba | Karonga | North | 4,000 | 1975 |
| 13 | Chilombwe | Ntcheu | Central | 1,200 | 1975 |
| 14 | Phalombe | Mulanje | South | 140,000 | 1977 |
| 15 | Dedza | Dedza | Central | 1,400 | 1976 |
| 16 | Mchinji | Mchinji | Central | 20,000 | 1976 |
| 17 | Chagwa | Machinga | South | 7,000 | 1976 |
| 18 | Kalitsilo | Ntcheu | Central | 1,000 | 1977 |
| 19 | Lifani | Zomba/Machinga | South | 20,000 | 1977 |
| 20 | Hewe | Rumphi | North | 8,000 | 1977 |
| 21 | Nkhamanga | Rumphi | North | 12,000 | 1978 |
| 22 | Lizulu | Ntcheu | Central | 6,000 | 1978 |
| 23 | Namitambo | Chiradzulu/Mulanje | South | 60,000 | 1979 |
| 24 | Sombani | Mulanje | South | 40,000 | 1979 |
| 25 | Ntonda | Ntcheu | Central | 25,000 | 1980 |
| 26 | Lingamasa | Mangochi | South | 12,000 | 1981 |
| 27 | Zomba (Domasi) | Zomba | South | 100,000 | 1981 |
| 28 | Luwazi | Mzimba | North | 8,000 | 1981 |
| 29 | Nalipiri | Mulanje | South | 9,000 | 1980 |
| 30 | Muloza East | Mulanje | South | 32,000 | 1980 |
| 31 | Luchenya/Muloza | Mulanje | South | 46,000 | 1982 |
| 32 | Karonga | Karonga | North | 30,000 | 1983 |
| 33 | Kawinga | Machinga | South | 70,000 | 1983 |
| 34 | Nthalire | Chitipa | North | 3,000 | 1983 |
| 35 | Muloza South | Mulanje | South | 8,000 | 1983 |
| 36 | Dombole | Ntcheu | Central | 22,000 | 1984 |
| 37 | Livingstonia | Rumphi | North | 3,000 | 1984 |
| (Sub-Total Non-USAID) | | | | 786,300 | |

USAID-Financed (1980-1988)

| | | | | | |
|-------------------|-------------------------------|------------|---------|---------|------|
| 38 | Liwonde | Machinga | South | 23,000 | 1983 |
| 39 | Kasanje/Nanyangu | Itcheu | Central | 54,000 | 1983 |
| 40 | Iponga | Karonga | North | 5,600 | 1983 |
| 41 | Chitipa & Extensions | Chitipa | North | 46,000 | 1987 |
| 42 | Mwanza | Chiwawa | South | 40,000 | 1987 |
| 43 | Chimaliro (Champhira N.) | Mzimba | North | 24,000 | 1984 |
| 44 | Zumulu | Machinga | South | 23,500 | 1984 |
| 45 | Mwansambo/Kasakula | Itchisi | Central | 25,000 | 1984 |
| 46 | Misuku | Chitipa | North | 3,700 | 1984 |
| 47 | Mirala | Machinga | South | 13,000 | 1985 |
| 48 | Makwawa | Zomba | South | 16,000 | 1985 |
| 49 | Chimaliro S. (Champhira S.) | Mzimba | North | 32,000 | 1987 |
| 50 | Zomba West | Zomba | South | 60,000 | 1987 |
| 51 | Msaka | Mzimba | North | 3,000 | 1987 |
| 52 | Mwansambo/Mwadzama | Ntchisi | Central | 18,000 | 1987 |
| 53 | Augmentation (rehabilitation) | Mulanje | South | N/A | 1988 |
| 54 | Lifutazi | Mkhata Bay | North | 11,000 | 1987 |
| 55 | Mulanje Southwest | Mulanje | South | 24,000 | 1988 |
| Sub-Total (USAID) | | | | 421,800 | |

Other On-Going Scheme

| | | | | | |
|----|--------------|----------|-------|---------|------|
| 56 | Mpira-Balaka | Machinga | South | 200,000 | 1992 |
|----|--------------|----------|-------|---------|------|

A.2 Needs Assessment

Although the current USAID water and sanitation program has proved to be highly effective and successful in meeting its initial objectives, much remains to be done in rural Malawi. There is considerable potential for expanding and strengthening the programs within both the MOWS and MOH to reach yet-unserved populations.

In the rural water sector, approximately 1,500,000 people will eventually receive piped water from existing schemes and schemes currently under construction. Approximately 422,000 of this population will be served by schemes financed by the first USAID Program (1981-1988). It is estimated that perhaps 1,000,000 additional rural inhabitants could be reached with gravity systems similar to those in use today. In November and December 1985, the MOWS carried out a feasibility study of 19 potential new rural water schemes in which the design population (in year 2002) was estimated to be 618,000. This feasibility study was used as the basis for selecting the schemes proposed for the PHICS Project. Even more schemes could be identified if the MOWS had sufficient manpower and transport resources to undertake the task.

There is little doubt that high demand exists within rural communities for new water schemes and that these communities are willing to fully participate in planning, construction, and maintenance. The Malawi piped water program is known throughout the land, and there exists a large backlog of requests for new projects from local communities, district councils, and Members of Parliament.

In the rural sanitation sector, the MOH has only scratched the surface of the sanitation needs with the HESP program. Although 270,000 people had been reached with HESP services through 1986, the MOH continually found itself underfunded and unable to effectively promote widespread construction of sanitary pit latrines, washing slabs, and other sanitation facilities. The MOH now wants to strengthen HESP services in the areas targeted in the current HESP program and to expand these activities to all other rural water schemes, both new and old. Thus, the potential clients for future HESP services are the 1,000,000-plus rural inhabitants currently served by piped water projects and the 245,000 to be served by the proposed new USAID-financed schemes. In time, the MOH intends to institutionalize HESP as a permanent operational unit in the Ministry and eventually reach all rural Malawians including those outside of piped water areas.

B. Capacity Building

B.1 Staffing

(a) Ministry of Works and Supplies

There are shortages of engineering staff within the Rural Water Section (RWS) of the MOWS to carry out the current and future rural water programs. The RWS has nine engineering positions, two of which are currently filled. One engineer heads the section as Principal Water Engineer, while the other is assigned full-time to the large Mpira-Balaka water scheme in Ntcheu and Machinga Districts. (Mpira-Balaka is a mixed urban and rural scheme funded by DANIDA and the African Development Bank. A total of five Malawian engineers and one expatriate engineer have been assigned to this scheme by the MOWS. The project is not expected to be completed before 1992). Two more newly qualified engineers have been recruited and are expected to take up their positions soon.

Although RWS personnel, by virtue of dedication and hard work have been able to maintain a high level of construction effort on USAID-financed schemes over the past three years, they have had little time for long-term planning, new project preparation, or maintenance management. This shortage of senior technical staff is the most serious weakness in the MOWS rural water program.

Within the RWS, there are at present established positions for two senior-level engineers and seven project engineers. In the past, these positions were filled by a combination of expatriate experts, Malawian nationals, and U.S. Peace Corps and British VSO volunteers. The

establishment of a new USAID-funded water program will require a minimum of five engineers at headquarters (or at regional centers) to direct construction on new schemes and supervise maintenance on the growing number of completed schemes.

The staffing needs for the field are not well known, although they do not appear to be as critical as the need for additional engineering staff. At present, there are 14 technical officers and assistants supervising approximately 90 Rural Water Operators (RWO) and Monitoring Assistants (MAs). (RWOs directly supervise project construction, then remain as MAs to oversee monitoring and maintenance activities on the completed schemes.) Approximately 10 additional MAs will be needed to monitor the schemes proposed in the new USAID grant. However, whether this will require an increase in the current field staff levels or whether it will be possible to have a smaller field staff carry out monitoring and maintenance activities is uncertain at this time.

Peace Corps Volunteers (PCVs) could be used to temporarily fill the existing need for engineers until sufficient Malawian engineers are trained (see section B.4: Training). PCV engineers performed satisfactorily within the RWS during the late 1970's and early 1980's, and their utilization on the PHICS Project is acceptable in principal with both the MOWS and Peace Corps/Malawi. A total of three engineers, with starting dates staggered over a two to three year period at the beginning of the project would be most effective. As long as the RWS maintains some senior engineering capability on its permanent staff, the PCV engineers could be entry level, with basic responsibilities for assisting on site selection, system design, and construction supervision (see Section B.2: Scope of Work for Peace Corps Rural Water Engineers).

To address the problems of insufficient engineering staff and uncertainties regarding the number and ranking of field staff, a manpower needs assessment should be carried out during the first year (1988/89) of the new rural water program in the MOWS (and on the HESP program in the MOH, as well). A manpower survey was one of several key recommendations resulting from the 1986 final evaluation of the current USAID-financed rural water program (WASH Field Report No. 186). The results of this assessment will be used by the MOWS to prepare a staffing plan for submission with the Annual Work Plan for the second program year (1989/90).

(b) Ministry of Health

The MOH currently has one senior professional acting as HESP coordinator, 14 Supervisors, 11 Health Assistants (HA), and 63 Health Surveillance Assistants (HSA) working in the HESP program. To carry out its goal of expanding HESP to all rural water schemes in the country, the Ministry estimates it must recruit an additional four senior professionals, one to serve at headquarters and three to act as regional HESP coordinators. In addition, the MOH intends to add 10 Supervisors,

50 HAs, and 250 HSAs to the field staff. All of the above personnel will work full-time on HESP activities. This staffing level will allow the MOH to provide HESP services to the piped water scheme at the rate of approximately one HSA per 5000 population. HSAs working on HESP activities will coordinate their efforts and provide supporting assistance to HSAs responsible for family health activities.

In posting new personnel to the field, the MOH will give priority to areas where new water schemes are being planned. Their intention is to have HESP personnel work alongside MOWS personnel during the initial mobilization and organization of project communities.

It is expected that the new HESP personnel will be added gradually to the MOH ranks in order not to overburden the Ministry with administrative and financial requirements. Full HESP staffing will not be achieved until the third or fourth year of the PHICS Project. To insure that HESP manpower needs will be properly identified, the MOH will carry out a manpower needs assessment during the first year of the program. The results of this assessment will be used by the MOH to prepare a staffing plan for submission with the Annual Work Plan for the second year (1990/91).

B.2 Scope of Work for Peace Corps Rural Water Engineers

The following is the job description for engineering positions in the Rural Water Section of the MOWS that could be filled by Peace Corps Volunteers:

Water Department
Ministry of Works and Supplies

| | |
|----------------|--|
| Post | : Civil Engineer (PO) |
| Qualifications | : Applicants should have a Civil Engineering degree recognized by the Malawi Board of Engineers or an equivalent qualification. Preference will be given to those who have some relevant experience since graduation, particularly in the field of hydraulics and water supply. |
| Duties | : To carry out planning, design and site investigations for varied Irrigation Schemes or Water Supply Projects, under a Senior Civil Engineer. The work also involves the Supervision of construction, operation and maintenance of water supply systems, under self-help labor. |

B.3 Salaries and Allowances

(a) Ministry of Works and Supplies

Under the current rural piped water program, USAID has been supporting the salaries of all field personnel holding nonestablished positions. These positions include approximately 90 rural water operators (RWO) and monitoring assistants (MA) of various grades. The MOWS has been responsible for the salaries of all headquarters staff (Project Engineers) and senior technical staff (Senior Technical Officers, Technical Officers, and Technical Assistants) in the field. According to the final project evaluation (WASH Field Report No. 186), USAID salary support in the current project, as projected through December 1987, will be approximately \$300,000.

Under the PHICS Project the MOWS will assume responsibility for all salaries associated with the rural water program. This will include an estimated K191,000 for salaries and K426,000 for allowances and subsistence in the area of institutional strengthening. It is expected that at least three additional engineers will be added to the program, as well as three senior technical field staff, 20 RWOs (who will convert to MAs upon completion of project construction), plus four water quality technicians. The engineers and senior technical field staff will fill established positions within the RWS, while the RWOs and the water quality technicians will be employed in non-established positions.

Because of the severe shortage of Malawian engineers, the possibility of using Peace Corps Volunteers to fill the three engineering slots during the early years of the project will be explored. The PCVs would be placed in non-established positions at headquarters and at regional offices. By putting the Volunteers in non-established positions, the MOWS will be allowed to recruit (and train) suitable Malawian engineers for the established posts. The project will assume responsibility for the stipend normally paid by the GOM (approx. K350/month) to PCVs, while the MOWS will be responsible for their housing. Table 1 details salaries and allowances for the institutional strengthening component of the project. Table 2 shows the comparable salaries and allowances for the service delivery component.

(b) Ministry of Health

Unlike the MOWS, the MOH is not in a position to support greatly expanded expenditures for salaries and allowances. The ministry has been supporting the salaries of all HESP personnel to date, but will not be able to assume immediate responsibility for all of the 310 new field personnel projected for the PHICS Project. The MOH, nevertheless, is prepared to eventually underwrite all salary costs of the total HESP program if USAID will support a gradual build-up of new HESP personnel in the early years of the project. It proposes that USAID assumes all new salary costs for the first four years of the program, after which the

TABLE 1 Salaries and Allowances for Institutional Strengthening

| Program Expenditures - Institutional Strengthening | GOM (K) | Contributions (in 1000s) | |
|---|-------------|--------------------------|---------------------|
| | | USAID (\$) | Peace Corps (\$) |
| MOWS: | | | |
| Salaries - HQ Staff: | | | |
| Construction | 60 | - | - |
| Peace Corps Volunteers | - | 10 | (?) |
| Maintenance | 120 | - | - |
| Water Quality Monitoring | 11 | - | - |
| Sub-Total (Salaries) | 191 | 10 | (?) |
| Allowances/Subsistence: | | | |
| Training | 358 | - | - |
| Applied Studies | 35 | - | - |
| Coordination | 33 | - | - |
| Sub-Total (Allowances) | 426 | - | - |
| Sub-Total (MOWS) | 617 | 10 | (?) |
| MOH: | | | |
| Salaries - HQ Staff | 16 | 13 | - |
| Allowances/Subsistence: | | | |
| Training | 350 | 283 | - |
| Sub-Total (MOH) | 366 | 296 | - |
| Total (Inst. Strengthening) | K983 | \$396 | (?) |

TABLE 2 Salaries and Allowances for Service Delivery

| Program Expenditures - Service Delivery | Contributions (in 1000s) | |
|--|--------------------------|---------------|
| | GOM (K) | USAID (\$) |
| MOWS: | | |
| Salaries - Field Staff: | | |
| Construction | 346 | - |
| Maintenance | 360 | - |
| Water Quality Monitoring | 39 | - |
| Sub-Total (Salaries) | 745 | - |
| Allowances/Subsistence: | | |
| Construction | 180 | - |
| Maintenance | 144 | - |
| Water Quality Monitoring | 136 | - |
| Sub-Total (Allowances) | 460 | - |
| Sub-Total (MOWS) | 1205 | - |
| MOH: | | |
| Salaries - Field Staff | 401 | 321 |
| Allowances/Subsistence: | 180 | 144 |
| Sub-Total (MOH) | 581 | 465 |
| Total (Service Delivery) | K1786 | \$465 |

MOH will gradually take on an increasingly larger proportion. The estimated allocation of the sharing of salaries and allowances will be approximately \$296,000 to USAID and K366,000 to the MOH (see Table 4). The relative allocation of HESP expenditures for salaries and allowances over the life of the project is shown in Figure 1.

B.4 Training

(a) Ministry of Works and Supplies

Two types of training support will be used in the PHICS Project: (1) in-service and local training which will be supported by USAID and the MOWS and (2) off-shore training which will be financed by USAID through the Human Resources and Institutional Development (HRID) project. In-service training has been institutionalized within the rural water program of the MOWS for many years. A series of refresher and up-grading courses are routinely given to supervisory and monitoring staff during the rainy season of January to March at the MOWS Zomba Training Center. USAID support will be used to continue and strengthen these activities over the duration of the project.

In-service training will be directed at five categories of personnel: senior staff, water supervisors, trainers, water operators and monitoring assistants, and local leaders and repair teams. Different courses generally ranging in duration from one to four weeks, will cover project management, construction and maintenance techniques, and village mobilization. Of particular importance for overall project coordination will be joint courses for trainers from the MOWS, MOH, and Ministry for Community Services and for basic field personnel (health assistants, health surveillance assistants, and monitoring assistants). Total estimated costs for in-service training will be K358,000 for the MOWS and \$28,800 for USAID.

Off-shore training will be directed at senior staff, engineers, and supervisors. Two basic types will be supported: short courses and long-term degree training. Four Malawians will be sent abroad for engineering training - two for a B.Sc. in civil engineering and two for an M.Sc. in sanitary engineering. Total estimated costs are \$249,000 of USAID funds, all of which is proposed for support under the HRID project. Table 2a summarizes the MOWS training proposals. The off-shore training activities are listed in decreasing order of priority.

(b) Ministry of Health

As in the case of the MOWS, the MOH will need both in-service and off-shore training. The in-service courses will include courses directed at supervisors, trainers, and local villagers. Of particular importance will be courses aimed at bringing sanitation concepts to villagers, special workshops on the San-plat latrine, and joint training workshops for MOH and MOWS field staff.

In-service training costs consist of subsistence and transport allowances and materials costs. USAID will assume the majority of in-service training costs in the early years of the project but will gradually turn over this responsibility to the MOH in the later years, as shown in Figure 1.1. Total estimated in-service training costs will be K350,000 for the MOH and \$283,000 for USAID.

Off-shore training is proposed to be limited to senior staff. A series of regional study tours to neighboring African countries for senior HESP staff and graduate-level training (M.Sc.) for one staff member in the area of environmental health are proposed. Total costs are estimated to be \$62,000, all of which are proposed for support under the HRID project. Table 3 summarizes the MOH/HESP training proposals.

Table 2a. MOWS Training Needs: Rural Piped Water Program

| Course Title | Staff Level | Trainees Per-Course | Number of Courses | Duration | Contributions in 1,000s | | |
|------------------------------------|---|------------------------|----------------------|----------|-------------------------|---------------|--------------|
| | | | | | MOWS (K) | PHICS (\$) | HRID (\$) |
| <u>In-Service Training:</u> | | | | | | | |
| 1. Technical Refresher | Water Operators & Monitoring Assistants | 105 | 1 per yr | 1 wk | 100 | 5 | -- |
| 2. Supervisors' Workshop | Water Supervisors | 15 | 1 per yr | 1 wk | 24 | 2 | -- |
| 3. Senior Staff Workshop | Senior Staff | 10 | 1 per yr | 1 wk | 16 | 2 | -- |
| 4. Supervisors Tech. Course | Water Supervisors | 12 | 1 | 30 wks | 38 | 3 | -- |
| 5. New Operator Training | Water Operators | 20 | 1 | 4 wks | 10 | 2 | -- |
| 6. System Operation & Repair | Local Leaders & Repair Teams | 400 | 1 per yr | 1 wk | 130 | 7 | -- |
| 7. Local Project Visits | Local Leaders | 200 | 1 | 1 day | 6 | 0.5 | -- |
| 8. Training of Trainers (with MOH) | Trainers (MOH, MOWS, CS) | 12 | 1 per 3 yrs | 2 wks | 14 | 3 | -- |
| 9. Joint Field Training (with MCH) | HAs, HSAs & MAs | 18 | 2 per yr | 1 wk | 20 | 5 | -- |
| Sub-Total (In-Service) | | | | | K358 | \$29 | -- |
| <u>Off-Shore Training:</u> | | | | | | | |
| 1. Regional Study Tours | Engineers & Supervisors | 9 | 1 per yr | 1 wk | -- | -- | 36 |
| 2. Management Courses on WS&S | Senior Staff | 2 | 1 per yr | 6 wks | -- | -- | 53 |
| 3. B.Sc. Civil Engineering | Engineers | 1 | 2 | 3 yrs | -- | -- | 125 |
| 4. M.Sc. Sanitary Engineering | Engineers | 1 | 2 | 1 yr | -- | -- | 50 |
| 5. Conferences/Seminars | Senior Staff | 2 | 1 per yr | 1 wk | -- | -- | 24 |
| 6. Diploma: Evaluation Method | Senior Staff | 1 | 1 | 1 yr | -- | -- | 11 |
| Sub-Total (Off-Shore) | | | | | -- | -- | \$103 |

FIGURE 1.1. MOH Training Needs: HESP Program

| Course Title | Staff Level | Trainees Per Course | Number of Courses | Duration | Contributions in 1,000s | | |
|--|--------------------------|------------------------|----------------------|----------|-------------------------|---------------|--------------|
| | | | | | MOH (K) | PHICS (\$) | HRID (\$) |
| <u>In-Service Training:</u> | | | | | | | |
| 1. Training of Trainers | Trainers (MOH, MOWS, CS) | 12 | 1 per 3 yrs | 2 wks | 6 | 4 | -- |
| 2. Workshop on Water, Sanitation & Hygiene | VHC Members | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 3. Workshop on Water, Sanitation & Hygiene | Women and Tap Committees | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 4. Workshop on Water, Sanitation & Hygiene | New HSAs | 30 | 2 per yr | 2 wks | 16 | 13 | -- |
| 5. Refresher Workshop on Water, Sanitation & Hygiene | HAs, HSAs, MAs | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 6. Workshop on San-plat Latrines | HSAs | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 7. Workshop on San-plat Latrines | Supervisors & Trainers | 15 | 3 | 1 wk | 6 | 5 | -- |
| 8. Workshop on Hygiene, Education & Sanitation Promotion | Supervisors | 15 | 3 | 1 wk | 6 | 5 | -- |
| Sub-Total (In-Service) | | | | | K350 | \$283 | |
| <u>Off-Shore Training:</u> | | | | | | | |
| 1. M.Sc. Environmental Health | Senior Staff | 1 | 1 | 1 yr | -- | -- | 35 |
| 2. Regional Study Tours | Senior Staff | 6 | 3 | 1 wks | -- | -- | 12 |
| 3. WEDC course: Comm.WS&S | Regional Staff | 3 | 1 | 10 wks | -- | -- | 9 |
| 4. CEFIGRE course: Rural WS&S Planning | Senior Staff | 3 | 1 | 1 mon | -- | -- | 16 |
| Sub-Total (Off-Shore) | | | | | -- | -- | 72 |

NOTES:

- 1) In-service training includes K10/trainee transport allowance, K10/day subsistence (junior staff), and K50/day subsistence (supervisors).
- 2) USAID pays approx 67% of all in-service training costs and 100% of off-shore training costs.

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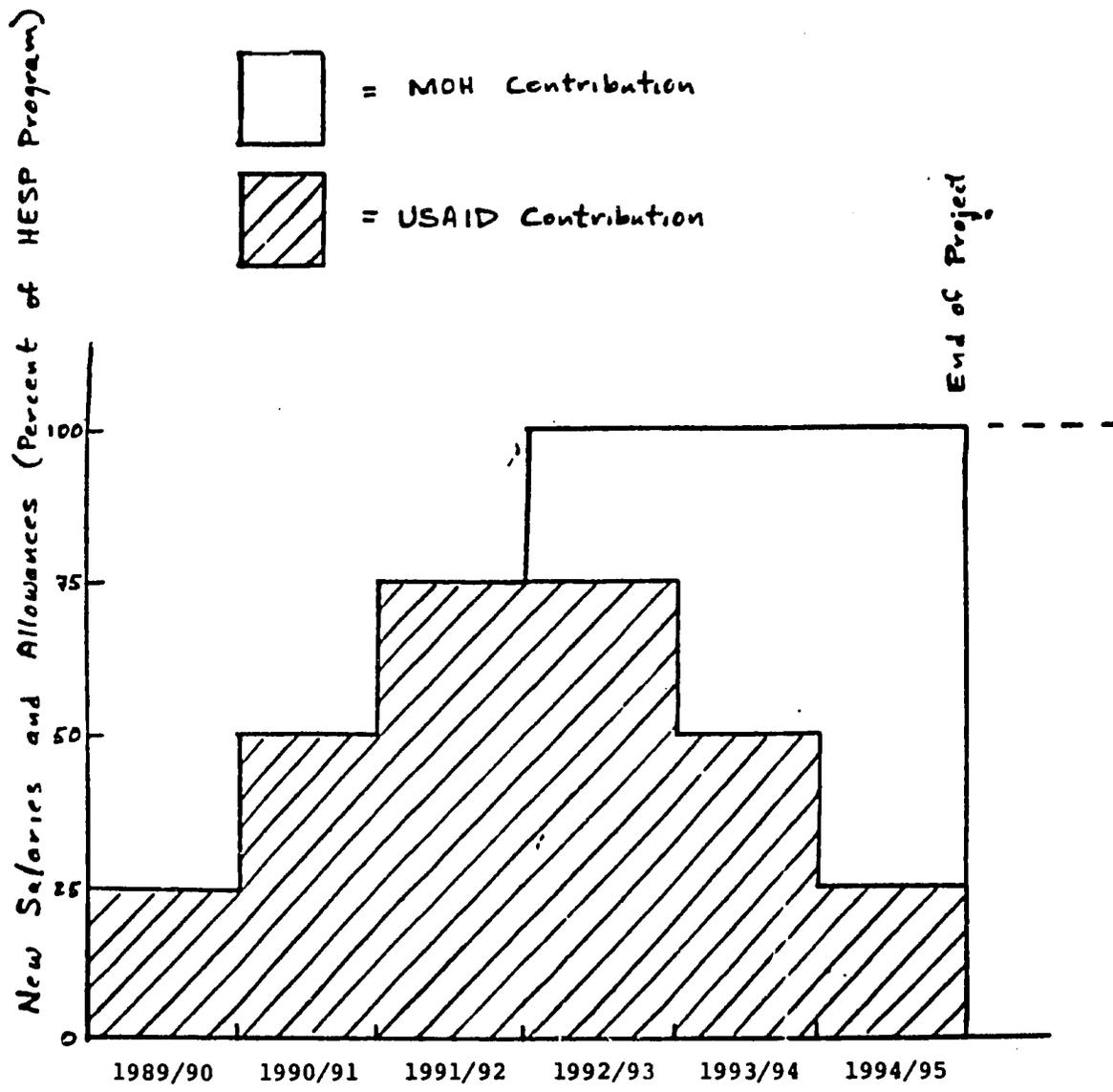


Figure 1. ALLOCATION OF HESP EXPENDITURES FOR SALARIES AND ALLOWANCES

Table 2a. MOWS Training Needs: Rural Piped Water Program

| Course Title | Staff Level | Trainees Per Course | Number of Courses | Duration | Contributions in 1,000s | | |
|------------------------------------|---|------------------------|----------------------|----------|-------------------------|---------------|--------------|
| | | | | | MOWS (K) | PHICS (\$) | HRID (\$) |
| <u>In-Service Training:</u> | | | | | | | |
| 1. Technical Refresher | Water Operators & Monitoring Assistants | 105 | 1 per yr | 1 wk | 100 | 5 | -- |
| 2. Supervisors' Workshop | Water Supervisors | 15 | 1 per yr | 1 wk | 24 | 2 | -- |
| 3. Senior Staff Workshop | Senior Staff | 10 | 1 per yr | 1 wk | 16 | 2 | -- |
| 4. Supervisors Tech. Course | Water Supervisors | 12 | 1 | 30 wks | 38 | 3 | -- |
| 5. New Operator Training | Water Operators | 20 | 1 | 4 wks | 10 | 2 | -- |
| 6. System Operation & Repair | Local Leaders & Repair Teams | 400 | 1 per yr | 1 wk | 130 | 7 | -- |
| 7. Local Project Visits | Local Leaders | 200 | 1 | 1 day | 6 | 0.5 | -- |
| 8. Training of Trainers (with MOH) | Trainers (MOH, MOWS, CS) | 12 | 1 per 3 yrs | 2 wks | 14 | 3 | -- |
| 9. Joint Field Training (with MCH) | HAs, HSAs & MAs | 18 | 2 per yr | 1 wk | 20 | 5 | -- |
| Sub-Total (In-Service) | | | | | K358 | \$29 | -- |
| <u>Off-Shore Training:</u> | | | | | | | |
| 1. Regional Study Tours | Engineers & Supervisors | 9 | 1 per yr | 1 wk | -- | -- | 36 |
| 2. Management Courses on MS&S | Senior Staff | 2 | 1 per yr | 6 wks | -- | -- | 53 |
| 3. B.Sc. Civil Engineering | Engineers | 1 | 2 | 3 yrs | -- | -- | 125 |
| 4. M.Sc. Sanitary Engineering | Engineers | 1 | 2 | 1 yr | -- | -- | 50 |
| 5. Conferences/Seminars | Senior Staff | 2 | 1 per yr | 1 wk | -- | -- | 24 |
| 6. Diploma: Evaluation Method | Senior Staff | 1 | 1 | 1 yr | -- | -- | 11 |
| Sub-Total (Off-Shore) | | | | | -- | -- | \$299 |

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FIGURE 1.1. MOH Training Needs: HESP Program

| Course Title | Staff Level | Trainees Per Course | Number of Courses | Duration | Contributions in 1,000s | | |
|--|--------------------------|------------------------|----------------------|----------|-------------------------|---------------|--------------|
| | | | | | MOH (K) | PHICS (\$) | HRID (\$) |
| <u>In-Service Training:</u> | | | | | | | |
| 1. Training of Trainers | Trainers (MOH, MOWS, CS) | 12 | 1 per 3 yrs | 2 wks | 6 | 4 | -- |
| 2. Workshop on Water, Sanitation & Hygiene | VHC Members | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 3. Workshop on Water, Sanitation & Hygiene | Women and Tap Committees | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 4. Workshop on Water, Sanitation & Hygiene | New HSAs | 30 | 2 per yr | 2 wks | 16 | 13 | -- |
| 5. Refresher Workshop on Water, Sanitation & Hygiene | HAs, HSAs, MAs | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 6. Workshop on San-plat Latrines | HSAs | 30 | 17 per yr | 1 wk | 79 | 64 | -- |
| 7. Workshop on San-plat Latrines | Supervisors & Trainers | 15 | 3 | 1 wk | 6 | 5 | -- |
| 8. Workshop on Hygiene, Education & Sanitation Promotion | Supervisors | 15 | 3 | 1 wk | 6 | 5 | -- |
| Sub-Total (In-Service) | | | | | K350 | \$283 | |
| <u>Off-Shore Training:</u> | | | | | | | |
| 1. M.Sc. Environmental Health | Senior Staff | 1 | 1 | 1 yr | -- | -- | 35 |
| 2. Regional Study Tours | Senior Staff | 6 | 3 | 1 wks | -- | -- | 12 |
| 3. WEDC course: Comm. WS&S | Regional Staff | 3 | 1 | 10 wks | -- | -- | 9 |
| 4. CEFIGRE course: Rural WS&S Planning | Senior Staff | 3 | 1 | 1 mon | -- | -- | 16 |
| Sub-Total (Off-Shore) | | | | | -- | -- | 72 |

NOTES:

- 1) In-service training includes K10/trainee transport allowance, K10/day subsistence (junior staff), and K50/day subsistence (supervisors).
- 2) USAID pays approx 67% of all in-service training costs and 100% of off-shore training costs.

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B.5 Vehicles and Equipment**(a) MOWS**

Vehicles, equipment, and tools will be needed by the MOWS to carry out the proposed construction and maintenance programs under the project. The following list includes vehicles and equipment procured for the Central Water Laboratory for water quality monitoring.

| Item | Quantity | Cost (in 1000\$) |
|------------------------------------|----------|---------------------|
| <u>Construction Program</u> | | |
| 7-ton Pipe Carrier Trucks | 2 | 60 |
| 5-ton Drop Side Trucks | 3 | 100 |
| 7-ton Tipper Trucks | 1 | 40 |
| Land Cruiser (4 WD) | 1 | 30 |
| Light Pick-Up Trucks | 4 | 70 |
| Sub-totals (Vehicles) | | 300 |
| Concrete Mixers | 3 | 30 |
| Poker Vibrators | 3 | 15 |
| Portable Rock Drills | 2 | 5 |
| Sub-total (Equipment) | | 50 |
| Tools and Misc. | - | 35 |
| Sub-total (Construction Program) | | 385 |
| <u>Maintenance Program</u> | | |
| Motorcycles | 5 | 10 |
| Tools and Misc. | - | 52 |
| Water Quality Monitoring: | | |
| - Field Test Kits | 3 | 11 |
| - Refrigerators | 3 | 3 |
| - Motorcycles | 3 | 6 |
| Sub-total (Maintenance Program) | | 82 |
| Total MOWS | | \$467 |

(b) MOH

MOH transport needs arise from the expansion of HESP to new areas and the shipment of construction materials (cement, steel bars, and tools) for pit latrines and washing slabs. Motorcycles will be provided to supervisors and some health assistants, while bicycles will be made available to new HSAs. Motorcycles will be used by supervisors to cover the large areas under their charge, and bicycles will be given (actually sold by the MOWS at subsidized prices) to the new HSAs 25. The list includes house building materials for self-help housing construction for new HAs.

| Item | Quantity | Cost (in 1000\$) |
|--|----------|---------------------|
| 7-ton Lorry Truck | 1 | 40 |
| Land Cruiser (4 WD) | 1 | 30 |
| Light Pick-Up Trucks | 10 | 170 |
| Motorcycles | 50 | 75 |
| Bicycles | 250 | 70 |
| Sub-total (Vehicles) | | 385 |
| Tools and Miscellaneous | - | 21 |
| House-Building Materials for new HAs (@ K10,000) | 25 | 100 |
| Sanitary Research Unit: | | |
| Tools and Equipment | - | 10 |
| Materials and Supplies | - | 5 |
| TOTAL (MOH) | | \$521 |

C TechnicalC.1 Sustainability of Maintenance Systems

Maintenance costs for completed water schemes are financed partially from the recurrent budget in the form of salaries for the Monitoring Assistants, spares and replacements, and transport and partially by the local communities in the form of cash contributions and in-kind (mostly labor) contributions. Over the past two years (1985/86 and 1986/87), the MOWS budgeted an estimated K370,000 and K230,000, respectively, for maintenance of rural schemes.

The best available estimate of current rural maintenance costs was developed by Msukwa (1986) on the basis of detailed field investigations of five completed schemes (2 USAID, 3 non-USAID). Msukwa found that total maintenance costs averaged K0.26/cap/yr, of which the MOWS spent K0.07/cap/yr on major maintenance and K0.05/cap/yr on routine maintenance. The local communities were estimated to contribute nothing to major maintenance, but to routine maintenance they provided K0.02/cap/yr in cash and the equivalent of K0.13/cap/yr in labor. Thus, total maintenance was found to average K0.26/cap/yr, of which approximately one-half was provided by the MOWS and one-half by the communities.

It is expected that these maintenance costs will rise in the future as the best sites for rural water schemes become developed and the remaining sites become more complex and costly (for example, the need for water treatment, more complex intake structures, more meters of pipeline per person served). To insure that future maintenance needs are met, the MOWS has two basic options: either include sufficient funds in the recurrent budget for the expanding rural water program or develop methods of cost recovery (either partial or total) within the recipient communities. Although the imposition of rural water tariffs is not considered to be politically feasible at this time (because the people in the project communities have been promised free water in return for their voluntary participation in project construction), there is some evidence that rural water users are willing and able to pay for maintenance services on their systems.

Assessing the "willingness-to-pay" (WTP) for system operation and maintenance will be a high priority task in the first year of the new program (see Section C.5(b)). Recent WTP field investigations by the WASH Project have developed a contingent valuation procedure involving surveys within sample villages. This procedure will be applied to a selected group of project villages during the first year (1989/90) to determine local attitudes towards system maintenance and the types and amounts of contributions they would be willing to pay to support it. The MOWS will use the results of this study to prepare a proposed maintenance financing program for submission with the Annual Work Plan for the second program year (1990/91).

C.2 Water Quality Standards

Malawi, as with the vast majority of developing countries, has not developed its own set of water quality standards for rural conditions, but instead relies upon the guidelines recommended by the World Health Organization (WHO). For rural areas, it is widely accepted that the most important aspect in water quality is the microbiological safety of drinking water supplies. Few, if any, physico-chemical parameters have universal significance in rural water supplies and, as a result, bacteriological quality has become the most widespread measure of the safety of water supplies in rural areas. The primary bacterial indicator

chosen for this purpose is the faecal coliform group, in particular Escherichia coli. WHO (1985) recommends as a "guideline" that untreated water supplies, whether piped or unpiped, contain no faecal coliforms in any bacteriological test.

Faecal coliforms and a related group, faecal streptococci, are found in large numbers in the faeces of humans and other warm-blooded animals. Their presence in water supplies is an indication of faecal pollution and a warning sign of potential hazards to health, although there is no clear relationship between the amount of faecal contamination and the corresponding health risk to the consumer of the water. It should be noted that faecal coliforms are characteristically found in almost all naturally occurring surface waters, including those originating in "protected" catchment areas. Chlorination, often accompanied by filtration, is usually the only way to completely eliminate such organisms.

Most countries in Tropical Africa have avoided the difficult issue of faecal pollution and health by simply adopting the WHO guidelines as national standards. As a result, most countries have unrealistically high (zero faecal coliform content) rural water quality standards that cannot be achieved with available resources and, therefore, are basically ignored. Such standards provide little guidance for operational activities and probably contribute to an overall disregard for water quality issues.

If Malawi is to effectively use the results of a program of routine water quality monitoring of all rural piped water supplies, it must have water quality standards that are appropriate to the current levels of development, available resources, and needs of the people. There is a growing international awareness of the need for such standards. At a recent United Nations conference on water resources management (United Nations, 1987), the final report of the meeting stated: "Differential standards might be appropriate in situations where they expedited realistic, affordable goals and encouraged the expansion of water services to communities which would otherwise not receive them."

The Senior Water Chemist in the MOWS Central Water Laboratory in Lilongwe has proposed a revised set of standards for untreated drinking water supplies in Malawi. These standards are presented as "tentative guidelines" for untreated drinking water in the National Water Resources Master Plan (1986):

| <u>Faecal Organisms per 100ml</u> | <u>Suggested Action</u> |
|---------------------------------------|---|
| (a) 0 | Satisfactory, continue monitoring at regular intervals. |

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- (b) 1 - 10 Re-test to see if original sample accidentally contaminated. If re-test confirms presence of faecal organisms, remove obvious sources of pollution and monitor to see if situation improves.
- (c) 11 - 25 As in (b), and increase frequency of monitoring to see if pollution persistent or intermittent.
- (d) 26 - 50 As in (c), disinfect source if possible. If pollution reappears after chlorination, notify District Health Inspector.
- (e) 51 - 100 As in (d), seek specialist advice and if possible consider routine disinfection or advise people to boil their drinking water.
- (f) 100+ As in (e), if contamination persistent at this level and where routine disinfection not feasible, consider alternative supply.

As part of the new seven-year PHICS Project the above standards will be officially adopted by the MOWS as temporary guidelines for new and existing rural water systems. The WHO guidelines will remain the ideal and ultimate goal, but the criteria outlined above will provide the basis for decisions regarding the addition of water treatment and the selection of new catchments for future development.

C.3 Information Systems

The Rural Water Section of MOWS has an extremely antiquated system of acquiring, recording, storing, and retrieving information on the rural water program. Information on individual water schemes, which includes memos, correspondence, design calculation, and maps, are stored in sequential order in traditional paper file folders. Additional data in the form of monitoring and maintenance reports from the field are also collected and stored in a variety of locations at headquarters. There is no technical library of either reference documents or reports dealing with program activities. When specific information is needed, the appropriate file must be requested from the registry office. All too often, however, a particular report or field study cannot be located quickly and decisions must be made on the basis of personal recollections. Because overall program information is not readily available, the MOWS does not prepare any annual reports or progress summaries on the rural water program. The current system of information management has not been a major impediment to the progress of the rural water program only because the senior staff at headquarters is knowledgeable in all aspects of program activities and usually can respond to information needs on the basis of personal experiences.

The continued expansion of the water program and the growing complexity of systems will soon require a more formal and streamlined system of information management. The objectives of any new system should be (1) to provide systematic procedures for the collection, storage, and retrieval of information on the overall program as well as individual schemes, (2) to establish a library for reference materials and reports, and (3) to produce periodic reports on program status and progress. Many of the procedures meeting these objectives can be computerized. The microcomputer procured for computer-assisted design (Section C.4) could also be used in an information management system.

To investigate the feasibility of establishing new information management procedures, the MOWS will carry out a study of program needs during the first year of the new project (1989/90). USAID will provide an information systems expert who will spend approximately two to three weeks in Malawi to recommend appropriate procedures. The cost of the consultancy will be around \$15,000.

C.4 Computer-Assisted Design

The present shortage of engineering staff in the Rural Water Section of the MOWS and the future demands for increased attention to planning, design, construction supervision, and maintenance management point out the need to improve and speed up the process of project design and cost estimation. Current methods for pipeline design involve laborious trial-and-error calculations involving hydraulic gradients, pipe friction factors, and pipe flow formulae. For large schemes, these calculations often take two days or more. New computer-assisted procedures, however, can reduce the time needed for preliminary designs and cost estimates to a matter of hours and, thus, provide opportunities for investigating a wider range of design layouts.

During the new seven-year program, the MOWS will institute computer-assisted design procedures within the Rural Water Section. This will involve the procurement of a microcomputer and appropriate software and the establishment of a training program for project designers. The World Bank has developed a computer-based design package for pipelines and water distribution systems termed Microcomputer Programs for Improved Planning and Design of Water Supply and Waste Disposal Systems (1985). The package is complete with instruction manuals and program disks for IBM-compatible computers. In early 1986, a World Bank consultant gave a one-week training course to MOWS staff on various applications of the World Bank package. The response of the staff was enthusiastic but, because the course was too short and a computer was not readily available for use afterwards, computer-assisted design procedures did not become established in the MOWS.

The costs of establishing computerized design methods are modest. The software package is freely available from the World Bank and the MOWS already has two copies. An IBM-compatible computer with the necessary

peripheral equipment can be provided for \$15,000 and a two to three-week training course by two outside consultants would cost approximately \$25,000. All costs for equipment and training will be borne by USAID.

C.5 Applied Studies

There are a number of applied studies needed to insure adequate performance of the project and the achievement of expected project outcomes. One study, a manpower needs assessment, affects both the MOWS and MOH, while the others are limited to activities of a single ministry. In several studies, outside technical assistance will be required, but in others local resources should be sufficient. The following list describes each study, identifies the ministries involved, recommends a suitable timetable, and gives estimated costs, where appropriate.

(a) Manpower Needs Assessment

A manpower needs assessment is urgently needed in both the Rural Water Section of the MOWS and the HESP program of the MOH. Both ministries have personnel limitations that seriously endanger the success of the PHICS Project. In the MOWS, there is a crucial shortage of engineers capable of designing and constructing new water schemes. At the same time, it is not completely known whether the field staff is capable of carrying out both construction of new schemes and monitoring and maintenance of existing schemes. In the MOH, on the other hand, the expansion of HESP activities to all piped water schemes in the country will require an enormous growth in HESP personnel at all levels.

To ensure that staffing is capable of carrying out the ambitious goals of the PHICS Project, both ministries, as well as USAID, need to have a specific, project-oriented assessment of their current and projected personnel levels, capabilities, and likely performance. This assessment should be done as soon as possible, preferably in the first year of the project (1989/90). Both the RWS and HESP staffing needs should be investigated and recommendations made for any necessary modifications in proposed project staffing. It is estimated that two external consultants spending one month in Malawi could prepare this assessment at a cost of \$40,000.

(b) Willingness to Pay for Maintenance of Water Systems

As described in section C.1, a willingness-to-pay (WTP) study of operations and maintenance of rural piped water systems is essential for the long-term sustainability of the schemes. A contingent valuation procedure, initially developed by the WASH Project and now being extensively utilized by the World Bank, can be employed in village surveys to determine how water users value their system and the extent to which they would financially support it. The results of this study will be used to develop long-term maintenance programs for all piped water

schemes in Malawi. USAID/Tanzania is planning to carry out a WIP study on the maintenance of UNICEF-financed rural water schemes in Tanzania in late 1988.

For the PHICS Project, a WTP study of maintenance is high priority and should be carried out during the first year (1988/89). Based on WASH Project experience, an appropriate WTP study would require two external investigators, a collaborating local institution (possibly the Centre for Social Research), and approximately \$50,000. The duration of the study, including initial reconnaissance, questionnaire design, field interviews, and data analysis, will require about six months.

(c) Low Cost Water Treatment Methods

Since its origins in 1968, the Malawi rural piped water program has been based on the delivery of low-cost, untreated water to rural communities. Water intakes have been built in mountainous streams surrounded by protected forest catchments. This has minimized the effects of pollution arising from human settlements and cultivation. In recent years, however, the need for water treatment in certain project areas has become apparent. Slow sand filters have been recently constructed at the Dombole project (financed by Canadian CIDA) in Ntcheu District and at the Mwanza project (financed by USAID) in Chikwawa District. Preliminary results from these schemes indicate that slow sand filters reduce faecal coliform counts by about one-half, but may promote the growth of other bacterial organisms. More long-term monitoring and applied research on these filters is necessary before their general applicability to Malawian conditions can be accepted.

As the rural piped water program expands, it will include an increasing number of new catchment areas with marginal water quality. The best sites, i.e., those having well protected catchments and good intake locations, have already been developed, and future schemes at times will be required to include catchment areas containing some human settlements and cultivated areas. A survey of 19 potential new catchment areas conducted by the MOWS in November and December 1986 showed that most had relatively high faecal coliform counts (between 100FC/100ml and 400FC/100ml) and several had high turbidity loads (between 20 NTU and 80 NTU). If the waters from these new catchments are to match the quality levels of existing schemes, new methods of catchment protection and water treatment will have to be developed by the MOWS.

Some methods are relatively simple and low-cost, while others are more complicated and expensive. For example, the assistance of the Forest Department can be enlisted in removing illegal habitations and cultivation from officially-designated forest reserves. Moreover, the construction of a water system tends to lower the bacterial count in the water as it moves through pipelines and is held temporarily in storage tanks. Both actions -- improving the catchment and building the system -- usually result in improved water quality to the consumer. Other

relatively simple actions could be taken, including the redesign of storage tanks to serve as sedimentation tanks during the rainy season when stream flows, bacterial counts, and sediment loads are all high. Simple disinfection with chlorine tablets or powder at the main storage tank is another low-cost approach to improving water quality.

None of the above methods need involve expensive equipment or highly-trained operators. Where such simple approaches are inadequate, the MOWS can consider installing slow sand filters. However, slow sand filters are relatively costly, about K46,000 for materials at current (1987) prices and, if the turbidity level in the incoming water exceeds 20 NTU, may require pre-treatment by roughing filters, which cost an additional K46,000.

It must be remembered that the purpose of water treatment in a rural program should not be to produce urban-level water quality meeting WHO standards but to improve the quality of water such that it is adequate and reasonably safe for the rural populations using it. The measure of adequacy in Malawi will be the temporary water quality guidelines contained in the National Water Resources Master Plan (1986) and described earlier in Section C.2. It will be the responsibility of the MOWS to interpret these guidelines and to develop appropriate methods of water treatment for rural schemes with water quality problems.

Low cost water treatment studies, therefore, will be undertaken by the MOWS through the Rural Water Section and the Central Water Laboratory. The emphasis will be on simple, inexpensive techniques designed to improve the quality of the water sufficiently to meet the new rural standards (see Section C.2). All work will be done by ministry personnel. A small budget of \$10,000 will be provided by the project for this purpose.

(d) Reliability of systems

Because the sustainability of the rural piped water program depends greatly upon routine, but continuous, maintenance services by the communities themselves, it is essential for the MOWS to closely monitor the operations of the completed water systems to ensure that a proper mix of routine maintenance by the communities and major maintenance by the RWS are being provided. There will be need for a continual compilation of monitoring data at RWS headquarters in order to track both the overall performance of water schemes and the reliability of individual water taps.

In the past, the RWS assigned responsibility for system reliability studies to a Peace Corps Volunteer. Studies carried out on selected schemes in 1984-85 showed that, with the exception of a few serious pipeline washouts, which required major reconstruction efforts, the reliability of individual water taps throughout the country averaged better than 98 percent. This means that on average each tap was delivering water at least 98 out of 100 days. The purpose of reliability studies, therefore, is to determine operational efficiencies and to identify schemes with operational difficulties or inadequate maintenance.

No major additional resources are needed to establish systems reliability studies as an on-going activity within the RWS. Monthly monitoring data currently is routinely collected from all water schemes. The RWS needs to ensure that the data are properly compiled and analysed and the results used to manage the maintenance program. In time, up-to-date reliability records should be developed for all water systems. One of the technicians at headquarters will be responsible for this task. The project will provide \$10,000 to cover miscellaneous costs of data storage and report production.

(e) Low Cost Latrine Development

The MOH wants to establish a sanitary research unit to support field activities with the HESP program. This unit will not be a formal office within the ministry but rather an informal concentration of applied sanitation studies carried out by the Environmental Health Unit. The most important need is for further study and development of low cost latrines suitable for different areas of the country. The MOH has decided to adopt the San-plat latrine within the HESP program, but there may be situations where V.P or other types of latrines may be more appropriate. For this purpose, the MOH will require funds for tools, materials, and supplies to be used by HESP personnel at headquarters and, possibly, regional centers. Total project contribution to the sanitary research unit will be \$16,000.

D. Management and Administration

D.1. Program Coordinating Committee

Coordination between the MOWS and MOH in the current USAID-financed water program has operated on an informal basis since program inception in 1981. While the coordination to date between the two ministries has been reasonably good, it could be better, and the new PHICS Project will need closer and more formal cooperation between the ministries if HESP objectives are to be realized. Both the mid-term and final evaluations of the current water program called for closer collaboration in the areas of finance and field operations.

To achieve this, the new program will have a Program Coordinating Committee composed of representatives of the MOWS, MOH, and USAID. This committee will meet regularly (at least once per quarter) to review current activities, to identify and resolve mutual problems, and to coordinate future work programs. The membership of the committee will be left for the GOM to decide, although it is recommended that the committee include representatives from the Rural Water Section of the MOWS and HESP program of the MOH. The selection of members should be based on their ability to contribute to interministerial problem-solving in the new project. It is believed that the formal channel of communication represented by this committee will help to strengthen the existing information channels between the two ministries.

D.2 Annual Reviews

There is need for a periodic review of program status showing activities underway, progress since the last review, and overall status since the beginning of the program. Both the MOWS and the MOH will prepare a brief annual review of their activities and submit it to USAID along with the Annual Work Plan. The annual review should consist primarily of easy-to-measure statistical indices so as not to burden unduly either ministry with reporting requirements. Such reviews will serve as a rapid measure of program progress and will provide valuable input to subsequent mid-term and final program evaluations.

The following indices are suggested for these reviews:

(1) Annual Review of MOWS Activities:

New Water Projects Started: _____

Old Projects Under Construction: _____

Projects Completed: _____

| <u>Program Expenditure*</u> | <u>Expenditure During Year (K)</u> | <u>Expenditure Cumulative to Date (K)</u> |
|-----------------------------|------------------------------------|---|
| Construction Program | | |
| - Commodities | x | x |
| - Salaries | x | x |
| - Vehicles & Equipment | x | x |
| - Tools & Misc. | x | x |
| - Operating Costs | x | x |
| Maintenance Program | x | x |
| Water Quality Monitoring | x | x |

* Note: USAID terminology for budget items differs slightly from that used by the GOM. The following USAID and MOWS terms have equivalent meaning:

| <u>USAID TERM</u> | = | <u>MOWS TERM</u> |
|--------------------------|---|-------------------------|
| Commodities | = | 003 Water Supplies |
| Vehicles and Commodities | = | 006 Plant and Vehicles |
| Salaries | = | 008 Personal Emoluments |
| Operating Costs | = | 009 Running Expenses |
| Tools and Miscellaneous | = | 010 Special Expenditure |

| <u>Activity</u> | <u>During Year</u> | <u>Cumulative to Date</u> |
|------------------------------|--------------------|---------------------------|
| Kilometers of Trench | x | x |
| No. of Taps Installed | x | x |
| Population Served with Water | x | x |
| No. of Water Samples Tested | x | x |

No. of HQ Staff (describe): _____

No. of Field Staff (describe): _____

Briefly identify any problem issues (causes, consequences, etc.):

(1) Annual Review of MOWS Activities:

New HESP Project Areas Started: _____

Total HESP Project Areas: _____

New HESP Project Villages: _____

Total HESP Project Villages: _____

| <u>Program Expenditure</u> | <u>Expenditure During Year (K)</u> | <u>Expenditure Cumulative to Date (K)</u> |
|----------------------------|------------------------------------|---|
| Salaries | x | x |
| Vehicles & Equipment | x | x |
| Tools & Misc. | x | x |
| Operating Costs | x | x |
| Materials and Supplies | x | x |
| Training | x | x |
| Sanitary Research Unit | x | x |

| <u>Activity</u> | <u>During Year</u> | <u>Cumulative to Date</u> |
|--------------------------------|--------------------|---------------------------|
| No. of Washing Slabs Installed | x | x |
| No. of Latrines Constructed | x | x |
| Population Affected by HESP | x | x |
| No. of Water Samples Tested | x | x |

No. of HQ Staff (describe): _____

No. of Field Staff (describe): _____

Briefly identify any problem issues (causes, consequences, etc.):

D.3 Annual Work Plans

Annual work plans prepared by the MOWS and the MOH will be the primary source of information for USAID monitoring, review, and approval of GOM activities. The MOWS will submit an annual plan on its proposed water supply program, while the MOH will provide an annual plan of the proposed HESP program. As described in Section D.2, each ministry will also provide an annual review of current activities along with the annual work plan for the following year. The annual review and annual work plan should contain similar types of information in order to assist USAID in its monitoring function.

The following categories of information are suggested for the annual work plan:

1. Future year projections of items, expenditures, and activities contained in the annual review (see Section D.2).
2. Bar chart of major project activities.
3. Discussion of special events (studies, evaluations, program changes, etc.)
4. Discussion of potential problem areas.

D.4 USAID Program Evaluations

USAID will carry out mid-term and final evaluations of the water supply and HESP program activities supported by the project. The purpose of these evaluations will be to assess the functioning, or operation, of the water supply and HESP programs and the utilization of program outputs by project beneficiaries. The emphasis of the mid-term evaluation will be to determine progress towards program objectives as set out in the logframe and to recommend any necessary changes or remedial actions to be undertaken during the remaining life of the project. The final evaluation, on the other hand, will assess the extent of program achievements and will highlight issues and lessons of particular importance to future USAID programs for water, sanitation, and health. Both evaluations should be conducted by external experts, although it is suggested that MOWS and MOH personnel actively participate in the assessments in order to strengthen GOM capability to carry out its own evaluation exercises in the future.

It is recommended that mid-term and final evaluations have similar formats and follow the model used in the mid-term and final evaluations of the current USAID-financed water program. This model highlights the sequential nature of linkages from initial project input to ultimate project outputs and impacts, as shown in Figure 3.

Each level of Figure 3 represents an order of effects that are dependent upon all previous effects. The initial efficiency level consists of the immediate or direct consequences of project development, which include all project inputs, operations, and physical outputs under the control of project officials. These consequences can generally be assessed in straightforward physical units.

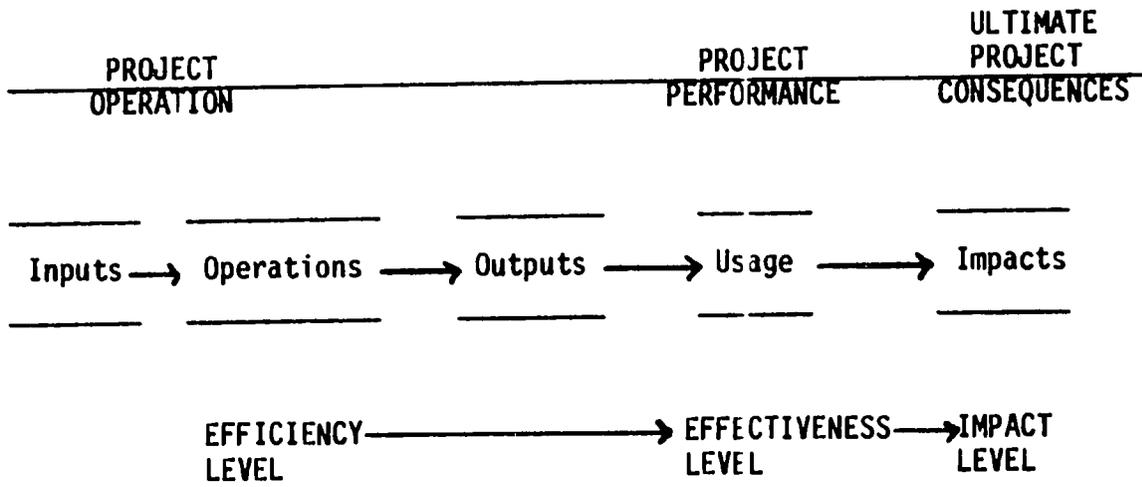


Figure 3. General Evaluation for Water and Sanitation Projects.

The secondary effectiveness level involves the more complex consequences of project performance, or the use of project systems. This includes the water use and sanitation practices adopted by the project communities as well as the types of health education and maintenance support the communities give to the new systems. Project officials cannot directly control these consequences. They can only hope to favorably influence the behavioral patterns in the recipient communities. Similarly, because of the difficulties in measuring behavior, surrogate, or indicator measures, often must be employed.

The third evaluation model can be used to classify program assessments into the following five areas:

1. Program inputs by USAID, MOWS, MOH, and the local community.
2. Strengthening of institutions involved in the program.
3. Program outputs of community water supply and sanitation schemes.
4. Community utilization of water and sanitation systems.
5. Program impacts (health, economic, social, environmental).

Figure 4 is an expanded view of the evaluation model adopted for the PHICS Project. Primary emphasis should be placed on evaluating the efficiency and effectiveness levels, or program operations and program performance. Because these evaluations are intended to provide operational guidance, rather than fundamental research insights, only minor assessment efforts are needed on program impacts. This level, therefore, can be best assessed in terms of general qualitative descriptions or on the basis of any special field studies that may be carried out over the course of the program.

| Program Operation | | | Program Performance | Program Impacts |
|-----------------------|----------------------------------|------------------------|--------------------------------|-----------------|
| <u>Project Inputs</u> | <u>Institutional Development</u> | <u>Project Outputs</u> | | |
| By USAID | Project Development | Construction | Household Water Use | Health |
| | Water Systems Maintenance | | | |
| | Staffing and Training | | | |
| By GOM | Water Quality Monitoring | | Household Sanitation Practices | Economic |
| | Community Support | | | |
| | Information Systems | | | |
| | Monitoring Systems | Operational Status | | |
| By Local Communities | Research Activities | | Community Support | Social |
| | Interministerial Coordination | | | |
| | Transport | | | |
| | Efficiency Level | | Effectiveness Level | Impact Level |

Figure 4. Evaluation Model for Water Supply, Sanitation, and Hygiene Education Component of PHICS.

The following is a summary outline of the key program aspects recommended for the mid-term and final evaluations:

1. Program Operations: Inputs
 - 1.1 USAID Inputs
 - 1.1.1 Construction Program
 - 1.1.2 Maintenance Program
 - 1.1.3 Information Resources Program
 - 1.1.4 HESP Program
 - 1.2 GOM Inputs
 - 1.2.1 MOWS
 - 1.2.2 MOH
 - 1.3 Community Inputs
 - 1.4 Other Inputs

2. Program Operation: Institutional Development
 - 2.1 Program Development Activities of the MOWS
 - 2.1.1 Water Systems Planning
 - 2.1.2 Water Systems Design
 - 2.1.3 Water Systems Procurement
 - 2.1.4 Water Systems Construction
 - 2.1.5 Promotion of Water Project Committees
 - 2.2 Program Development Activities: MOH
 - 2.2.1 Hygiene Education
 - 2.2.2 Pit Latrines
 - 2.2.3 Washing Slabs
 - 2.2.4 Promotion of Village Health Committees
 - 2.3 Water Systems Maintenance
 - 2.3.1 Routine Operations and Maintenance
 - 2.3.2 Major Maintenance
 - 2.3.3 Financing of Maintenance Costs
 - 2.4 Staffing
 - 2.4.1 MOWS
 - 2.4.2 MOH
 - 2.5 Training
 - 2.5.1 In-Service Training: MOWS
 - 2.5.2 Off-Shore Training: MOWS
 - 2.5.3 In-Service Training: MOH
 - 2.5.4 Off-Shore Training: MOH
 - 2.6 Water Quality Monitoring
 - 2.6.1 Organization of Monitoring Operations
 - 2.6.2 Monitoring Coverage
 - 2.7 Community Support
 - 2.7.1 Status of Committees
 - 2.7.2 Institutional Linkages of Committees
 - 2.8 Information Systems
 - 2.8.1 MOWS
 - 2.8.2 MOH
 - 2.9 Monitoring Activities
 - 2.9.1 MOWS
 - 2.9.2 MOH
 - 2.10 Research and Special Studies
 - 2.10.1 Engineering and Technical Studies
 - 2.10.2 Social and Health Studies

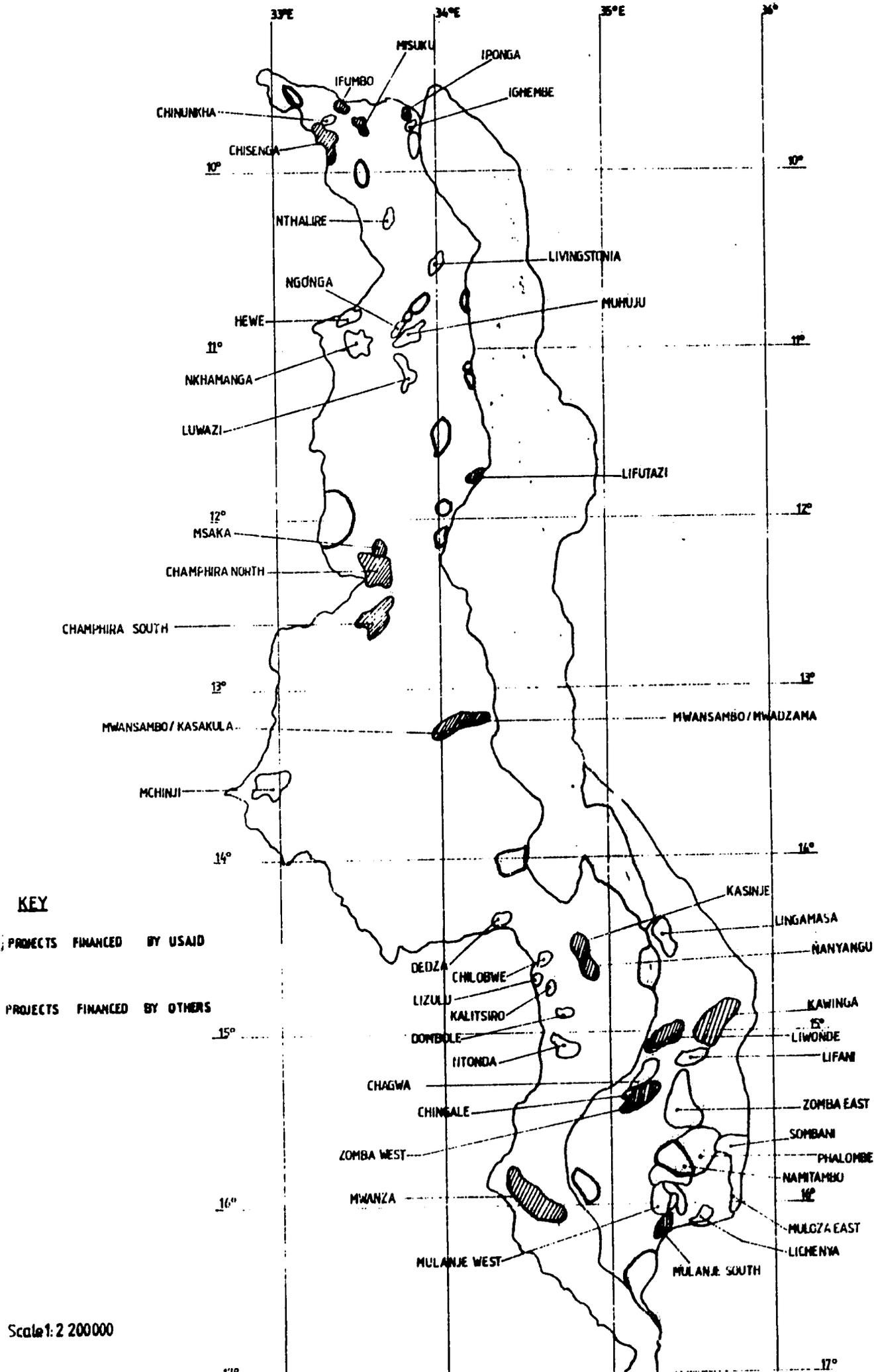
- 2.11 Interministerial Coordination
 - 2.11.1 Program Coordinating Committee
 - 2.11.2 Project-level Coordination

- 3. Program Operation: Status of Schemes
 - 3.1 Construction Status
 - 3.1.1 Water Systems
 - 3.1.2 Pit Latrines
 - 3.1.3 Washing Slabs
 - 3.2 Operational Status
 - 3.2.1 Water Quantity
 - 3.2.2 Water Quality
 - 3.2.3 System Reliability
 - 3.2.4 System Accessibility
 - 3.2.5 System Sanitation

- 4. Program Utilization
 - 4.1 Household Water Use
 - 4.1.1 Sources and Uses of Household Water
 - 4.1.2 Water Consumption
 - 4.2 Household Sanitation Practices
 - 4.2.1. Water-Related Uses
 - 4.2.2 Latrine Usage
 - 4.3 Community Support Practices
 - 4.3.1 Enforcement of Water Use and Sanitation Practices
 - 4.3.2 Community Input During Construction
 - 4.3.3 Community Input for Maintenance

- 5. Program Impacts
 - 5.1 Health Impacts
 - 5.1.1 Diarrheal Disease
 - 5.1.2 Effects on Other Diseases
 - 5.2 Economic Impacts
 - 5.2.1 Time Savings
 - 5.2.2 Other Productive Outputs
 - 5.3 Social Impacts
 - 5.3.1 Experience in Project Development
 - 5.3.2 Effect of Cooperative Activities
 - 5.3.3 Involvement of Women
 - 5.4 Environmental Impacts
 - 5.4.1 Effects of Changes in Water and Land Use
 - 5.4.2 Wastewater Disposal

EXISTING RURAL PIPED WATER PROJECTS



Scale 1:2 200000

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ATTACHMENT 1

Research Carried Out Under CCCD

Line list, operational research projects, epidemiologic investigations, surveillance (HIS) and CCCD program support activities underway or completed in Malawi, 1986, and projects proposed for 1987 - 1988: principal investigator's name appears first in brackets, names of co-investigators follow: Field Epidemiologist/ESR

DIARRHEAL DISEASES

| Project Title | Description of Study | Results |
|---|--|--|
| Record Review, Children with Diarrheal Diseases, Kamuzu Central Hospital, Lilongwe (Heymann/Mbvundula/Macheso) | Pediatric charts with one of the discharge diagnoses as diarrhea from period July 1980 to July 1986 were reviewed and detailed information recorded about age of children, mortality rates, i.v. and ORS use, and days of hospitalization | Intravenous fluid use for children with diarrhea decreased by 62%, ORS use as only treatment for mild/moderate dehydration increased by 73% and i.v. fluid use for mild/moderate dehydration decreased by 80%; case fatality rate increased to 15% and the percentage of children with severe dehydration increased; 60% of children admitted to hospital were less than 1 year of age |
| National Job Performance Survey (Voigt/Jere) | Survey to observe and record health facility practices after CCCD training in CDD and Malaria Control | Of 120 children with diarrhea, 24% were correctly evaluated for dehydration and 70% given ORS, 4% in the correct amount |
| Practices Prior to Arrival at Outpatient Facility, Mothers of Children with Diarrheal Disease (Heymann/Ndala) | Sentinel surveillance set up at 12 outpatient facilities throughout Malawi to monitor home treatment practices for the current episode of diarrheal disease among children under five | Among 19,130 children with diarrhea during the first 12 months of surveillance, 40% were treated at home with SSS, 17% with other home fluid and 60% of children breastfeeding continued to be fed by breast; 54% of children were less than 12 months of age and 72% had mild dehydration, 25% had moderate dehydration |
| Na Concentration of SSS Mixed in Outpatient Facilities (Kalilani/Heymann) | Two hundred seventy one women, surveyed in each of the three regions, were asked if they had previously mixed and used SSS, provided with sugar/salt, and asked to mix | One hundred thirty eight (51%) stated that they had previously used SSS at home and 20% of all women mixed a solution with Na concentration between 80 and 110 MEQ/L while 50% mixed solutions with Na concentration over 110 MEQ/L |
| Impact of Outpatient ORT Activities on Pediatric Admissions for Diarrhea, Kamuzu Central Hospital, Lilongwe (Heymann/Mbvundula/Macheso) | Pediatric charts with one of the discharge diagnoses as diarrhea from period July 1980 to July 1986 were reviewed to count the number of diarrhea admissions prior to July 1984 when outpatient ORT activities began, and from July 1984 - July 1986 | During the period July 1984 - July 1986 there was a 50% reduction in the percentage of pediatric admissions with diarrhea as one of the discharge diagnoses |

| Project Title | Description of Study | Results |
|--|---|---------|
| Practices and Community Level Distribution of ORS, Salima District (Allen/Heymann/Mbvundula/Namanja) | Protocol presently being developed to evaluate community practices and TBA/village level volunteer ability to mix and prescribe ORS from packets, their acceptance by the community, and the cost of such a village level distribution system | Pending |
| Use of Dilute Maize Porridge as Rehydration Fluid at the Household for use in Preventing Dehydration (Heymann/Waldman/Mbvundula) | Protocol presently being developed to evaluate household use of traditional porridge diluted for use to prevent dehydration | Pending |
| Evaluation of Water and Sanitation Project in Malawi (Nyasulu) | Regionally funded operational research project longitudinally examining children under five living in an area with improved (gravity) water supply compared to matched group living in an area with traditional water supply; indices examined include episodes of diarrhea per month, mortality rates and growth | Pending |
| EPI DISEASES | | |
| Serologic Monitoring of the Measles Component of the Malawi Expanded Programme on Immunization (Heymann/Chikakuda/Pointer) | Protocol, presently awaiting review in ministry of health, to confirm diagnosis of measles among children <12 months of age through acute and convalescent serum and to examine 420 children (20 at each age from 4 to 10 months of age) for measles antibody in each of the three regions | Pending |

| Project Title | Description of Study | Results |
|---|---|---|
| Record Review, Children with Measles, Kamuzu Central Hospital, Lilongwe (Heymann/Macheso) | Pediatric charts with one of the discharge diagnoses as measles from period January 1980 to January 1987 currently being reviewed and detailed information about age of patients, mortality rate, days of hospitalization and management being collected | Pending |
| House to House Lameness Survey to Establish Annual Incidence of Paralytic Poliomyelitis (Pointer/Chikakuda/Heymann) | Standard protocol for house to house lameness survey being developed and will be implemented in 1987 pending clearance by ministry of health; follows same sampling method as survey in 1976 which established incidence of 31.1 per 100,000 children under five years of age | Pending |
| Neonatal Tetanus Survey (Pointer/Chikakuda/Heymann) | Standard protocol for 30 cluster neonatal tetanus survey being developed and will be implemented in 1988 pending clearance of ministry of health; follows same sampling method as survey in 1983 which established incidence of 12 per 1,000 live births | Pending |
| MALARIA | | |
| Practices Prior to Arrival at Outpatient Facility, Mothers of Children with Fever/Malaria (Heymann/Ndala) | Senitnel surveillance set up at 12 outpatient facilities throughout Malawi to monitor home treatment practices for the current episode of fever/malaria among children under five | Among 63,116 children with fever/malaria during the first 12 months of surveillance, 15% were treated at home with chloroquine and 18% were treated with an antipyretic; 44% of children with fever/malaria were under 12 months of age |

| Project Title | Description of Study | Results |
|---|---|---|
| Practices for recent (2 week) episode of fever/malaria and prevalence of malaria parasites among children under five, Salima District (Heymann/Khoromana/Macheso/Allen) | Preliminary investigations for a proposed community intervention study at Salima District to determine home practices for fever/malaria and parasite prevalence; mothers of 526 children were interviewed and thick smears/blood for chloroquine levels drawn from children by finger stick | Three hundred thirty five (64%) of children had recent (2 week) fever to give annual incidence of fever/malaria of 16.6 episodes/child/year; 4% were treated with chloroquine, 44% with anti-pyretic and 70% taken to a health worker; 39% of the 526 children had P. falciparum parasites on thick smear |
| Health Facility Practices for Fever/Malaria (Heymann/Khoromana/Macheso/Allen/Wirima) | Preliminary investigations as described above to determine health facility practices, from history of mother, for child with recent (2 week) history of fever/malaria; 234 children treated at health facility | One hundred thirty nine (59%) were treated with chloroquine and 38% with aspirin; number of chloroquine tablets given for age was calculated |
| Training of TBA's and Shopkeepers in dispensing chloroquine at the village level in correct dose for age (Allen/Namanja/Heymann/Wirima) | Preliminary investigations as described above to determine whether TBA's and shopkeepers can reliably provide chloroquine to children under five at village level, and to determine utilization and cost of chloroquine distributed through such a primary health care distribution system | Training materials developed and field tested; 27 TBA's and 11 shopkeepers trained; preliminary usage figures suggest that up to 1,000 tablets will be used per village of 100 - 300 inhabitants per month |
| National Job Performance Survey (Voigt/Jere) | Survey to observe and record health facility practices after CCCD training in COD and Malaria Control | Of 204 children with fever/malaria, 59% were correctly evaluated and 90% given chloroquine, 20% in the correct dose |
| Repeat Chloroquine Resistance Testing at one of the Original Sentinel Sites (Khoromana/Heymann/Wirima) | 53 children under the age of five years were studied for resistance to chloroquine in a dose of 25 mg/kg by seven day in-vivo testing at Karonga sentinel site in December 1995, 35 months after 1994 testing | Thirteen (21%) of the children failed to have at minimum a 75% decrease in parasite density on O2 as compared to 11% in 1994; 56% had parasites present on O7 as compared to 58% in 1994; GMPD on O7 was 428 in 1995, 856 in 1994 |

| Project Title | Description of Study | Results |
|--|---|--|
| Clinical Response to Chloroquine in a dose of 25 mg/kg compared to Fansidar in a dose of 25 mg sulfa/kg (Pappaioanou/Heymann/Macheso/Kirima/Khoromana) | One hundred seventeen children with axillary temperature ≥ 37.5 degrees or with history of fever within the preceding 48 hours were treated with chloroquine and compared to 40 children with fever or history of fever within the preceding 48 hours who were treated with Fansidar | Seventy-seven percent of children treated with chloroquine were afebrile on D7 as compared to 90% treated with Fansidar; on D14, 80% of chloroquine group and 85% of Fansidar group were afebrile |
| Clinical and Parasitic Response to Quinine (Kirima/Khoromana/Heymann) | Thirty seven children with <i>P. falciparum</i> infection (GMPD = 28,625) were observed for parasite and fever clearance times after treatment with quinine in a dose of 10 mg/kg every 8 hours | Median time to parasite clearance was 60 hours (range 12-132) and for fever clearance was 36 hours (range 12-108) |
| Parasitemia among Children with Signs/Symptoms Recognized as Malaria by Clinical Officer (Macheso/Heymann) | One hundred twenty two children under five who were diagnosed clinically as malaria had a thick smear taken and were examined for six different clinical parameters prior to treatment with chloroquine | Thirty eight percent of the children had parasites present; 39% of those with fever and 39% of those classed as "ill-looking" were parasitemic; 61% of those with fever and 61% of those who were "ill-looking" were not parasitemic; cost of chloroquine wastage being calculated |
| Record Review, Children with Malaria, Kamuzu Central Hospital, Lilongwe (Heymann/Macheso) | Pediatric charts with one of the discharge diagnoses as malaria from period January 1980 to January 1987 currently being reviewed and detailed information about age of patients, mortality rate, days of hospitalization, type of malaria and management being collected | Pending |

| Project Title | Description of Study | Results |
|---|--|--|
| Compliance to the Antenatal Chemoprophylaxis Programme (Heymann/Wirima) | Thick smears were taken from 171 women attending antenatal clinic for the first time and from 298 return attendees; in addition, 91 return attendees were questioned about chloroquine use during the interval between clinic visits and were asked to provide a blood specimen for chloroquine levels | Parasite prevalence among return attendees was not significantly different from prevalence among first attendees, and decreased with increasing parity; among those who said they had taken prophylaxis during the preceding seven days, 29% had compatible whole blood levels of chloroquine and desethylchloroquine |
| Compliance to Antenatal Chemoprophylaxis Programme (Heymann/Steketee/Wirima) | Continuation of above study using dimethyl orange/urine testing to evaluate chloroquine intake; 73 first attendees and 284 return attendees evaluated to date | Eighteen percent of first attendees and 37% of return attendees had chloroquine metabolites in urine compatible with ingestion of chloroquine during the preceding seven days; 35% of those who stated they had taken chloroquine had compatible urine metabolites |
| Focus Groups to Determine Uses of Chloroquine Provided to Pregnant Women in Antenatal Clinics (Heymann/Allen/Macheso) | Return attendees to antenatal clinics divided into small groups, those with chloroquine metabolites in their urine, those without; through focus group methods an attempt will be made to determine reasons for not taking prophylaxis and uses made of the chloroquine not taken | Pending |
| Chloroquine, Amodiaquine and Fansidar Resistance among Pregnant Women (Steketee/Wirima/Heymann) | Preliminary to larger study designed to evaluate impact of various prophylaxis schemes on birthweight; 14 day in-vivo testing of 33 women treated with chloroquine 25 mg/kg, 24 women treated with amodiaquine 25 mg/kg and 38 with Fansidar 25 mg sulfa/kg | On D7, 21% had chloroquine resistant parasites, 4% amodiaquine resistant parasites and none had Fansidar resistant parasites; on D14, 25% had chloroquine resistant parasites, 5% amodiaquine resistant parasites and none had Fansidar resistant parasites; resistance rates for pregnant women similar to rates for children 5 - 10 years of age (24%) |

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| Project Title | Description of Study | Results |
|--|---|--|
| Effectiveness of Chloroquine Prophylaxis in Keeping Blood of Pregnant Women and their Placentas Parasite Free (McDermott/Heymann/Machaso/Wirima) | Seventy three pregnant women given weekly chloroquine prophylaxis (5 mg/kg) in their homes under supervision with thick smear every other week and placental specimen at delivery | Sixteen percent of the women had chloroquine resistant parasites at time of enrollment; 18 (25%) had a parasite breakthrough in peripheral blood and 56% had evidence of placental infection compared to 92% control group (p=0.005, Fisher's Exact) |
| Signs/Symptoms Perceived as Malaria, Pregnant Women (McDermott/Heymann/Machaso/Wirima) | Results obtained in course of above study | Eighteen percent of 37 women with parasites had signs/symptoms they perceived as malaria; 25% of 8 women with perceived signs/symptoms of malaria had parasites |
| HIS | | |
| Malawi Epidemiology Training Course (Erwin/Heymann/Teasdale) | Seventeen epidemiology training modules, including 5 disease specific modules on malaria, measles, neonatal tetanus, polio and diarrheal diseases, developed/adapted for field testing and use by Malawi government for training of epidemiology assistants | Field testing pending |

The above is a document of the CCCD Project Malawi, compiled from Ministry of Health and CCCD Project Records for presentation at the 1987 CCCD Consultative Meetings. Submitted for Malawi Government Clearance on 13 March, 1987: not for quotation until ministry clearance has been received

ADM/14/21

15/1/88

**ESTABLISHMENT OF REVOLVING FUNDS FOR
PRIMARY HEALTH CARE ACTIVITIES**

As you are aware, Sir, one of the eight components of Primary Health Care (PHC) is treatment of common diseases at Community level. The commonest diseases in the country, especially in children under five years of age, are malaria, diarrhoea, eye infections and pneumonia.

**APPROVED
E.C.I.B.
18/1/88**

2. Community-based treatment of malaria, diarrhoea, and eye infections with chloroquine, oral rehydration therapy, and eye ointments respectively, is carried out in some villages in the country through the Primary Health Care approach. One of the districts where this treatment is going on is Salima under the health component of the Salima Agricultural Development Division (SLADD).

3. The estimated cost of the three drugs from the Central Medical Stores in Blantyre is K20.00 per village per month. This amounts to approximately K15,000 per year for the SLAAD PHC project area alone. If this programme was to be expanded to other areas, there would be considerable cost implications.

4. At present SLADD pays for the drugs. The long term success of PHC activities will depend on a guaranteed regular supply of drugs. One of the fundamental principles of Primary Health Care are community involvement, and a spirit of self-reliance. In this context, the SLADD Public Health Doctor submitted a proposal to introduce a revolving fund for the village-based treatment as a pilot project for the Ministry's consideration.

5. Under the proposed scheme, the following charges would apply:

- chloroquine tablets: - 2t each
- tetracycline eye ointment - 20t per tube or 1t per treatment
- oral rehydration salt - 3t per litre or solution packet.

6. SLADD proposes to establish a simple accounting procedure appropriate for village use. Village health committees will supervise the correct handling of fees collected. Proceeds will go into replenishing stocks of drugs.

7. Under the proposed scheme, SLADD proposes to establish a revolving fund which would be used to produce more drugs for the community-based treatment, and in future for other PHC initiatives such as sanitation and shallow well protection.

8. Enrolment into the revolving fund will be voluntary when a person has malaria for instance, four options would be available:

- (a) to be treated at home under the proposed scheme and pay 2t per chloroquine tablet,

- (b) to walk some distance to a Ministry of health Health centre and receive free treatment,
- (c) to walk to a PHAM or district council health centre (if no Ministry of Health health centre is available nearby and pay for chloroquine, or
- (d) to purchase norolon for 13t per tablet at a nearby shop.

9. Sir, SLADD Public Health Doctor had preliminary discussions on the proposed scheme with community leaders in the PHC pilot project area in Salima. They gladly welcomed the idea as the area is currently medically underserved.

10. As the long term viability of the Primary Health Care approach depends on community self-financing schemes such as the one proposed, I recommend for your consideration and approval, Sir, that:

- (a) the principle of setting up voluntary community-based revolving funds should be accepted by the Government.
- (b) the proposed SLADD revolving fund pilot project should be allowed to start.

11. I should be most grateful for your directives on these two issues, Sir.

Dr. S.S. Kamvazina
SECRETARY FOR HEALTH

Attachment No. 2

ILLUSTRATIVE LIST OF RESEARCH TOPICS THAT
RESEARCH UNIT MIGHT CONSIDER FOR IHICS FUNDING

I. Mandated

- Health Care Finance (see description # 1)
- Health Services Utilization and Expenditure (see description # 2)
- Listenership Patterns, Diffusion of Information, and Health Education KAP (see description # 3)
- Service Delivery at the Community Level (baseline and process documentation) (see description # 4)

II. Possibilities

- Child spacing KAP
- Reasons for child spacing dropouts
- AIDS knowledge and sexual practices study
- Formative research on child survival/MCH interventions for HEU
- TBA survey to determine number, traditional practices and potential roles in community
- Health care KAP - problems, attitudes and behavior at the village level
- Health staff work patterns - determine personnel pattern (direct service vs. supportive activities, travel, non-productive) - break service component down (curative, preventive, communicable disease control, environmental sanitation)
- Cost analysis - curative vs. preventive vs. community service

- Malawian experience in community-based health programming - what works and why
- Reason for EPI dropouts: - what motivates mothers (EPI KAP)
- Feasibility of ARI diagnosis and treatment at the community level

Description No. 1

RESEARCH STUDIES ON HEALTH FINANCING

One study proposed in this domain would be a sector-survey type of study addressed to sources and uses of funds in the entire Malawi health-service sector, both public and private components. Such a study has already been proposed by the MOH to WHO for their funding (although it has not yet been taken up by them). This study would be conducted by the Planning Unit of the MOH and is intended as a follow on to a 1982 Health Financing Survey carried out by the MOH. This study would assemble cost information on the various programs and facilities comprising the health-services sector including PHC services. An important feature of this project would be to design and put in place a system for the continuous, ongoing collection of information. The information assembled in this way would be part of the information needed for meaningful cost-benefit and cost-effectiveness analysis of health program performance.

Another study in this domain would be addressed to issues in cost recovery in the public health-services sector. The cost information to be assembled by the Health Financing Survey (above) will be important from this point of view, particularly unit costs for services provided by the Central Hospitals. This study should include attention to ways to improve fee collection in the public sector (to this extent, it might be regarded as a follow up on a 1984 study by the MOH addressed to these issues). This study should also address issues in financing the demand for services marketed by providers in both the private and the public sectors -- e.g., out-of-pocket payments by consumers versus insurance/prepay arrangements, with an eye to devising strategies to promote insurance/prepay financing.

Description No. 2

HEALTH SERVICES UTILIZATION AND EXPENDITURE

At present there is a paucity of data regarding where/to whom the rural population goes when they become ill. While the public health facilities appear well utilized, little is known about the first course of treatment. In addition, we do not know anything about the utilization patterns (i.e., at what rate does utilization decrease for every kilometer farther from the health facility). There is little more than anecdotal information on the role played by the traditional healers in the rural society (i.e. for what illnesses do villagers most frequently consult the healers). More must also be known about the number and practices of the traditional birth attendants.

Equally important, data is required on what people spend on health care. In order to make policies on cost-recovery issues, it is essential that the decision makers know what people are spending on traditional healers, on the purchase of drugs, on transport to and from health facilities, and on private practitioners. The basic question is for what services are people willing and able to pay. A study of the utilization and expenditure patterns of the rural population will help in the development of a village-based service delivery program and guide in the formation of a cost-recovery policy and complement the service delivery component of the PHICS Project. Because of the nature of the data required, it is most appropriate that the research be carried out by someone with an anthropological background who is able to spend considerable time in the villages observing and interviewing the population.

Description No. 3

**LISTENERSHIP PATTERNS, DIFFUSION OF INFORMATION, AND
HEALTH EDUCATION KAP**

Research should be undertaken at the earliest practicable date on behalf of the Ministry of Education's Health Education Unit and the Malawi Broadcasting Corporation to measure and analyze listenership and establish baseline data for use in assessing impact of interventions arising from the PHICS Project. Areas of investigation should include:

1. Urban and rural listenership in each region by time of day and day of week.
2. Number of working radios.
3. Preferred listening times.
4. Favorite programs.
5. Access of women to radios.
6. An analysis of how messages from radio and other mass media are diffused through the community, i.e., links between mass media and interpersonal systems at the village level. (The key question is the extent to which interpersonal systems amplify or multiply the effects of the mass media).
7. Knowledge, attitudes and practices relating to selected health concerns.
8. Sources of health information ranked by importance.
9. Perceived creditability of each channel.

Results of the survey should be widely disseminated through a series of workshops involving health policy makers, health educators and other development information specialists. Later studies will also be required to measure change and assess impact.

Description No. 4

SERVICE DELIVERY AT THE COMMUNITY LEVEL

It is essential that the PHICS-supported delivery of integrated services (water, sanitation and CH) to the project villages be monitored to determine the cost-effectiveness of the strategy. The MOH's 10-Year Plan (1985-95) gives priority to the improvement of health status of the rural population. The PHICS Project provides the opportunity to develop and test the most practical efficient and effective delivery systems to achieve this objective.

The Research Unit of the MOH will be responsible for contracting the monitoring effort to an institution which has the capacity to carry out such an on-going study. The selected institution would receive the support as developed in the Annex on the Research, Monitoring, Evaluation, Planning Component (i.e., the two expatriate researchers for 3 years while two Malawians receive Masters abroad and equipment support) and short-term technical assistance as appropriate. With this technical assistance plus support from other sections of the Ministry and their respective technical advisers (i.e., Epidemiology Section, Planning Unit, HIS Section), the contracted institution will develop the monitoring design.

Project monitoring activities should compare a valid sample performance/impact over time in the project areas (i.e., all 69 old and new gravity-fed water sites) as well as compare status in the project sites to non-project or control areas. To determine the status prior to intervention, baseline data must be collected in the proposed project sites and in the control villages. Some of the important indicators that might be included are:

- retrospective infant/child mortality
- water/sanitation KAP

- MCH/child spacing KAP
- health care practices/utilization
- immunization coverage (of 1 year olds)
- CRT knowledge and use
- prevalence of malaria
- use and source of chloroquine
- vital statistics

After the baseline survey, data should be collected on a quarterly basis once intervention activities have been initiated. The PCVs who will be working with the DHOs will be able to assist in the data collection effort. In addition to the emphasis on impact, it is vital that the service delivery component be studied from a process perspective as well. Various approaches to community participation, cost recovery, etc. will be tried and the experience must be recorded so that the positive lessons can be learned and adopted more broadly. Process documentation or the observation and recording of the implementation effort, its constraints and problems, is also highly recommended. Some of the process issues to be addressed include:

- effectiveness of female supervisors (ENM) at the periphery
- effectiveness of female HSAs
- optimal ratio of HSA to population
- efficacy of volunteerism
- what incentives (non-monetary) might promote volunteer motivation
- potential of cost-recovery activities
- effectiveness of drug supply system at the community level
- efficacy of collecting vital statistics at community level
- effectiveness of involving traditional healers and TBAs at community level

1. ... (...) ... / 4/1/87

RESEARCH TOPICS

I. 1ST YEAR OF PHICS

1. Child spacing KAP
2. Reasons for child spacing dropouts
3. AIDS knowledge and sexual practices study
4. Formative research on child survival/MCH/interventions for HEU
5. TBA survey to determine number, traditional practices and potential roles in community
6. Health care KAP - problems, attitudes and behavior at the village level
7. Health staff work patterns - determine personnel pattern (direct service vs. supportive activities, travel, non-productive) - break service component down (curative, preventive, communicable disease control, environmental sanitation).

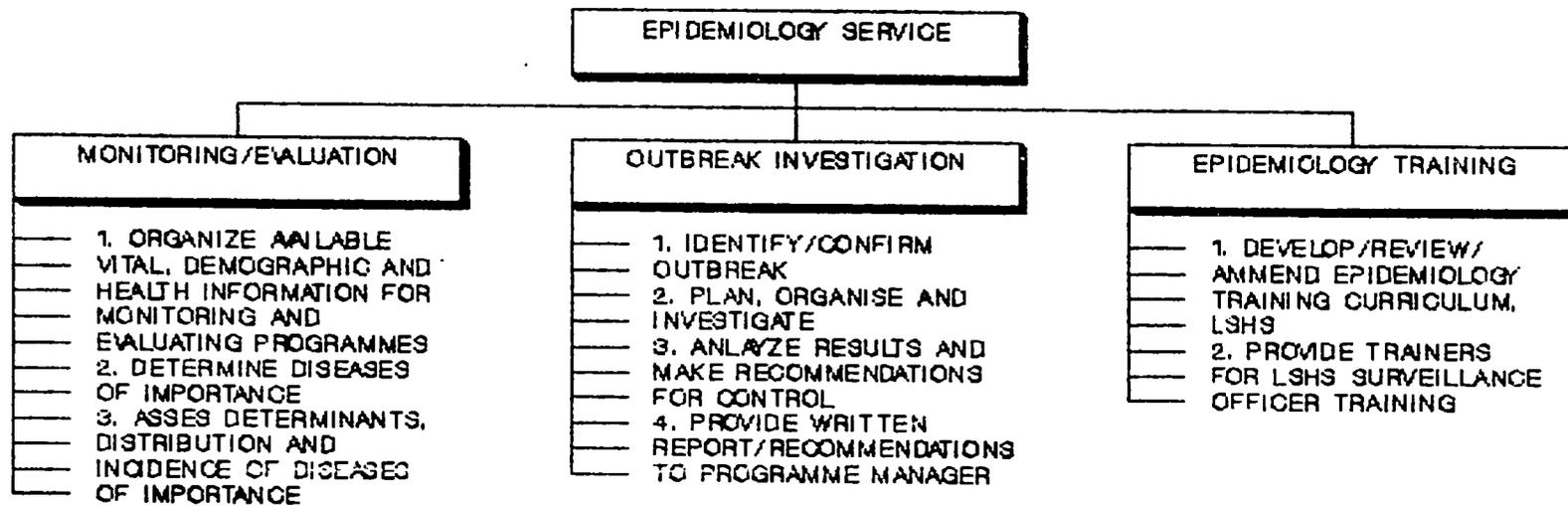
II LONG TERM TOPICS

1. Health Care Finance
2. Health Services Utilization and Expenditure
3. Listenership Patterns, Diffusion of Information, and Health Educator KAP
4. Service Delivery at the Community Level (baseline and process documentation)

N.E. These long term topics would require separate funding and would need to be done jointly with a US University.

ATTACHMENT 3

EPIDEMIOLOGY SERVICE PROPOSED ACTIVITIES



Attachment No. 4

JOB DESCRIPTION, EPIDEMIOLOGIST

In conjunction with Malawian counterpart(s):

assure development and management of an epidemiology service within the Ministry of Health;

assure planning, organization and implementation of surveillance of communicable diseases and preparation and distribution of appropriate reports of analyzed data;

conduct investigations of outbreaks and recommend control measures to Ministry control programs and/or field staff;

plan, implement, supervise, monitor and evaluate measures for the control and prevention of communicable diseases;

serve as research and technical adviser to the disease control committees on policy issues and design, plan and conduct epidemiologic and operational studies and surveys at the community level;

address non-communicable disease problems at the community level and make recommendations for their control using epidemiological methods;

institutionalize epidemiology training programs and assure training of Ministry epidemiology staff (see description which follows).

Attachment No. 5

LIST OF MODULES IN 9-MONTH EPIDEMIOLOGY
TRAINING COURSE

1. Facilitator's Guide.
2. Organization of Epidemiology Data.
3. Calculation of Rates and Ratios.
4. Calculation of the Middle Value of a Data Set.
5. Epidemiologic Surveillance.
6. Record Reviews and Surveys.
7. Outbreak Investigation: Disease Hypothesis and case Investigation.
8. Outbreak Investigation: Organization and Analysis of the Data.
9. Epidemiologic Exercise: Ophthalmia Neonatorum.
10. Epidemiologic Exercise: Ebola Virus Haemorrhagic Fever.
11. Planning and Supervision of Disease Control Programmes.
12. Surveillance and Outbreak Investigation for Diarrheal Diseases.
13. Development of a National Malaria Control Policy through In-View Resistance Testing.
14. Evaluating the Neonatal Tetanus Situation and Monitoring the Tetanus Control Programme.

PROPOSED TRAINING FOR SURVEILLANCE OFFICERS, LILONGWE SCHOOL FOR HEALTH SCIENCES

With the development of the Community Health Section in the Ministry of Health, a national epidemiology service is being developed which is responsible for:

- planning, organizing and implementing surveillance of communicable diseases and preparing and distributing appropriate reports of analyzed data
- conducting investigations of outbreaks and recommending control measures to control programs and/or field staff
- planning, implementing, supervising, monitoring and evaluating measures for the control and prevention of communicable diseases
- designing, planning and conducting epidemiologic and operational studies at the community level
- designing, planning and conducting surveys of health problems
- addressing non communicable disease problems at the community level and making recommendations for their control using epidemiological methods
- institutionalizing epidemiology training programs and assuring training of Ministry of Health epidemiology staff.

The epidemiology service will have a director, an assistant director and regional/district surveillance officers who will be responsible for collection the information required to fulfill the objectives of the service as shown in the following organogram.

Organogram, Epidemiology Service, Ministry Of Health

Director, National
Epidemiology Service

Assistant Director
National Epidemiology Service

Regional
Surveillance
Officer
(1)

Regional
Surveillance
Officer
(1)

Regional
Surveillance
Officer
(1)

District
Surveillance
Officer
(5)

District
Surveillance
Officer
(9)

District
Surveillance
Officer
(10)

EPIDEMIOLOGY TRAINING COURSE ADMINISTRATION

A. Course Planning Committee

1. Select and orient:
 - a. the course director,
 - b. the course instructors;
 - c. the students.
2. Select and equip the training sites.
3. Ensure financial arrangements and accommodations.
4. Familiarize regional offices and disease control programme staff with:
 - a. CHSU and the role of the epidemiology teams;
 - b. epidemiology course, including the field activities.
5. Assign students to regional offices as members of the regional team.
6. For the six-week disease-specific control programme sessions, specify the priority activities to be conducted and the methods to be used in:
 - a. surveillance;
 - b. case and outbreak investigation;
 - c. special studies to be done.

This information must be communicated in writing to the course director, the appropriate instructors and the students.
7. When the course date is established, assign the required completion dates of each remaining activity to be done (see List VII on page 39).

B. Course Director

1. Ensure that all instructors understand the purpose of the course and their contribution to it.
 - a. Conduct a meeting of all the instructors to review the course plan, the preparations and each individual's role.
 - b. Conduct planning and review sessions with the instructors at least every other day to continuously assess each student's progress and determine if any require special assistance.
 - c. Meet with the consultant instructors at least two days before the start of their session to review plans and preparations for their part and any necessary changes to the plan, and to begin to familiarize the instructor with the students and their accomplishments to date.
2. Organize the course introduction, in conjunction with the members of the course planning committee, to:
 - a. discuss the purpose of the course and its objectives;
 - b. review the course schedule and the training methods and training sites to be used;
 - c. introduce the course planning committee and course instructors present;
 - d. review the responsibilities of the course director, the instructors and the students;
 - e. introduce the students to each other and to the course faculty.
3. Ensure that all instructors have what they need to successfully carry out their responsibilities.
4. Be available at all times during the course to assist in solving problems which may arise.
5. Serve from time to time as a course instructor.
6. Make sure that all necessary arrangements are completed in advance for classroom and field training sites, students' materials, transport and lodging.

7. Identify and document, in a course director's log and on an extra set of training materials, issues which:
 - a. may need to be modified or managed differently in a subsequent course or field activity;
 - b. may be good topics for continuing education seminars with the teams in the year following completion of the course.
8. Review continuously during the planning phase the list of necessary preparations (page 39) to make sure they are completed on time, and record the completion date beside the appropriate item on the list. If problems appear, discuss them with members of the training committee during periodic updates.
9. Become familiar with all of the contents of the facilitator's guide and review all the training materials to be used.

C. Course Instructors

1. Be sure to understand the purpose of your individual session(s). It is very important for the integrity of the course that you review the materials provided by the course director, and plan and conduct, according to these materials, the sessions for which you are responsible.
2. Plan to arrive at the course site at least three days before your session starts to complete all arrangements, meet the students, and learn about student accomplishments.
3. Bring to the attention of the course director any difficulties in maintaining a good classroom environment.
4. Review the following comments about the first six weeks of the course and the subsequent five disease-specific control programme sessions, and use them as a basis for your sessions.

a. First six weeks:

Most of the instructional materials used are self-instructional, and provide skills in basic epidemiology. For each of the 12 modules used, the general plan calls for about one day to be allowed for each.

At the beginning of the day introduce the students to the topic (15-20 minutes) and allow them the next six hours to complete the module. Be available at all times to answer any questions the students may have; spend the last hour of the day reviewing the work with them and in group discussion of how to apply on the job the skills and knowledge they acquired from that module.

b. Five six-week disease-specific control programme sessions:

The five sessions are on the Malawi EPI, CDD, Malaria Control, Tuberculosis Control and Bilharzia Control programmes. Typically, the first week and a half of each six-week period will be spent familiarizing the students with the natural history and epidemiology of the

diseases in Malawi, the Malawi control programme for those diseases, and the selected methods (which will be provided by the course planning committee) for monitoring and evaluating the disease control programme.

The students should then divide into their respective regional teams and design a field study concerning the disease or programme (options here will also be provided by the course planning committee), go to the field and conduct the study (three weeks), and return to course site, organize and analyze the data and present a final report, with group critique (one week).

The teams' work on their field projects should be formally assessed, and a useful critique provided to them. As an instructor, you should provide to the course director your evaluation of each student.

On the following pages is a suggested outline for students of the field-study part of the session. You may need to adapt this to your particular session.

5. Since it is common practice in team work for the team to select a chairman and secretary, make sure that this is done and that these positions are rotated among the students. This valuable experience can then be shared by the students and you and the course director will be provided with an opportunity to assess each individual's potential as a future team leader.

GENERAL DESCRIPTION OF TRAINING

Students should work as a team both in the classroom and on the field projects. The field projects constitute a major part of the training; major steps of the field project are:

- a. designing the field study;
- b. ensuring the logistic arrangements and clearances to conduct the study;
- c. going on-site and conducting the study;
- d. organizing, analyzing and interpreting the study data;
- e. reporting findings and providing recommendations.

Each of these major steps is further outlined below. These are to be conducted in consultation with the instructors and the course director.

- a. Designing the field study:
 - 1) Define the study problem and the population to be studied.
 - 2) Determine the information needed and the analyses required.
 - 3) Select the study methods and techniques.
 - 4) Determine what specimens or samples may be necessary for laboratory or other examination.
 - 5) Design the summary forms and the case investigation forms.
 - 6) Design a method for confirming that the planned work is completely and accurately done.
 - 7) List the personnel, laboratory, transport, lodging and other support needed.
- b. Ensuring the logistic arrangements and clearances to conduct the study:
 - 1) Review, with the course instructor, your plan and the support needed.
 - 2) Schedule the various steps of the plan.
 - 3) Define team members' responsibilities.
 - 4) Confirm that all resources needed are in fact available for your use when needed (to be supplied by the CHSU).
 - 5) Complete the necessary clearances.

- c. Going on-site and conducting the study:
- 1) Go to the study site and make necessary preliminary arrangements.
 - 2) Collect the data and any necessary specimens.
 - 3) Make sure that all data forms are completely filled out and that specimens are properly labelled, stored and prepared for transportation to the laboratory.
 - 4) When done, debrief with the appropriate local and regional authorities.
 - 5) Return to the course site.
- d. Organizing, analyzing and interpreting the data:
- 1) Tabulate and graph the data.
 - 2) Perform any necessary calculations.
 - 3) Identify and describe any trends or other patterns seen in the data.
 - 4) Describe your findings and make appropriate recommendations.
- e. Reporting findings and providing recommendations:
- 1) Prepare a written report which contains:
 - the problem, purpose of the study and the population studied;
 - the date and place of the study, contacts made and assistance received;
 - the study methods used;
 - a copy of all forms used;
 - a copy of all final tabulations and graphs;
 - a discussion of your team's interpretation of the data;
 - conclusions and recommendations.
 - 2) Make an oral presentation of your report to the other teams and the course faculty.

1. Prior to the course:

The student should disengage from other responsibilities that would conflict with providing full attention to the course as soon as it starts.

2. During the course:

The student should participate fully and creatively. Parts one and two of the course will usually be based on self-instructional chapters. The instructor will introduce them to you at the beginning of the session. This will usually take 15 to 20 minutes. You will then have five or six hours to complete them. If you have any questions at any point, please don't hesitate to ask the instructor. Answering your questions is an important part of your instructor's job.

The way to complete the chapter is to read the text until you come to a practice exercise. Complete the exercise. If you wish, you may work with another person, but you both will be accountable for the accuracy of the work and for understanding what you did. When you have completed the exercise, check your answers with those in the back of the chapter. If your answer is different and you do not understand how the correct answer was obtained, consult with the instructor. Proceed in this manner until all of the work is completed. As you proceed through the chapter, make notes about special problems you think might prevent the actual use of these skills on the job. These should be brought up for discussion by the group later. When you are finished with the chapter, notify the instructor.

The chapters that you will be working on in Parts 1 and 2 address the following subjects:

1. An introduction to epidemiology
2. How to organize epidemiologic data into tables and graphs
3. How to calculate useful rates and ratios
4. How to calculate useful measures of central tendency
5. How to conduct effective epidemiologic surveillance
6. How to do record reviews and surveys

7. How to formulate hypotheses and conduct epidemiologic investigations
8. How to organize data from outbreak investigations
9. Practice investigation: Ophthalmia neonatorum
10. Practice investigation: Ebola virus
11. How to use epidemiologic information to formulate disease-control policies
12. How to plan and conduct disease control programmes

As you proceed through these modules, other information and training materials will be introduced by the instructor for study and discussion.

3. Following the course:

- a. Your continued professional growth: We all know that learning does not end at the conclusion of a formal course. Learning takes extra effort but can be very satisfying to you over the years if you do it well. You should discuss your ideas for this with the faculty during the course. This continuous learning could include such things as:
 - 1) Quarterly meetings with the other regional teams and the central office staff of the CHSU to review earlier activities and to discuss new priorities based on your observations and their review of the data available.
 - 2) Brief semi-annual or annual meetings to present important work from the previous year and to learn additional epidemiologic skills.
 - 3) Participation in the training of others.
 - 4) Having the best of your team's work published, for example in the Malawi Epidemiological Quarterly.
- b. Your responsibilities on the job as a regional epidemiology team member. These are described on the following four pages. You are encouraged to discuss these with the course staff as you have the opportunity during the course.

COURSE SCHEDULE

Following is a summary of the overall training schedule. A more detailed plan has been prepared for each of the major parts of the course.

| <u>ACT</u> | <u>SUBJECT</u> | <u>DURATION</u> | <u>START</u> | <u>END</u> | <u>LOCATION</u> |
|------------|--|-----------------|--------------|------------|------------------|
| | Epidemiologic Methods | 4 weeks | | | Lilongwe |
| | Program Monitoring and Evaluation | 2 weeks | | | Lilongwe |
| | Expanded Program of Immunization | 6 weeks | | | Lilongwe & field |
| | Control of Diarrhoeal Diseases Program | 6 weeks | | | Lilongwe & field |
| | Malaria Control Program | 6 weeks | | | Lilongwe & field |
| | Tuberculosis Control Program | 6 weeks | | | Lilongwe & field |
| | Bilharzia Control Program | 6 weeks | | | Lilongwe & field |
| | Epidemiologic Study | open | | | Lilongwe & field |
| | Graduation | | | | Lilongwe |

ANNEX A.4
SERVICE DELIVERY

ANNEX A.4

PROJECT ANALYSISSERVICE DELIVERYA. Strategy

Over the past 20 years, 55 gravity-fed water systems have been constructed and serve a population of approximately 1.3 million. The systems are found in 19 out of the 24 districts. They are most heavily concentrated in the more densely populated Southern Region which is also endowed with more hills and mountains that can be utilized. On a per capita basis, the Northern Region is also well served by the gravity systems. Least coverage is seen in the Central Region where the topography generally does not favor gravity systems.

The Malawi gravity-fed rural water schemes have gained a world-wide reputation for effectively mobilizing community action both in the construction as well as in the maintenance of the systems. In 1983, the AID project which funded the extension of the gravity system introduced the innovative concept of adding a sanitation and hygiene component to the new systems being constructed. The rationale underlying this new approach was that communities would benefit more from their new water if they learned about how to use it properly, in all aspects including bathing, washing as well as drinking. Health Surveillance Assistants (HSA) were added to provide education and technical support to the newly covered communities on ways to improve environmental sanitation through the promotion of latrines and washing slabs, the proper disposal of wastes and hygiene education.

While progress has been made and safe water from gravity-fed water systems now reach a sizeable portion of the rural population and a growing percentage of households now are reported to have latrines*, infant and child mortality rates in Malawi remain among the highest in the world. In recent years great advances have been made in developing simple, low cost interventions to address the major killers among the under-five age group. Based on 1985 in-patient returns, the leading causes of under-five deaths were immunizable childhood diseases - 21.1% (measles - 16.8% and neo-natal tetanus - 4.3%), diarrheal disease - 8.3%, malaria - 10.8%; in 1987 - pneumonia accounted for another 13.4% and malaria was up to over 18%.

To address rural health problems an extensive health system consisting of over 600 facilities has been established with a hospital in each district, with satellite centers (88 public and 106 private) and, at the lowest level, health posts. Government plans call for a health

* According to the Family Formation Survey of 1984, 56% of rural households use pit latrines.

center within walking distance (8 km or 5 miles) of all the population. It is reported that 80% of the population is now within a 5-mile radius of a health center.

The rural health facilities are heavily utilized in Malawi. Daily out-patient loads at district hospitals are extremely heavy. Health clinics typically serve 300 patients a day. Outreach is provided by mobile under-five clinics. A high percentage of those coming to the health facilities come for minor ailments which could and should be attended to in the village.

It is with the idea of relieving the pressure on the out-patient departments at the health facilities and establishing some effective education and services at the community level that the PHICS project will test the feasibility and effectiveness of linking a package of Child Survival interventions with the water and sanitation activities. It is hypothesized that the mobilization of the community achieved by the water project can be utilized for health purposes as well as sanitation. In other words, the limited, and focused, potentially high impact health activities will use the high-priority need of water as its entry point; health, in other words, will ride the coat-tails of water.* It is important to determine if simple MCH interventions when combined with water and sanitation can achieve a significant impact. The health services that are suggested are those identified as "core" interventions in the 10-Year Health Plan (1985-95) - i.e., oral rehydration therapy (ORT) to combat dehydration from diarrheal diseases, treatment of malaria, immunization, child-spacing, health/nutrition education.

How this strategy will be carried out in the PHICS Project is described in this Annex. The discussion begins with a section on community mobilization, the crucial ingredient for a successful water as well as sanitation and health effort. The division of responsibility between the Ministry of Works and Supplies or MOWS (water system construction) and within the MCH (hygiene and sanitation and MCH service delivery) will be outlined. Separate sections will detail the role of the MOWS, the Hygiene Education and Sanitation Promotion (HESP) Section and Family Health Unit of the MOH. The annex will conclude with a description of what the community will contribute and a section on how the effort will be monitored and evaluated in terms of the expected results.

The service delivery component of the PHICS Project is a culmination of the institutional development activities in the MOH (in the HEU, the Research Unit, HIS Section, Epidemiology Section, Planning Unit, HESP), and the MOWS-Water Supply Department. The village-based activities will

* The 1987 PHIC Review reports that water was identified by villagers as a major health problem. The effectiveness of combining health interventions with water supply projects has been noted in Indonesia and Togo (Eng and Brisco, 1987).

utilize the health/nutrition education materials and messages developed in the HEU. The Research Unit will be intimately involved in maintaining the effectiveness of the individual interventions and determining cost-effectiveness of the integrated package with the view of influencing national health policy. The HIS Section will use the community-based approach to develop an appropriate community-based monitoring/built-in evaluation system focusing on a limited number of key indicators which give an accurate idea of project performance in terms of KAP coverage and impact.

The strategy outlined in this annex is in accordance with and is the result of the MOH's 10-Year Plan (1985-95) to improve the health service delivery to the village population to improve their health status. All the positions that will be added can be found in the government's plan. The package of health services to be delivered are, as mentioned, described as the "core" interventions in the same plan. The PHICS Project will assist the government study the efficacy, efficiency and effectiveness of the community-based approach within the PHC context. In other words, AID's inputs will strengthen the existing health infrastructure as envisaged in the Plan and monitor the implementation experience to develop the most cost-effective means of improving health status of the village population in Malawi.

B. Community Mobilization

The key to the long-term success of the PHICS Project is the achievement of full participation of rural communities in all aspects of project interventions. This means that communities must be mobilized to be receptive to these interventions, to incorporate them into their daily lives, and to take initiatives regarding their evolution and direction. Water is expected to act as the "cutting-edge" of a package of health activities. While interest and participation are high during the implementation of a piped water system, sanitation and child survival activities will be introduced by the project. It is assumed that the community will be receptive to these activities because of the enthusiasm generated by the introduction of piped water.

Community mobilization starts with the leader in rural villages. The project, through its field agents in the MOWS and MOH, will have to develop strong support with a range of local leaders, including village headmen, traditional chiefs, MCP officials, and government officials. The process of generating confidence between local leaders may take months, and sometimes years, but is fostered by the success of similar activities in nearby villages. The project should not attempt to hasten unduly this process.

In the early stages, it should emphasize the identification of village health problems and encourage the village, through its leaders, to articulate its own needs and preferred solutions. Once the village is actively engaged in a discussion of problems, needs, and solutions, the

project will be able to introduce the idea of assisting the community to implement one or more of the project interventions.

From this point onwards, project staff can assist with the organization of village health committees and water committees, introduce educational materials and training courses, and outline to the local community how it can participate in a program of service delivery. As the village program evolves, project staff must keep in close communication with village leaders. The more the community feels it has influence and a sense of ownership over the program, the more effective and long-lasting will be the results. The immediate goal of community mobilization is to introduce successfully project interventions, but the ultimate goal is to have the communities take charge of these interventions on a long-term, sustainable basis.

C. Allocation of Responsibility

1. MOWS - Rural Piped Water

All water supply activities under the PHICS Project will be carried out by the MOWS. Primary implementation of water schemes will be the responsibility of the Rural Water Section (RWS) under the direction of a Principal Water Engineer. Additional assistance, when needed, will be provided by the Operation and Maintenance Section and the Planning and Design Section. All of these sections are contained within the Water Supply Branch, headed by the Chief Water Supply Officer, which in turn is contained within the Water Department, headed by the Water Engineer-in-Chief. Figure 2 gives the current organization of the Water Department. The Water Department is currently reviewing an organization and management assessment carried out internally by the MOWS. This assessment may result in some reorganization of the Water Department in the future.

Overall program management and all technical design will be conducted at headquarters in Lilongwe. Regional offices at Mzuzu, Lilongwe, and Zomba will oversee site planning, community mobilization, construction, and maintenance. Field personnel, including technical officers, supervisors, technical assistants, rural water operators, and monitoring assistants, will work under the general direction of the regional office.

The MOWS will be responsible for planning, site selection, design, construction supervision, and major maintenance. In addition, the MOWS will work closely with the MOH and local leaders in the mobilization and organization of community participation in project implementation. Moreover, monitoring assistants of the MOWS will monitor the operational performance of completed systems and provide technical guidance on maintenance problems to the village pipe repair teams.

2. MOH - HESP

The MOH will be responsible for sanitation and hygiene education activities promoted by the project. HESP activities will be under the direction of the Environmental Health Unit, headed by the Chief Health Inspector. This unit is under the Controller of Preventive Health Services. HESP also will use materials prepared by the Health Education Unit and will coordinate its applied field studies with the Research Unit of the ministry.

Authority for HESP activities in the field will begin with the District Health Inspector and will be passed downward through HESP supervisors and HAs to the HSAs in the communities. Each HSA will be assigned approximately 10 targeted villages for HESP activities, although it is expected that, in practice, HSAs will concentrate their efforts initially on the three or four villages with the greatest potential for accepting and benefitting from HESP services.

The HESP HSAs will coordinate their activities with the Family Health HSAs and with the monitoring assistants of the MOWS. Whenever possible, HESP HSAs will promote integrated water, sanitation and family health concepts.

3. MOH - Family Health

The basic package of MOH services will be delivered to the community through the strengthened infrastructure which starts at the Family Health Unit under the Controller of Preventive Health Services. All the important interventions that will be delivered (malaria, ORT, immunization, child spacing, nutrition) are included as separate sections in the Family Health Unit. The research, both the ongoing monitoring and special studies, will be conducted by the Research Unit with the support of a research institution. At district level, the DHO and his MCH staff will be responsible for overseeing the community-based effort. Most of the support and supervision will take place at the health center and at the periphery. Each enrolled nurse midwife will train and work with approximately 10 female HSAs who, in turn, will help organize, motivate and support the village health committees in the ten to 15 villages for which she is responsible. The child survival/MCH activities will be closely coordinated with the HESP sanitation promotion effort at all levels, but particularly at the health center and HSA level where joint action is crucial to the success of the integrated effort.

D Expansion of Piped Water Supplies

D.1 Construction of New Water Schemes

It is estimated that over 1,000,000 rural inhabitants could be served by new gravity piped schemes in Malawi. In November and December 1986, the MOWS carried out a feasibility study of 19 potential new

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schemes which had a design population (projected to the year 2002) of 618,000.

A review of these schemes by the MOWS, plus some additional schemes added later, resulted in a list of 15 high priority projects proposed for USAID assistance. This list contained 14 new schemes with a design (year 2002) population of 245,000 and one augmentation project involving the replacement of deteriorating asbestos-cement pipes in an old water system (Namitambo) with new PVC pipes.

Total construction cost of these 15 schemes (exclusive of the institutional strengthening costs of headquarters salaries, vehicles, equipment, and tools) was estimated by the MOWS in March 1987 to be K9,899,000, including contributions from USAID, the MOWS, and the community, as shown below:

| Construction Expenditures | MOWS Estimate (1000K) | U.S. Dollar Equivalent (1000\$) |
|-----------------------------|-----------------------|---------------------------------|
| USAID: | | |
| Commodities | 6756 | 2937 |
| Fuel & Maint. | 956 | 416 |
| Sub-Total (USAID) | 7712 | 3353 |
| MOWS: | | |
| Salaries | 346 | 150 |
| Subsistence | 181 | 79 |
| Sub-Total (MOWS) | 527 | 229 |
| Community: | | |
| Self-Help | 1600 | 695 |
| Total (Construction) | K9899 | \$4277 |

Table 3 gives the original construction estimates in Kwacha for the 15 schemes, as prepared by the MOWS in March 1987. The rate of currency exchange at the time was approximately \$1.00 = K2.30.

The implementation schedule for the 15 schemes is staggered over the six-year period of the project, as shown in Figure 3.

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TABIE 3

OPTION 2: MOWS CONSTRUCTION PROGRAM (IN KWACHA)

| No. | Reg. | District | Project | Design Pop/1000 | Commodities (USAID) | Salaries (GOM) | Operating Costs (USAID) | Costs (GOM) | Tools & M: (USAID) | Project Costs | Self-Help Value | Project Value |
|--------|------|-----------------|-------------|--------------------|------------------------|-------------------|-------------------------------|----------------|-----------------------|------------------|--------------------|------------------|
| 1 | N | Chitipa | Chintekwa | 3.8 | 73180 | 4570 | 10980 | 1830 | 810 | 91470 | 21360 | 112830 |
| 2 | N | Chitipa | Sekwa | 6 | 88680 | 5420 | 13000 | 2160 | 1080 | 110340 | 31000 | 141340 |
| 3 | N | Rumphi | Mchenachena | 11.3 | 262940 | 16430 | 39440 | 6570 | 3290 | 328670 | 73060 | 401730 |
| 7 | N | Rumphi | Thimba | 3.2 | 62720 | 3920 | 9410 | 1570 | 780 | 78400 | 16000 | 94400 |
| 8 | N | Nkhata Bay | Luwawa | 5.3 | 145090 | 9320 | 22360 | 3730 | 1860 | 186360 | 33730 | 220090 |
| 10 | N | Nkhata Bay | Kawiya II | 12.8 | 320400 | 20025 | 48060 | 8010 | 4000 | 400495 | 58000 | 458495 |
| 11 | N | Nkhata Bay | Micwe | 18 | 517820 | 32360 | 77670 | 12950 | 6478 | 647278 | 104530 | 751808 |
| 13 | N | Mzimba | Mzimba I | 108.4 | 3500700 | 218790 | 525100 | 87520 | 43760 | 4375870 | 814100 | 5189970 |
| 14 | N | Nkhata Bay | Ruswe | 1.2 | 17090 | 1070 | 2560 | 430 | 210 | 21360 | 5570 | 26930 |
| 16 | N | Nkhata Bay | Uslaya | 7.2 | 99600 | 6220 | 14940 | 2490 | 1240 | 124480 | 42000 | 166480 |
| 17 | C | Salima/Dedza | Golomoti I | 39.2 | 611460 | 38220 | 91720 | 15290 | 7640 | 764330 | 185600 | 959930 |
| 21 | S | Thyolo | Sankhuleni | 10.7 | 294040 | 18380 | 44110 | 7350 | 3680 | 367560 | 75540 | 443100 |
| 22 | S | Chikwawa/Msanje | Shire EB I | 9.6 | 271380 | 16960 | 40710 | 6780 | 3390 | 339220 | 67130 | 406350 |
| 26 | S | Chired./Mulanje | Nemitambo * | - | 380000 | 7150 | 0 | 21450 | 0 | 408600 | 28600 | 437200 |
| 28 | N | Rumphi | Muhuji * | 8.4 | 106880 | 6680 | 16032 | 2672 | 1336 | 133600 | 33400 | 167000 |
| Totals | | | | 245.1 | 6755980 | 405515 | 956092 | 180802 | 79654 | 8378043 | 1599820 | 9977663 |

* Augmentation scheme

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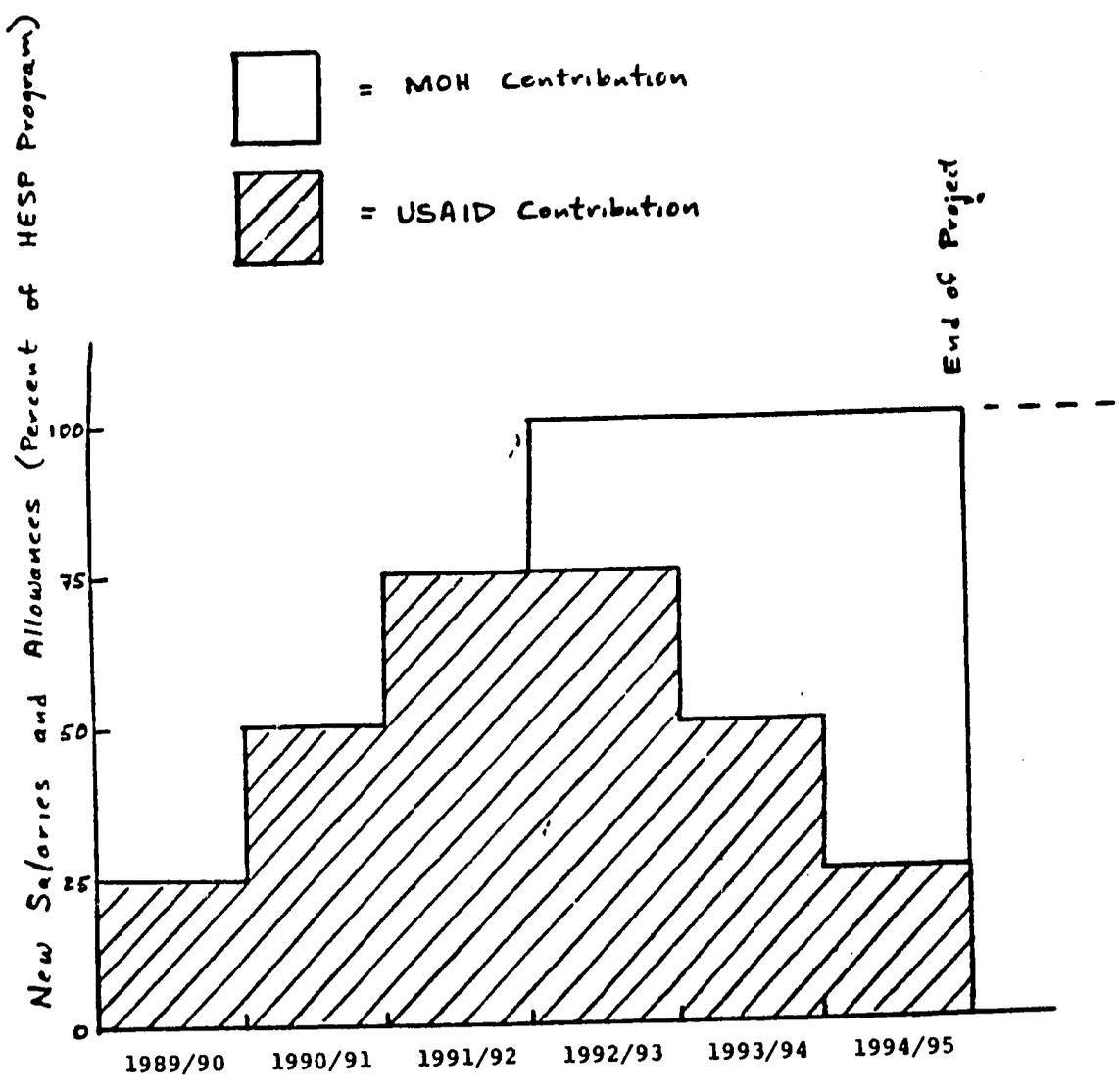
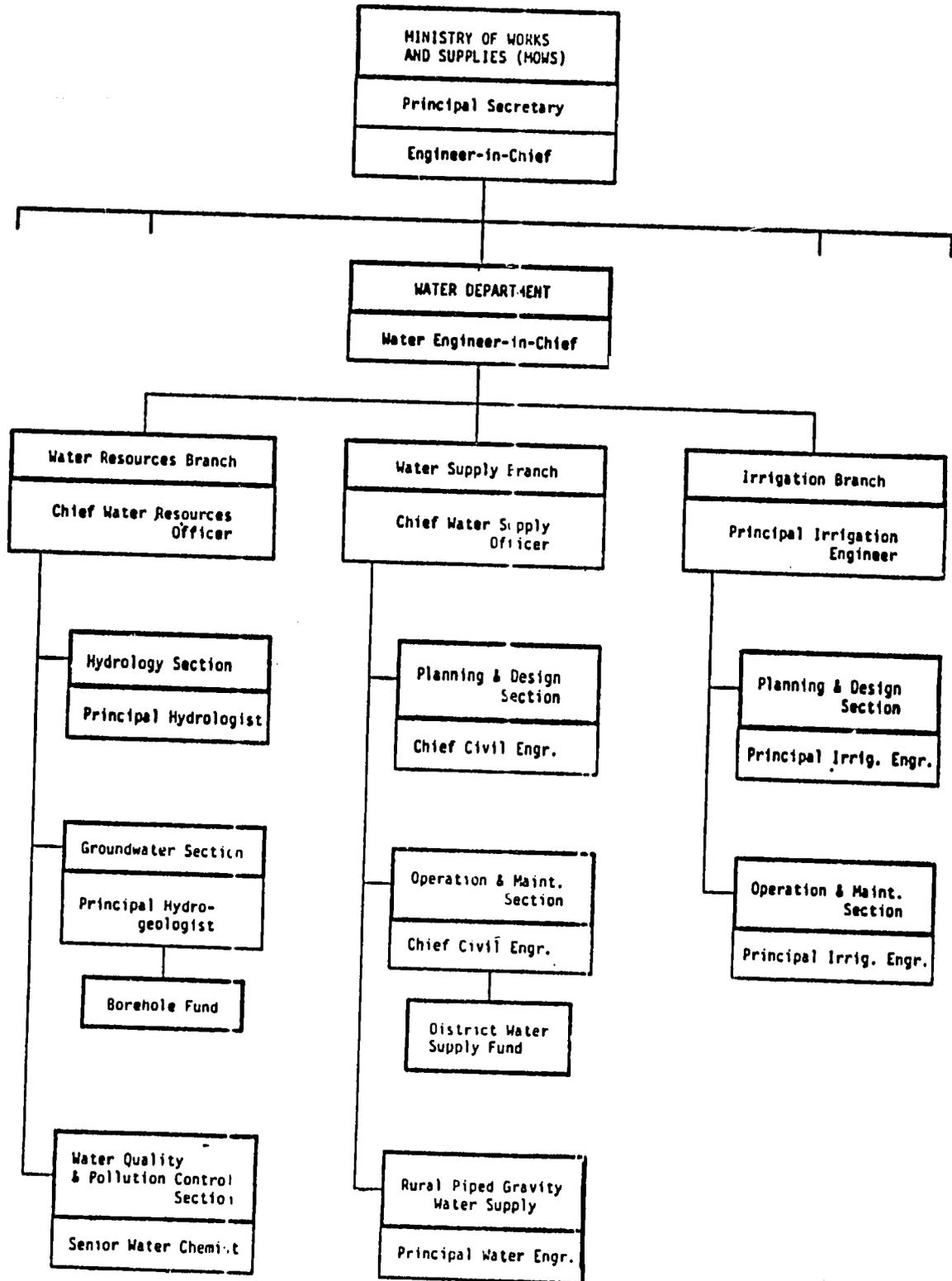


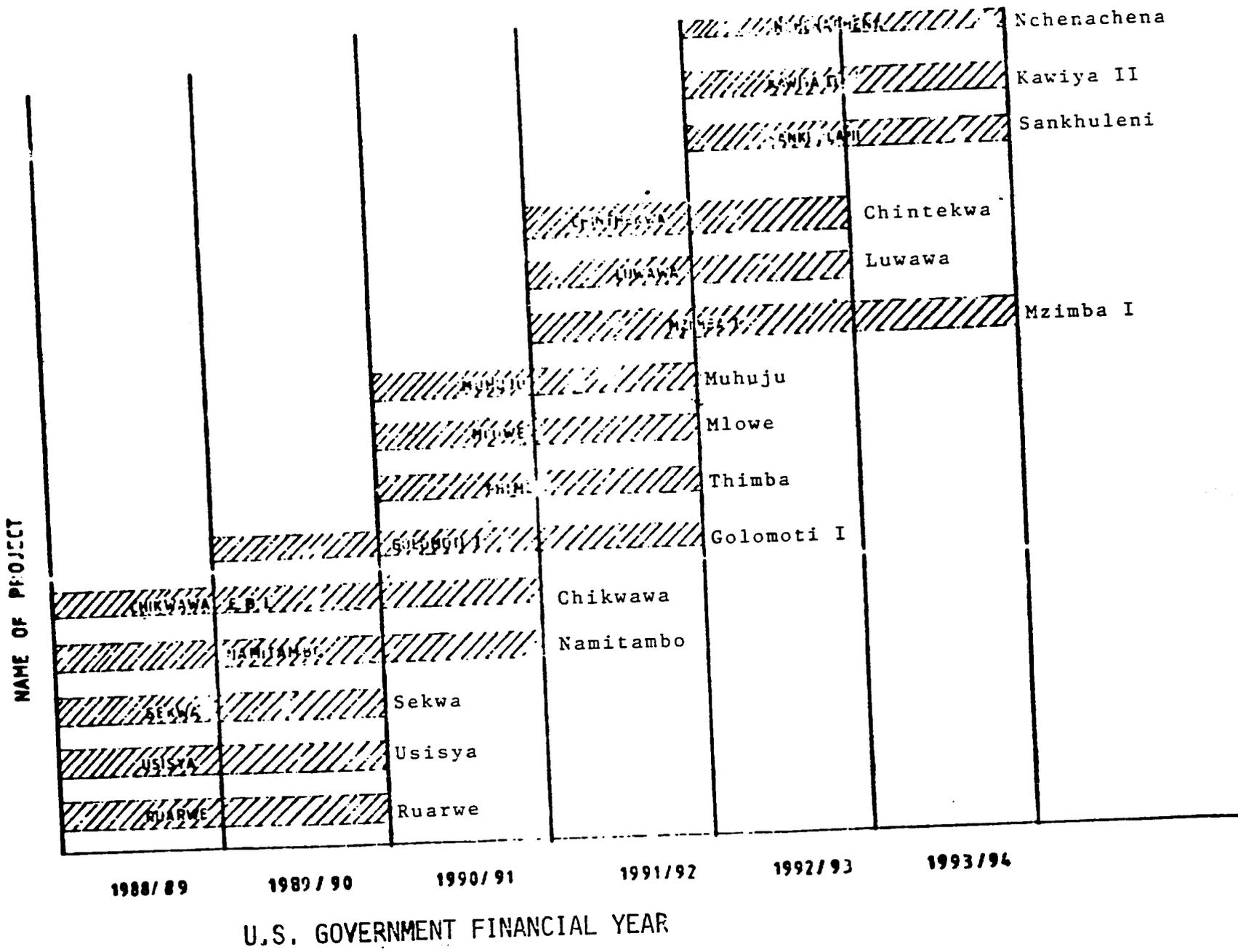
Figure 1. ALLOCATION OF HESP EXPENDITURES FOR SALARIES AND ALLOWANCES

Figure 2.

**WATER DEPARTMENT
EXISTING ORGANISATION**



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U.S. GOVERNMENT FINANCIAL YEAR

FIGURE 3. IMPLEMENTATION SCHEDULE FOR RURAL WATER SCHEMES

D.2. Maintenance of All Piped Water Schemes

USAID support to the MOWS will provide for maintenance services to the 14 new water schemes and will assist the ministry with on-going maintenance in the 55 existing water schemes. The overall maintenance program will continue as it has in the current USAID-supported project. Routine operations and maintenance are the responsibility of the village repair teams, which work under the general direction of the RWS supervisors and monitoring assistants. Repair teams are composed of six to ten local volunteers, often one from each village along a pipeline. Repair teams are expected to repair PVC pipe breakages, to replace taps, and to repair broken aprons around taps. Usually they carry out minor repairs without any direct supervision of the monitoring assistant. They use their own simple tools, but can obtain spanners (when needed) and supplies (replacement pipe, taps, and PVC solvent) from the monitoring center, but replacement taps must be purchased by the local community. Repair teams give periodic reports of their repair activities to the local monitoring assistant.

Major maintenance activities are the responsibility of the MOWS. Such activities include the replacement of pipelines and the repair of river crossing, washouts, and damaged intakes. These activities are beyond the capabilities of local pipe repair teams. The RWS has technical and financial responsibility for all major maintenance, although communities are required to provide self-help labor where such inputs are appropriate.

In general, major maintenance is necessitated by an unexpected event, usually a severe flood which washes away a section of pipeline. Repair of major washouts requires engineering redesign, construction supervision, and replacement materials equivalent to or better than those used in the original project construction.

The MOWS currently has a maintenance budget, averaging about K250,000 per year, intended to serve both urban and rural projects. There is growing need to institutionalize a major maintenance budget as part of the MOWS rural piped water program.

For the PHICS Project, maintenance expenditures are expected to be \$508,000 from USAID, K679,000 from the MOWS, and the equivalent of K990,000 from the community. These expenditures are exclusive of headquarters salaries, vehicles, tools and equipment, as shown below:

| Maintenance Expenditures | Contributions (in 1000s) |
|--------------------------|--------------------------|
| USAID: | |
| Spares & Replacements | \$ 209 |
| Fuel & Maintenance | 211 |
| Water Quality Monitoring | 88 |
| Sub-Total (USAID) | \$ 508 |
| MOWS: | |
| Salaries - Field Staff | K 360 |
| Subsistence | 144 |
| Water Quality Monitoring | 175 |
| Sub-Total (MOWS) | K 679 |
| Community: | |
| Local Materials | K 210 |
| Self-Help | 1365 |
| Sub-Total (Community) | K1575 |

As explained in Section G, community contributions are assessed at the rate of K0.02/capita/year in cash and K0.13/capita/year in labor and materials. Assuming that at least 1,500,000 people will be receiving piped water by the end of the PHICS Project, the maintenance contributions of the local communities, therefore, have a cash value of K210,000 and an in-kind value of K1,365,000.

D.3 Water Quality Monitoring

Rural water supply development must have an effective program of water quality monitoring in order to ensure that safe water is provided by the systems and to identify periods during which contaminants hazardous to health may enter the networks. Malawi does not have routine monitoring of rural water supplies at present, although the Central Water Laboratory (CWL) in Lilongwe analyzes on request approximately 1,500 rural water samples annually. As a result of a \$99,000 contribution by USAID in the current water program, the CWL facilities are well equipped to carry out the full range of bacteriological, physical, and chemical analyses of water. There is a lack, however, of operational funds for staff and transport to conduct routine visits to all MOWS rural water schemes.

A special water quality study of six USAID-financed schemes was made in 1985-86 by the CWL. The results showed the presence of faecal indicator bacteria in all schemes. Of 302 water samples taken from intakes and taps during the July through September 1985 dry season, faecal coliform (FC) counts averaged between 10 FC/100ml and 30 FC/100ml, while faecal streptococci (FS) counts averaged between 30 FS/100ml and 50 FS/100ml. For untreated surface water supplies these bacterial counts are quite low in comparison to unprotected traditional sources of water which often have faecal organism concentrations more than ten times higher. The above dry season counts can be considered to be acceptable for the current level of development and resources available in rural Malawi. In the wet season of January through April 1986, however, a total of 214 water samples from the same schemes showed FC and FS counts more than double those measured during the previous dry season, and two of the schemes had individual FC and FS counts exceeding 100 faecal organisms/100ml.

While the presence of faecal organisms is to be expected in all untreated surface water supply systems, even those coming from well-designed intakes in protected forest reserves, as in the case of Malawi rural water program, it is nonetheless necessary to know when the naturally-occurring contaminant load is exceeding the normal range so that special precautions can be taken to protect the health of the water users. On the basis of existing, but limited information available from the CWL, the general quality of water in the rural piped system is good and represents a vast improvement over traditional sources previously used by the people. Water quality monitoring, therefore, is particularly important in, first, identifying new catchments which have acceptable water quality for untreated systems and, second, to identify changes in water quality in the completed schemes which may affect health.

The MOWS through the staff and facilities of the CWL will establish a comprehensive program of monitoring the water quality of all rural piped schemes, including all existing systems, both USAID and non-USAID, plus all new schemes to be constructed under the PHICS Project. The monitoring program will consist of monthly field visits to all schemes based on the average of one visit for each 12,500 population. For small schemes of 10,000 population or less, for example, there would be a single visit each month. For a large scheme of 60,000, however, four visits per month would be made. At each visit, a series of water samples will be taken and immediately tested for faecal organisms with the aid of portable test kits. It is estimated that over the course of a year the full monitoring program will entail approximately 1,000 or more field visits and around 10,000 water samples. These tests will be limited to the basic measurement of FC and FS bacteria. Where necessary, samples will be brought back to the CWL in Lilongwe for more complete analysis.

Additional resources needed by the CWL to carry out the above program include staff, transport, field test kits, supplies, refrigerators, operating costs, and training materials. The MOWS will be

responsible for all salaries and allowances, while USAID will provide funding for motorcycles, fuel and maintenance, equipment, and supplies. It is estimated that four additional field technicians will be needed to carry out the programs. Total costs for the six-year project will be \$109,000 for USAID and K186,000 for the MOWS. Details of the monitoring program are as follows:

| Water Quality Monitoring Expenditures | Contributions (in 1000's) | |
|---|---------------------------|---------------|
| | MOH (K) | USAID (\$) |
| <u>Institutional Strengthening</u> | | |
| Salaries - HQ Staff | 9 | - |
| Field Test Kits () | - | 11 |
| Refrigerators (3) | - | 3 |
| Motorcycles (3) | - | 6 |
| Training (3) | 2 | 1 |
| Sub-Total (Inst. Str.) | 11 | 21 |
| <u>Service Delivery</u> | | |
| Salaries - Field Staff | 39 | - |
| Expendables | - | 23 |
| Operating Costs: | | |
| - Subsistence | 136 | - |
| - Fuel & Maintenance | - | 65 |
| Sub-total (Serv. Del.) | 175 | 88 |
| Total (WQ Monitoring) | K186 | \$109 |

E Expansion of HESP Activities

E.1 Latrines

The MOH will actively promote the construction of sanitary latrines. Whereas the first USAID-assisted piped water project provided only minor amounts of funds for latrine promotion (mainly through hygiene education and a few demonstration schemes), the PHICS Project will provide a major allocation of funds for partial support of latrine slab manufacture in village workshops.

The recent development of the San-plat latrine has shown great promise, and the MOH has decided to promote this model as the latrine of choice in lieu of the more costly ventilated improved pit (VIP) latrine. The San-plat latrine is a low-cost latrine developed by a UNDP/World Bank financed project in Malawi. The latrine slab is a relatively small (and therefore inexpensive) reinforced concrete platform, which is unventilated (as opposed to the more costly VIP latrines) but complete with a tight-fitting cover. When manufactured in village workshops, the San-plat slab costs only K7.00 each for cement, reinforcing bars, and materials transport. The Liwonde ADD has been actively promoting San-plats for the past three years and has supervised the manufacture of over 4,000 such slabs in Liwonde and Machinga Districts.

Given a potential service-area population of 1,500,000, the project will aim at providing improved sanitary latrines to at least 25 percent of the inhabitants, or 375,000 people. At an average of six people per household this coverage level will require the construction of 62,500 latrines over the course of the project.

The MOH will organize village-level workshops to manufacture San-plat slabs on a self-help basis. According to the experience of the Liwonde ADD, each village workshop should be able to manufacture about 100 slabs per month. The project will provide cement (7 slabs per sack at K20.00 per sack). The community will supply local materials and labor. MOH trainers will train village craftsmen to manufacture the slabs.

Total costs of the San-plat slabs are estimated at \$122,000 from USAID and K125,000 of local contributions from the community.

E.2 Washing Slabs

There are over 8000 water taps in the 55 existing rural piped water schemes, but only a very small number have a clothes washing slab in the immediate vicinity. Clothes washing slabs are a highly desired facility in most rural villages in Malawi. In order to protect the water tap and apron and to maintain their cleanliness, women are not allowed to wash clothes at the water tap. This forces them either to carry water to their houses to wash their clothes, or alternatively to carry their clothes to the nearest stream or dambo (water hole) where the risk of schistosomiasis and other water-related diseases is high.

The MOH will take responsibility for organizing the construction of washing slabs in project areas, while the MOWS will routinely build washing slabs at all new taps in the 14 proposed water schemes. The project will provide cement (4 sacks per washing slab at K20.00 per sack) and PVC drain pipes (5.00 per slab). The community will provide local materials and labor (approx. K16.50 per slab) and the MOH will provide community mobilization and construction supervision. Total costs for the estimated 8000 washing slabs to be constructed are \$272,000 from USAID and K132,000 from the community.

E.3 Other Sanitation Activities

Besides latrines and washing slabs, the MOH will promote a variety of sanitation-related activities. Through hygiene education presentations, pamphlets, simple demonstrations, and informal conversations, the HSAs will encourage the people in project areas to build dish drying racks, dig refuse pits, store household water in hygienic containers, and in general improve the overall household level of sanitation and personal hygiene. The HSAs and their supervising HAS also will coordinate their sanitation-related work with the family health activities of the female HSAs working under nurse supervisors. The purpose will be to integrate as fully as possible the child survival interventions promoted by family health HSAs and the sanitation interventions promoted by HESP HSAs.

F. Expansion of the Family Health Activity

As described in the introductory section in this Annex, there is a great deal to learn about community-level MCH and Child Survival service delivery in conjunction with water and sanitation efforts. Does the combination result in synergistic impact and, if so, what is the most cost-effective way to carry out such a program? To test the viability of this strategy, a number of important activities and inputs are required, including effective community mobilization and organization, infrastructure and manpower development, proper monitoring and evaluation.

1. Community Organization

One aspect of the water project which has been identified as contributing greatly to its success is effective community involvement. If success is to be achieved in the delivery of priority MCH/CS interventions, a similar level of community organization and support is essential. As the community is being oriented on issues related to the water component and their attention is captured, it is an appropriate time to determine their health needs and generate their support for the initiation of the village-based delivery of a limited package of child survival interventions. Special strategies and techniques must be developed to ensure effective community orientation, mobilization and organization; without this, any service delivery component dependent on a high level of community involvement will flounder. The approach developed at the Liwonde ADD Project utilizing folk drama groups (as being considered in the IEC section) is a possibility to be considered. The mistake made around the world of trying to short-cut the community orientation element cannot be repeated in Malawi.

2. Package of Services

As part of the orientation process, the health related needs of the community must be identified. To begin with, safe and accessible drinking water is usually among the highest priority in any village. In

addition, with a reported 57% of all mortality cases in Malawi occurring in the under-five age group, it is to be expected that ways to reduce this wastage will be a felt need. The tendency to want a clinic in the village itself will arise but obviously cannot be provided with the limited resources of the PHICS Project or sustained by the MOH. It is possible, however, with the help of the community, to conceive of developing a strategy which would make a package of simple MCH/CS services available in the village.

The important infant and child mortality-reducing interventions include several to which the CCCD Project and the MOH devoted considerable attention over the past four years; the control of diarrhea diseases and treatment of malaria. In addition, activities in support of immunization, child spacing, health and nutrition education will be considered for village-level delivery. Assuming an active village health committee and active volunteers (probably involving local traditional healers and birth attendants), we can contemplate the following activities taking place in the village:

- ORT - With CCCD findings that the SSS is not a viable alternative, the use of ORS packets is the preferred treatment to prevent dehydration resulting from diarrheal disease. UNICEF is supplying ORS packets but at present they rarely reach the villages. A community person who will maintain a stock of packets and mix it and give to children suffering from diarrhea would reduce the risk of child mortality due to dehydration.
- Chloroquine Distribution - A second area in which the CCCD project did considerable work was the preventive treatment of diarrhea. Providing village health workers with sufficient supplies and having them dispense proper dosages (according to established protocol, see Attachment III) to suspected cases of malaria will help slow, if not reduce, the growing death rates due to malaria in the under-five age group.
- Immunization - While immunization can only be given by health personnel, village health workers will be used to motivate and mobilize the community for immunizations. They will follow-up on defaulters and ensure that infants complete their basic immunization series on a timely basis (i.e., before reaching their first birthday). In addition, efforts will be made to ensure that all pregnant women receive their two doses of tetanus toxoid (to prevent neo-natal tetanus) as part of their ante-natal care.
- Child spacing - In addition to motivating community members to space their children to improve the health status of both the child as well as the mother, an attempt will be made to test promising community-based distribution (CBD) approaches. This

effort would help determine the feasibility of using, for example, TBAs or homecraft workers to distribute contraceptives to eligible residents who have undergone proper medical screening (e.g., for oral pills).

- Health/Nutrition Education - The messages developed by the newly strengthened HEU would be supplied to the community worker to assist and support their interpersonal education efforts. The messages will be focused on the same priority Child Survival interventions discussed here.
- Nutrition - The village health committees will assist in the distribution of iron/folic acid pills to pregnant women and mega-doses of vitamin A to the under-fives. This would greatly increase the distribution of these important vitamins and mineral supplies which are provided by UNICEF.

The five interventions outlined above are the priorities services which data on the causes of child mortality indicate must reach the villages and are the "core" activities identified in the Ministry's 10-Year Plan. But these are not always the felt needs of the community. While safe water is a high priority in most villages, health, especially the preventive variety, is not. It only becomes a high-level concern when someone becomes ill. The health needs of a community that do exist center around curative care. For this reason it is felt important to equip the village health volunteers with a few simple medicines which will provide them a way to respond to common, simple but aggravating health problems in the village. Having such non-toxic drugs as tetracycline eye ointment (to treat eye infections), anti-helmenthics (against intestinal worms), scabbies medicine (for skin diseases), aspirin (for simple pains and fever), bandages and disinfectant (for first aid) will allow them to provide this assistance.

Several projects (Liwonde and Salima ADDs) have begun experimenting with cost-recovery mechanisms and the initial experience is positive.* The PHICS Project will test the cost-recovery approach on a larger scale since the MOH could never afford to supply such medicines on a regular basis. It is precisely because there is a demand for these services that it is hypothesized that villagers will pay a few tambala for a cure. It is possible that chloroquine could also be charged for.

* The government has given permission for cost-recovery for simple medicines to be experimented with. See Attachment I for a copy of the government approval.

Also, the feasibility of using the community workers (supported by the HSAs) to diagnose and treat ARI at the village level will be tested. Pneumonia is a major cause of death in the under five age group. ARI has been treated successfully in Nepal on an experimental basis. The village workers who have proven effective in carrying out their priority activities could be trained in ARI treatment. This would serve as an incentive for continued service and might be another possibility for cost-recovery on the drugs dispensed.

3. Manpower

From the Child Survival perspective, this subsection of the annex should be referred to as "womanpower". When dealing with the priority MCH interventions discussed above, maximum contact is required with mothers, and, given the cultural sensitivities in Malawi, it is much more appropriate to think of having women interact with women on issues dealing with family health. Thus, from the village worker to the intermediate worker to the health center supervisor, we are talking of a female infrastructure.

At the village level, village health committees will support female health workers in delivering the MCH interventions. The selection of the worker is crucial to the effectiveness of the effort and can only be done after proper orientation and mobilization of the community.

Community-based programs based on community volunteers have not proven effective elsewhere. One reason is lack of incentive. The village culture in Malawi seems to offer more hope, if (and a big "if") the community is oriented properly. Moreover, it is expected that by providing the community health volunteer with some drugs which are in demand, her status and job satisfaction will be increased enough to encourage her to continue.

But the village worker must receive support and supervision if she is to be effective and to receive any respect from those she is to serve. A lack of support and supervision is probably the leading cause of community-level program failure in developing countries. To address this concern the PHICS Project will test the effectiveness of providing one female HSA* for every 5,000 population. As described in the

* Approximately 300 HSAs exist at present. The job description of an HSA is currently very broad. As a result they are now used for whatever priority is being pursued at the local level. The only female HSAs have been recently hired for work in the refugee camps. The MOH, however, is eager to introduce female HSAs and determine their capability to provide support and supervision to community volunteers doing MCH work.

sub-section on HESP, the female HSA** will work together with a male HSA who will concentrate his energies on sanitation activities while supporting the MCH/CS component by educating and motivating men on the importance of the MCH/CS interventions (especially Child Spacing). With transportation in the form of a bicycle being provided, the female HSAs, together with their male counterparts, should be able to visit the 10-15 villages in their jurisdiction on once or twice a month. This is certainly more within the realm of possibility since there will be two workers for every 5,000 people versus the present one for every 40,000 or so population. Based upon this ratio,** it is expected that 300 female HSAs will be required to cover the population in the Project areas.

The HSAs will be supervised by the health workers at the health center level, the health facility to which they will refer patients in need of a higher level of clinical services. The female HSA will be supervised by the Enrolled Nurse Midwife (ENM) at the Health Clinic. The exact number of additional ENM's required will not be known until site selection is final and an inventory of Project area staff is conducted; however, if the normal coverage for one health center is 50,000, it is estimated that 30 health centers will be involved in the PHICS Project service delivery areas. Each center should have two ENMs - one to attend to MCH needs at the Center and one to oversee the outreach activities (i.e., support and supervise about 10 female HSAs in her area of responsibility).

Project Inputs

- Manpower - 300 HSAs @ K400/year, phased at 25 in 2nd year, 75 in 3rd year, 100 in 4th and 5th years with the MOH assuming an additional 25% of the financial responsibility beginning in the fifth year.
- 30 ENM @ K1500/year phased at 3 in 2nd year, 7 in the 3rd, 10 in the 4th and 5th, with the MOH assuming an additional 25% of the financial responsibility starting in the fifth year.

** Because of the broader nature of the job done by HSAs, especially the female variety, the title of "Health Surveillance Assistance" may not be appropriate. It is suggested that without changing the acronym, the job title could be "Health and Sanitation Aid or Assistant" or "Health Services Assistance or Aid;" which might be more appropriate in light of their new duties.

*** The MOH in their 10-Year Plan identifies the need to increase greatly the number of HSAs. Dr. Reinke (1988 report) calculates the appropriate ratio of HSA to population should be 1 to 2,500, requiring an additional 4,000 HSAs. The issue of female HSAs is not mentioned in the Plan, but the Ministry feels it appropriate considering the Family Health orientation of the strategy.

4. Training

At present HSA training is carried out locally, under the direction of the Medical Assistant and Health Assistant at the health center. The female HSA position will be in an entirely new position which does not resemble the broad-ranging job description for an HSA found in the 10-Year Health Plan. Therefore, before any training for this cadre of female workers is developed, a detailed job description must be developed. Their responsibilities should be broken down into discrete activities. These might include:

- community mobilization/organization
- treatment of diarrheal diseases/ORT
- treatment of malaria
- immunization
- child spacing
- health/nutrition education
- pregnancy/ante-natal care
- simple curative care

Brief booklets (relying heavily on pictures and simplified text) should be developed on each of these activities for training and referral purposes. They would be used by the ENM to train the HSA - one intervention at a time. Intensive training in multiple interventions at one time must be avoided; experience has demonstrated that local health workers have difficulty absorbing a large volume of information at one time. The task-by-task competency-based training method, assuming competency in one activity before going on to the next, has been found more successful. Only one day may be required to introduce the activity; with practical field training and on-the-job experience with supervision in the community, the HSA should not take long to become competent in any one of the tasks. Some HSAs might progress at a slower or faster pace than the others; the module system permits staggered training, allowing HSAs to advance at different speeds.

The community health workers are trained by the HSAs with support from the ENM using the same booklets. The involvement of the ENM is important to give the program activities credibility and status in the village.

Project Inputs

- . Technical Assistance - A consultant experienced in para-medical staff training will assist in the development of an HSA job description, design of training modules for HSA/community worker training, design of booklets, and field testing the materials; 6 months; over the first year of the project.

- Booklet Production - 2,000 copies of 10 different booklets with a plastic notebook to keep them in as a reference guide.

5. Management Support

The community based approach that will be implemented will require considerable management input. The District Health Officer (DHO) will be ultimately responsible but may not be able to spare the time required to ensure that the village-based activities in water, sanitation and health are progressing satisfactorily. The DHO requires an assistant to oversee the initial implementation of this new strategy in the district. This may be an appropriate job for a new cadre of Peace Corps volunteers due to arrive in country during the latter half of 1989.

The volunteers will be from a new MPH-volunteer program. They will have undergone a year of study in various aspects of health delivery and will be able to assist the DHO track implementation, identifying and solving service delivery problems. Four volunteers will be available in 1989 with four more in 1990. MPH Volunteers could be posted to the districts chosen as PHICS project areas. PCVs title could be that of Assistant to the DHO for Integrated Child Survival Programming. It is expected that they will only be required for the start-up period, a total of 16 person years of assistance.

The MOH has requested a technical advisor to assist the Malaria/ORT Section of the Family Health Unit. This is a new section and the Ministry is concerned that it have proper guidance in the management of service delivery in the rural areas. This management advisor will assist in the launching of the community-based water, sanitation, child survival activities in which malaria and ORT are prominently featured. This support is seen as a continuation of the support the CCCD Project provided to the Ministry in upgrading Malaria and ORT service delivery.* The support will be required for the first three years of the project at which time it is expected that the section will have acquired the necessary management perspective and techniques to function without a foreign advisor.

Project Inputs

Travel expenses for PCVs (K4,000/year)
Technical Advisor to Malaria/ORT Section for three years

* A job description for the Programme Manager CDD/Malaria under the CCCD Project is included as Attachment 2. The Malaria/CCD Management Advisor will have similar responsibilities.

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6. Equipment

Several needs for equipment and materials have been identified. The first relates to the ENMs at the health centers. The major constraint facing the assignment of ENMs to the centers is the lack of housing. Without proper government standard housing, the personnel cannot be sent to the health center. The MCH does not and will not soon have the financial resources to construct this housing. The solution is for the Project to supply the materials required to build the house and the community provide the labor to construct the dwelling. This is a way for the community to participate actively in the health program, equivalent to the digging of the trenches for the water supply pipes. If they perceive that they will benefit from having additional manpower at the health center level, they will assist in constructing the house for the ENM to make it possible.

The second need is for motorcycles for the PCVs. Each of them will be covering large areas and will be required to visit health centers and villages. They will not be able to provide the management support required of them without transport.

The female HSAs also need transport, a place to store drugs and a simple bag in which to transport the supplies to the villages. Since the HSA will have to be in constant contact with the 10 or so villages under her control, it is essential that she have transport. Bicycles are appropriate and no cultural constraint prohibits women from using bicycles in Malawi.

Project Inputs

- . Housing materials for 30 ENM houses @ K10,000/house
- . Motorcycles (Yamaha 125's) - eight for PCVs
- . Maintenance for eight motorcycles (K1,000/year)
- . Bicycles for 300 female HSAs (@ K700)
- . First Aid Kits and carry/storage bags (for stock of simple first aid and home remedies) for 300 female HSAs.

7. Monitoring and Research

Because the service delivery component is so important, not just for the 1.5 million population to be covered but to identify approaches which might be introduced elsewhere in Malawi, and because so little is known about how such programs operate at the community-level, it is vitally important that the service delivery aspect be closely monitored. To begin with, a thorough baseline study of the target population must be made to determine knowledge, attitude and practices in relation to child survival activities prior to the initiation of the PHICS-supported

interventions. This should be periodically updated to determine what progress is being made. It should be possible to identify changes in knowledge (resulting from the IEC activities), coverage (resulting from improved service delivery - in immunization rates of under one year olds, use of ORT, presumptive treatment of malaria, contraceptive usage), and possibly even impact (if some simple means of collecting vital statistics is found*).

In addition to project impact on the population KAP and health status, it is essential that the delivery process itself be monitored. Program planners must know what happens at the contact point between the service provider and the client (i.e. target group). This calls for participant observation and what is referred to as "process documentation". As described in Annex A.2, the contracted research institutions will receive limited support under the PHICS Project and should be primarily responsible for designing and carrying out the service delivery process evaluation exercise. This would be supported out of the funding provided the Research Unit. It is also expected that the Peace Corps Volunteers will be able to contribute to the evaluation exercise.

8. Budget/Recurrent Costs

The recurrent obligation to the MOH of the CS service delivery component once the Project comes to an end is approximately \$60,000 per year, all in personnel costs (300 female HSAs and 30 enrolled midwives).

G. Community Contributions

1. Water (MOWS):

The contributions of local communities to project development are several, including participation in a series of project, tap, and health committees, mobilization of communities to participate in project implementation, voluntary labor inputs during construction, provision of local materials such as sand and gravel, participation in voluntary pipe repair teams, and cash contributions for purchase of replacement taps. By far, the greatest local input occurs during project construction, when hundreds and often thousands of local villagers participate in trench digging, pipe laying, and backfilling. Almost all (over 99%) of the more than 5500 kilometers of pipe trenches in the overall Malawi rural water program have been dug by voluntary labor, and most of it by women. Only a few kilometers of extremely difficult or isolated sections have been built with paid labor.

* Villagers generally know when someone in the community gives birth or dies. With a network of community health workers and HSAs functioning at that level, it is possible that some rough idea of vital events can be collected.

In the final evaluation of the current USAID project (WASH Field Report No. 186), self-help labor contributions were conservatively assessed at K0.50 per meter of trenching, with the total value of trenching labor in the project equivalent to \$387,000. There are grounds for revising this assessment of labor contributions upwards. In the large Mpira-Balaka water scheme, the HOWS is using directly hired labor for a number of mains and branches. The costs of this labor are averaging as follows:

| | |
|------------------------------|------------------------|
| * Excavation | K4.00 per meter |
| Delivery to site | 0.26 " " |
| * Stringing & laying | 1.00 " " |
| Testing | 0.10 " " |
| * Backfilling & finish drain | 1.00 " " |
| Total | K6.36 per meter |

* Self-help components

Based on these figures, it was decided to use a self-help labor cost equivalent of K6.00 per meter for pipe diameters equal to or greater than 200mm and K4.00 for pipe diameters less than 200mm.

The above unit labor values were used to estimate the self-help component in new construction projects planned for the PHICS Project. For 15 proposed schemes, this input totaled K1,600,000. On average, self-help labor equals about 16 percent of total project value, or 19 percent of project monetary costs.

For maintenance inputs, local contributions were assessed conservatively on the basis of the Mukwa (1986) findings that project beneficiaries contribute an average of K0.02 capita/year in cash and K0.13 capita/year in labor and materials. If it can be assumed that at least 1,500,000 people will be receiving piped water by the end of the PHICS Project, the maintenance contributions of the local communities, therefore, have a cash value of K210,000 and an in-kind value of K1,365,000.

2. HESP (MOH):

Community contributions to the manufacture of San-plat latrine slabs include the provision of sand, stone, water, and labor which are assessed at K2.00 per slab. Since the project goal is to manufacture and install 62,500 San-plat slabs, the equivalent value of self-help inputs is K125,000

Similarly, the construction of clothes washing slabs include community inputs of burnt bricks, sand, and labor. For each washing slab, the bricks (100 needed) have a market value of K3.50, while sand (2.6 cubic meters) is assessed at K5.00, and labor (4 days) is valued at K8.00. The total self-help input of K16.50 per washing slab, therefore,

is worth a total of K132,000 when applied to all 8000 water taps needing washing slabs under the project.

Total community self-help contributions in the PHICS Project are estimated at K2,847,000, as shown below:

| Community Contributions | Estimated Value (1000K) |
|------------------------------------|-------------------------|
| Water: | |
| Construction Labor | 1600 |
| Cash | 210 |
| Maintenance Labor | 1365 |
| Sub-Total (Water) | 3175 |
| Sanitation: | |
| San-Plat Latrines | 125 |
| Washing Slabs | 132 |
| Sub-Total (Sanitation) | 257 |
| Total (Community Self-Help) | K3432 |

The community will also have the opportunity to demonstrate its support for the project by assisting in the construction of housing for new HESP HAs assigned to rural health centers. House building materials worth K10,000 will be made available under the project to 25 new HAs. It is expected that the local communities will provide volunteer labor to help the HAs erect the houses. No estimate is available of the value of this volunteer labor.

3. Child Survival/MCH (MOH):

The community contributes in a number of ways in the health service delivery component of the PHICS Project. Their involvement begins in the community orientation aspect where the village participates in an assessment of their health needs. A health committee is formed once the villagers see that there are ways that they can improve the chances of their children to survive through available and accessible health interventions. One or several community women whom the village believe will serve them well are chosen to provide some simple services (e.g., mix and provide ORS, dispense chloroquine, possibly serve as a depot for contraceptives and a few non-toxic, high demand medicines). Such involvement by the community, with the training, support and supervision of the local health workers, will link the villages to the health infrastructure and relieve some of the burden on the fixed health sites (especially the health centers).

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Another tangible way in which the community will participate in the health service delivery component is to provide labor and local inputs (e.g., sand, water) to help construct a house for the enrolled nurse midwife who will be assigned to health centers located in Project areas. Materials provided through the project will make this possible. It is expected that the same community action demonstrated in the construction of water systems and school buildings will be forthcoming when the value of the health service delivery approach is understood by the local population. Without a house for the nurse midwife, the vital female HSAs cannot be trained or supported, hence the health services will not be provided. The villagers' support will demonstrate their understanding and support for the strategy. The contributions of the community, both at the village level and at the health center, are the foundation upon which the health service delivery component is built and the only means the government has in reaching the population with the essential child survival services.

H. Expected Results

H.1 Water Supply (MOWS)

1. Immediate Results

The expected results of the project in the rural piped water supply sub-sector will be those which affect water uses in the village and those which affect the capacity of the MOWS to carry out future water programs. The key outputs will include:

- 245,000 rural inhabitants supplied with low cost, safe, piped water;
- communities in 14 new water schemes having sustainable piped water supply;
- the RWS strengthened with the addition of three additional engineers and at least 10 monitoring assistants;
- washing slabs routinely constructed alongside all taps in new schemes;
- routine water quality monitoring established in all piped water schemes;
- temporary water quality standards established for rural water schemes;
- both in-service and off-shore training courses for MOWS staff expanded; and
- annual study tours to neighbouring countries established.

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2. Long-Term Impact

The long-term effects of the project are several:

- overall improvement in environmental health conditions in project areas;
- increase in disposable time for rural women and children;
- other child survival and primary health care interventions become more acceptable to rural communities.

There are several key assumptions underlying these outcomes:

- there are positive, reinforcing effects that are produced by the joint introduction of safe water, sanitary latrines, increased knowledge of hygiene practices, and selected child survival interventions;
- both the MOWS and the MOH are seriously interested in achieving health benefits with rural piped water program;
- the MOWS and MOH effectively coordinate their field activities; and
- HESP activities expand in pace with MOWS construction program.

H.2 HESP (MOH)

1. Immediate Results

As in the case of water supply, HESP outcomes will affect both inhabitants of project villages and the capacity of the MOH to provide HESP services.

- 1,500,000 villagers reached with HESP services;
- 8,000 washing slabs constructed at existing water taps;
- 62,500 sanitary latrines constructed serving 375,000 people; and
- HESP staff strengthened and expanded at all levels.

2. Long-Term Impact

- sanitation established as effective bridge between water supply and child survival interventions;
- combination of water, sanitation, and child survival interventions established as standard community health package; and

overall improvements in environmental health conditions in project areas.

The assumptions necessary to achieve these long-term outcomes are the same as those listed for water supply interventions.

H.3 Health (MOH)

1. Immediate Results

By the end of the project, an estimated 300,000 households and approximately the same number of under-five children will be served by the community-based MCH/Child Survival interventions. Some of the outputs that can be expected include:

- 300,000 mothers educated on improved MCH/child rearing practices;
- 50,000 infants receiving basic immunization each year;
- 75% of the cases of diarrhea treated with ORT at the village level;
- 75% of malaria cases treated presumptively at the village level;
- 80% of pregnant women receive at least two ante-natal examinations and receive two doses of tetanus toxoid;
- 30,000 couples utilize some form of contraception.

The health outputs can never be achieved without the development of a supporting health infrastructure. For the MCH/Child Survival interventions to be delivered effectively, the health structure below the district level will be strengthened in Project areas. The MCH nurses will have additional staff which make effective outreach a possibility, thereby fulfilling the expectations of the national 10-Year Health Plan. Under the PHICS Project 30 nurse midwives will be added to health centers and 300 female HSAs will be added so that the ratio of population to worker makes it feasible for meaningful activities to take place at the community level.

2. Broader Impact

The service delivery of the PHICS Project is a learning opportunity. The strategy described in these papers is only a normative design. Based on experience in Malawi and elsewhere, the approach described here is feasible. But it is presented here as a concept to be tested. Rather than a formula which is presented as the means to achieving a set goal, the proposed community-based strategy is a conceptual framework which should be experimented with.

Many assumptions are being made; they are testable hypotheses:

- water, sanitation and focused MCH services provided at the community level will produce a positive impact in under-five health status;
- the community will actively support integrated water, sanitation, health activities;
- village women can be trained to be effective health workers;
- with adequate support and supervision, volunteer health workers will provide on-going service to the community;
- female workers can effectively supervise village workers.

These are only a few of the things that will be learned over the next seven years. The lessons learned and experiences gained will provide a valuable input into what direction the MOH should take in reaching the remainder of the population of Malawi. Thus the potential impact of the PHICS Project extends beyond the 1.5 million population to be served. It is hoped that the integrated water, sanitation, targeted health approach will be a model for the rest of this country and possibly even beyond.

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ATTACHMENT TWO

JOB DESCRIPTION

POST: PROGRAMME MANAGER CDD/MALARIA

1. Act as Secretary to Technical subcommittee.
2. Co-ordinate all activities within CCD/Malaria control programme.
3. Plan for the programme: organize workshops/consultants' visits/staff needs/etc..
4. Prepare workplans/budgets for discussion.
5. Liaise closely with Regions/Donors and other disease control programmes.
6. Monitor drug use, and prepare estimates for drug needs.
7. Participate in research and development for monitoring and evaluating methods.
8. Assure collection and analysis of pertinent data.
9. Prepare informational reports.
10. Visit areas of operation periodically to keep abreast of developments, problems, and achievements on the grounds.
11. Carry out other duties that may from time to time be assigned.

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RURAL WATER, SANITATION, AND HYGIENE EDUCATION

Service Delivery

| Program Obligations | CONTRIBUTIONS (1000's) | | | | |
|-----------------------------|------------------------|---------|------------|-----------|---------|
| | Community (K) | GOM (K) | PHICS (\$) | HRID (\$) | PC (\$) |
| <u>MOWS</u> | | | | | |
| <u>Construction Program</u> | | | | | |
| Salaries - Field Staff | - | 346 | - | - | - |
| Commodities | - | - | 2937 | - | - |
| Operating Costs | | | | | |
| - Subsistence | - | 100 | - | - | - |
| - Fuel & Maintenance | - | - | 416 | - | - |
| Self Help | 1600 | - | - | - | - |
| Sub-Total | 1600 | 526 | 3353 | - | - |
| <u>Maintenance Program</u> | | | | | |
| Salaries - Field Staff | - | 360 | - | - | - |
| Spares & Replacements | 132 | - | 209 | - | - |
| Operating Costs | | | | | |
| - Subsistence | - | 144 | - | - | - |
| - Fuel & Maintenance | - | - | 211 | - | - |
| Water Quality Monitoring | - | 175 | 88 | - | - |
| Self Help | 858 | - | - | - | - |
| Sub-Total | 990 | 679 | 508 | - | - |
| Total (MOWS) | 2590 | 1205 | 3861 | - | - |
| <u>MOH:</u> | | | | | |
| Salaries - Field Staff | - | 401 | 321 | - | - |
| Materials & Supplies | | | | | |
| - San Plat Latrines | 125 | - | 122 | - | - |
| - Washing Slabs | 132 | - | 272 | - | - |
| Operating Costs | | | | | |
| - Subsistence | - | 180 | 144 | - | - |
| - Fuel & Maintenance | - | - | 670 | - | - |
| Total (MOH) | 257 | 581 | 1529 | - | - |
| Grand Total (Serv. Del.) | 2847 | 1786 | 5390 | - | - |

RURAL WATER, SANITATION, AND HYGIENE EDUCATION

Institutional Strengthening

| Program Obligations | CONTRIBUTIONS (1000's) | | | | |
|--------------------------------------|------------------------|---------|------------|-----------|---------|
| | Community (K) | GOM (K) | PHICS (\$) | HRID (\$) | PC (\$) |
| <u>MOWS</u> | | | | | |
| <u>Construction Program</u> | | | | | |
| Salaries - HQ Staff | - | 60 | - | - | - |
| Salaries - PC Volunteers | - | - | 10 | - | (?) |
| Vehicles & Equipment | - | - | 465 | - | - |
| Tools & Maintenance | - | - | 35 | - | - |
| Sub-Total | - | 60 | 510 | - | - |
| <u>Maintenance Program</u> | | | | | |
| Salaries - HQ Staff | - | 120 | - | - | - |
| Vehicles (motorcycles) | - | - | 10 | - | - |
| Tools & Miscellaneous | - | - | 52 | - | - |
| Water Quality Monitoring | - | 11 | 21 | - | - |
| Sub-Total | - | 131 | 83 | - | - |
| <u>Information Resources Program</u> | | | | | |
| Information Systems | - | - | 15 | - | - |
| Computer-Asst. Design | - | 5 | 40 | - | - |
| Applied Studies | - | 35 | 110 | - | - |
| Coordination | - | 33 | - | - | - |
| Training (in-service) | - | 358 | 29 | - | - |
| Training (off-shore) | - | - | - | 249 | - |
| Sub-Total | - | 431 | 194 | 249 | - |
| Total (MOWS) | - | 622 | 787 | 249 | (?) |
| <u>MOH:</u> | | | | | |
| Salaries - HQ Staff | - | 16 | 13 | - | - |
| Vehicles | - | - | 345 | - | - |
| Tools & Miscellaneous | - | - | 21 | - | - |
| Housing Materials | - | - | 100 | - | - |
| Training (in-service) | - | 350 | 283 | - | - |
| Training (off-shore) | - | - | - | 62 | - |
| Sanitary Research Unit | - | - | 16 | - | - |
| Total (MOH) | - | 358 | 775 | 62 | - |
| Grand Total (Inst. Str.) | - | 930 | 1562 | 311 | (?) |

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ANNEX A.5
FINANCIAL AND ECONOMIC

ANNEX A.5

PROJECT ANALYSISFINANCIAL AND ECONOMICOutline

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FINANCIAL AND ECONOMIC ANALYSIS

Macroeconomic and Fiscal Background

Malawi's per capita income in 1987 was US\$174 equivalent, below average for sub-Saharan Africa. The economy grew strongly in the 1970s with average annual increases in GDP per capita of 3.2%. This progress came to a halt in 1979 with real GDP per capita declining at an average annual rate of 1.3% over the period 1979-1981, this owing in good part to external developments. The Government responded by implementing an adjustment program assisted by arrangements with the Fund and the World Bank. The economy recovered somewhat with the real GDP growing by about 4.0% per year 1982-1984. Once again, however, the economy encountered rough sailing, the rate of real growth declined falling to 2.7% in 1986, somewhat below the rate of population growth. As before, these adverse developments reflected external factors (closure of traditional routes through Mozambique, further deterioration in the terms of Trade) as well as internal factors, particularly increasing public sector deficits. In 1987, in addition to continuing difficult economic and fiscal conditions, additional problems emerged. A growing influx of refugees from Mozambique put additional burdens on the fisc and a shortfall in production of maize contributed to a national food shortage. The Government responded with structural reforms but real output fell by 0.2%.

This brief sketch of recent economic events makes the point that over the past decade, the economy of Malawi has experienced formidable difficulties. The Government continues to confront these difficulties and continues to respond to them (e.g., additional structural reforms) in the context of a structural-adjustment agreement with the Fund. Awareness of this recent economic history and some information about current macroeconomic and public-finance policies (discussion to follow) provide a necessary context to inform our thinking about health-sector planning and health-sector events in Malawi and, more particularly, to inform our thinking about the role of PHICS in assisting the development of the health sector in Malawi.

The Government has promulgated a Statement of Development Policies 1987-1996 (1) which lays out the strategies to be assayed over the next ten years pursuant to economic development objectives. In this context, it is important initially to remark that the health sector is seen as an important and integral part of the overall development program and effort. Thus, according to Policy Framework (2, p. 6):

"Malawi's large unexploited human resource investment opportunities offer significant potential for economic growth. Levels of education, health, and nutrition in Malawi are some of the lowest in sub-Saharan Africa. Thus, the Government places high priority on expanding the social sector infrastructure ... The impact on growth of these policies would be in the longer term."

Pursuant to its development objectives, the Government has developed two growth scenarios, the first more conservative than the second regarding assumptions about available external financial resources (See 2, pp. 6 it seq.).

Under the first scenario, the medium-term adjustment program would result in a real GDP growth of 1.5% in 1988, 3.3% a year in 1989 and 1990 and then sustained growth of about 4.0% a year in the 1990s. This scenario entails a rather harsh prospect, there would be no increase in real GDP per capita until the 1990s and even then growth per capita would be miniscule. Understandably, the Government does not consider the growth rates entailed by this scenario to be adequate.

The Government will be striving for higher growth rates than those contemplated under scenario one. Thus, under scenario two, the target would be a real growth rate of 1.5% in 1988, rising to 4.5% by 1990 and to about 5.0% thereafter. The second scenario assumes a higher rate of foreign concessional inflows. Under the second scenario, all development programs could be prosecuted with greater intensity. As part of this and of particular interest in this context, resource commitment to human-resource development, including health, could be greater.

Under either scenario, the Government recognizes the critical importance of achieving fiscal discipline. An important mid-term objective is to reduce the overall deficit (before grants and debt relief) to a level that can be financed almost completely by concessional foreign loans and grants. Until the timing and magnitude of this external financing is better known, the strategy is to follow a cautious fiscal policy. Under either scenario, achieving the necessary fiscal discipline will require that the total expenditure of the Government be strictly contained.

According to Policy Framework (2, p. 13), containing Government spending will be reflected, under the first scenario, by a three percentage point reduction in the overall expenditure to GDP ratio, to 23.5% by 1990-91, a 3.0% reduction in real terms compared with 1988-89. Under the second scenario, a lesser reduction in the expenditure to GDP ratio would permit some modest growth in real government expenditure, namely at an annual rate of 0.5% over the period 1987-88 - 1990-91. Over the period 1990-91 - 1996-97, a higher, but still relatively modest rate of growth in real government expenditure is contemplated, namely at an annual rate of about 2.8%, somewhat less than the rate of growth of the population (See 1, p. 188, table 23.8). Thus, even at best, under the more optimistic projection, the rate of growth of real government expenditure would be meagre and would in any case represent a decline in real government expenditure per capita for the whole ten year period.

Real wages in the civil service have remained virtually constant since 1980 and to contain the wage bill the government will continue a restrained wage and salary policy and net civil service employment,

following a freeze in 1988-89, will be allowed to grow by no more than 2.0% in each of the following two years and the program to reduce the number of non-established positions will be continued (2, p. 13).

Public investment will continue to be guided by the rolling three-year Public Sector Investment Program (PSIP) (2, p. 17). Infrastructural investments with low economic return will not be undertaken and individual investment projects will be evaluated in terms of their contribution to economic growth and income distribution implications. The implications of projects for recurrent expenditure will be taken into account when making judgements about the appropriateness of the development budget.

The foregoing sketch of macroeconomic expectations and overall Government fiscal policy make it clear that tight fiscal stringency will be very much the order of the day for some time to come. However, it is important to remark that the implications for health-sector financing may be less ominous than this overall picture might suggest. The reason for this is that Government plans to take steps to address the social impact of its structural adjustment program (2, p. 27). The Government hopes to overcome Malawi's serious economic development problems while at the same time not deteriorating the position of the most vulnerable and disadvantaged groups. As part of this, the Government program seeks to improve the provision of social services. The Government's strategy is to increase the allocation of expenditures to the social services such that the strict containment of public expenditures during the program period does not erode their provision (2, p. 29). With the additional resources assumed under the second scenario, the Government expects to strengthen its level of services to meet its objectives of raising levels of education, health and nutrition to compare more favorably with other sub-Saharan African countries. Table I (following page) exhibits the Ministry of Health (MOH) recurrent budget as a percentage of the total Government recurrent budget for recent years and as projected for the ten-year period for which development policies have been set out. For the 1987 - 1996 period, the MOH budget is projected to increase from 7.0% of the total recurrent budget to 10.7%. This implies an average annual rate of growth in the MOH budget in real terms of 5.7% over this period, a significantly faster rate of growth than is projected, even under the more optimistic second scenario, for GDP or for overall Government expenditure.

We may now turn to the National Health Plan (3) to consider some of its implications in the light of Government fiscal policy as sketched foregoing.

TABLE I

GOVERNMENT OPERATIONS / REVENUE ACCOUNT

MOH RECURRENT BUDGET AS A PERCENT OF TOTAL GOVERNMENT RECURRENT BUDGET

| <u>Year (FY)</u> | <u>% MOH of Total</u> |
|------------------|-----------------------|
| 1980 | 6.8 |
| 1981 | 8.2 |
| 1982 | 7.0 |
| 1983 | 6.7 |
| 1984 | 7.3 |
| 1985 | 7.0 |
| 1986 | 6.4 |
| 1987 | 7.4 |
| 1988 | 7.9 |
| 1989 | 8.2 |
| 1990 | 8.6 |
| 1991 | 9.0 |
| 1992 | 9.4 |
| 1993 | 9.6 |
| 1994 | 10.0 |
| 1995 | 10.4 |
| 1996 | 10.6 |

Sources

- 1980 - 1984, Actuals, World Bank 1985 (4), p. 53, Table 5.5.
 1985 - 1986, Revised Estimate and Estimate respectively, Estimates FY 1988/87 (5)
 1987 - 1996, Projections, Development Policies (1, p. 188, Table 23.8)

The National Health Plan of Malawi

USAID's health-sector assistance portfolio, including project PHICS, seeks selectively to assist the GOM in implementing its health plans. Project PHICS, in particular, proposes to be very selective in its engagement with MOH and other health-sector events. Nevertheless, we will require at least some brief overview of aspects of the National Health Plan as a whole in order to inform our evaluation of PHICS. For example, issues of sustainability which may arise in connection with PHICS components will need to be seen in the context of the overall fiscal implications of the National Health Plan.

In evaluating the role and potential contributions of USAID health-sector assistance in Malawi, we need to keep in mind that the MOH health-services system itself comprises only a part of the total health-services sector; A report of a recent health-financing survey in Malawi remarks (6, p. 23):

"It has also to be noted that while the Ministry of Health is, in principle, responsible for the whole health sector, it controls only 39.4% of the funds spent in the sector."

Table II on the following page (6, table 6 reproduced here) reports estimated national recurrent health expenditure/financing by source for 1980/81.

Among non-MOH providers, the Private Hospital Association of Malawi (PHAM) in particular makes a major contribution to health services in Malawi. The National Health Plan document (3, p. 9-4) reports that in the area of hospital care, PHAM contributes just over one-third of admissions and in-patient days and for rural health facilities it is nearer half. Although PHAM has been mainly a provider of in-patient care and hospital-based services, in recent years efforts have been made to expand the outreach and preventive activities of PHAM units, especially through under-five clinics and, more recently, primary health care. PHAM trains a relatively large number of Enrolled Nurse Midwives with 154 graduated from their three-year program each year while the two-year Enrolled Midwife course produces 72 candidates each year. By comparison, the annual total output of the MOH nursing programs, one four-year program one three-year program, is only 60 nursing candidates. Table III following (3, Table 3.1 reproduced here) exhibits health units and number of beds by controlling agency and unit type for Malawi 1986. The category "other" includes estates and private companies that provide some health care for their employees.

TABLE II: ESTIMATED NATIONAL RECURRENT HEALTH EXPENDITURE AND SOURCES OF FINANCING 1980/81 (MK)

| HEALTH SECTOR | MOH | OTHER MIN | LOCAL GOVT | OTHER STATUTORY BODIES | PHAM (MISSIONS) | INDUSTRY | LOCAL VOL BODIES CHARITIES | DIRECT PVT PAYMENTS FOR HLTH SERVICES | INSUR -ANCE | SELF HELP/ OTHER PVT RESOURCES | FOREIGN AID: OFFICIAL | FOREIGN AID: PRIVATE | TOTAL |
|-------------------------------|-----------------|----------------|----------------|------------------------|-----------------|---------------|----------------------------|---------------------------------------|----------------|--------------------------------|-----------------------|----------------------|-----------------|
| Central Hospitals | 4204000 | | | | | | 256000 | 86000 | | | | | 4546000 |
| General Hospitals | 316000 | | | | | | | 40000 | | | | | 356000 |
| District Hospitals | 3427000 | | | | 596000 | | | 766000 | | | | 463000 | 5262000 |
| Primary Health Centers | 340000 | | | | 87000 | | | 112000 | | | | 20000 | 566000 |
| Dispensary/Maternities | 653000 | | 43000 | 99000 | 264000 | 42000 | | 313000 | | | | 86000 | 1500000 |
| Dispensaries | 413000 | 2000 | 29000 | 165000 | 3600 | 545000 | | 52000 | | | | 600 | 1242000 |
| Maternities | 25999 | | 300000 | | | | | | | | | | 325000 |
| Mental Hospital | 240000 | | | | | | | | | | | | 240000 |
| Services Abroad | | 45000 | | | | | | | | | | | 45000 |
| Private Practitioners | | | | | | | | 1992000 | | | | | 1992000 |
| Traditional Healers | | | | | | | | 588000 | | | | | 588000 |
| Drugs and Dressing Supplies | 333000 | | | | | | | | | | | | |
| Communal Disease Control | | | | | | | | 2670000 | | | | 123000 | 3126000 |
| (i) Leprosy | 58600 | | | | 12000 | | | 38000 | | | | | |
| (ii) Other | 296000 | 216000 | 135000 | | | | | | | | | 225000 | 333000 |
| Domestic Water Supply | | 543000 | | | | | | | | | 367000 | 495000 | 1509000 |
| Sanitation Programmes | | | 759000 | | | | | 4707000 | | | | | 5250000 |
| Nutrition Programmes | | | 233000 | | | | | 232000 | | | | | 991000 |
| Transport | | 292000 | | | | | | 2000 | | | 2000000 | | 2235000 |
| Headquarters Administration | 2324000 | | 633000 | | | | 119000 | | | | | | 411000 |
| Training Doctors/Dentists | | | | | | | 71000 | | | | | | 3928000 |
| Training - Other Health Staff | 170000 | | | | | | | | | | 521000 | | 521000 |
| Other Services | | 13000 | | | 120000 | | 49000 | | | | 39000 | | 253000 |
| | 13309000 | 1111000 | 2123000 | 264000 | 1115000 | 53700 | 728000 | 11668000 | 1200000 | | 8000 | 156000 | 1820000 |
| Transfers | 1115000 | | | | 1115000 | | | | | | 2935000 | 1597000 | 36646600 |
| | | | | | | | | | | | | | 1115000 |
| TOTAL | 14424000 | 1111000 | 2123000 | 264000 | | 537000 | 728000 | 11668000 | 1200000 | | 2935000 | 1597600 | 36646600 |
| | 39.4 | 3.0% | 5.8% | 0.7% | | 1.6% | 2.0% | 31.8% | 3.3% | | 8.0% | 4.4% | 100% |

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TABLE III
HEALTH UNITS AND NUMBER OF BEDS BY
CONTROLLING AGENCY AND UNIT TYPE
MALAWI 1986

| UNIT TYPE | MOH | | | | PHAM | | | | L. GOVT. | | | | OTHER | | | |
|------------------------|-------|---------|---------------|-------|-------|---------|---------------|-------|----------|---------|---------------|-------|-------|---------|---------------|-------|
| | UNITS | MATERN. | BEDS OTHER | TOTAL | UNITS | MATERN. | BEDS OTHER | TOTAL | UNITS | MATERN. | BEDS OTHER | TOTAL | UNITS | MATERN. | BEDS OTHER | TOTAL |
| HOSPITALS | 24 | 788 | 3332 | 4120 | 20 | 719 | 2003 | 2722 | 0 | 0 | 0 | 0 | 4 | 58 | 81 | 139 |
| LEPRO/MENTAL HOSPITALS | 2 | 2 | 317 | 319 | 4 | 0 | 140 | 140 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PRIMARY HEALTH CENTERS | 19 | 181 | 449 | 630 | 19 | 295 | 534 | 829 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DISPENSARY/MATERNITY | 78 | 626 | 208 | 834 | 63 | 663 | 259 | 922 | 6 | 35 | 7 | 42 | 17 | 71 | 128 | 195 |
| MATERNITY | 9 | 65 | 5 | 70 | 11 | 154 | 41 | 195 | 68 | 552 | 24 | 576 | 8 | 62 | 0 | 62 |
| DISPENSARY | 92 | 42 | 88 | 130 | 24 | 33 | 20 | 53 | 17 | 17 | 3 | 20 | 177 | 20 | 97 | 117 |
| HEALTH POSTS | 56 | 0 | 0 | 0 | 10 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| TOTAL | 280 | 1704 | 4399 | 6103 | 151 | 1872 | 2997 | 4869 | 91 | 60 | 34 | 638 | 208 | 211 | 306 | 517 |

Source: The National Health Plan of Malawi (3)

Recurrent-Cost Implications of the National Health Plan Overall

Virtually the entire MOH development budget is financed by donors and it is assumed that this pattern will be continued during the forthcoming ten-year plan period. However, the planners must keep in mind that today's development expenditure, however financed, brings with it tomorrow's obligation on associated recurrent-cost account. Consequently, the National Health Plan document makes a commendable effort to estimate the recurrent-cost implications of the development projects planned for the ten-year period (see 3, Chapter 7).

In looking at the recurrent-cost burden implied by the Plan, Chapter 7 of the Plan document seeks to assess "in an approximate way" the feasibility of the planned development projects. The plan document remarks (3, p.7-2):

"A detailed budget for the next ten years is not given. The principal reasons for this are as follows. First of all, all activities cannot be sufficiently specific detailed for those activities to be "costed." Where this level of specificity is not achieved, mechanisms are described whereby such specificity can be sought during the plan period. Secondly, relative input prices into the health sector in Malawi are by no means stable."

Nevertheless, the Plan document estimates the manpower implications of the planned programs over the ten-year period and the cost implications of these manpower requirements plus the additional operating costs that are estimated to be entailed by the planned programs.

The manpower requirements imply virtually doubling the MOH staff (from 5,674 to 10,652) over the ten-year period (3, Table 7.2, p. 7-5). Whether this is feasible depends upon not only the recurrent costs incurred in posting this additional manpower (apparently taken into account in estimating overall recurrent-cost implications) but also the capacity of the training facilities to produce the manpower and the willingness of the GOM to increase the MOH establishment to this extent (create the additional posts). The Plan document takes a generally sanguine view of the capacity of the training facilities (which will be somewhat enhanced by planned programs). There is not much discussion of the second constraint although one would suppose that there may be problems on this score. It will be recalled from our earlier discussion that fiscal policy in Malawi calls for restraints on civil service employment. That is, following a freeze in 1988-89, civil service employment will be allowed to grow by no more than 2.0% in each of the following two years (this would yield a little over 100 new posts in each of those years). To the extent that Project PHICS components call for increases in MOH staffing to be sustained over the longer post-project run, we will have to keep such rules limiting the rate of increase in establishment in mind.

Turning to the overall recurrent-cost burden entailed by the Plan, Table IV (following page) exhibits Plan document estimates of the cumulative additions to recurrent cost over the ten Plan years -- for both so-called capital projects and other projects (that do not fall under the capital-projects category). Table V exhibits some detail for the other programmes. For these programmes, the calculations have been carried by the Plan document only to 1989/90, and we have presented in Table IV a total for both kinds of programs to that year. Increasingly for years beyond that, the relative contribution of "other programs" to the total (if we simply carried the 1989/90 figure forward) diminishes such that we may neglect it for purposes of this part of the discussion. (This brings our discussion in line with that in the Plan document to which we shall want to make reference).

The Plan document takes as the base year recurrent expenditure (costs) K28.0m (1984/85 final account) -- leaving out of account donor expenditure on "technical assistance" which represents funding of recurrent costs (estimated to be K13.7 in the base year). Adding to the base-year recurrent cost the cumulative incremental recurrent cost entailed by the Plan, we arrive in Plan year 10 with a total recurrent cost of about K46.0m. However, it is assumed by the Plan document that donor funds for "technical assistance programmes" will continue to be available over the plan period at the same rate in real terms per annum (K13.7), i.e., that donors will continue to pick up this amount of recurrent cost. According to the Plan document (3, p. 7-15):

"This assumption implies that of the estimated K45.96m recurrent cost needed in 1995, the K13.7m currently being borne by donors under different programmes will continue to be borne by them. This leaves about K32.26 in constant 1984/85 prices to be met by the MOH recurrent budget."

That is, the Plan document assumes the the donor "technical assistance programmes" (representing recurrent-cost funding) are included in the Table 7.4 development programs for which the recurrent-cost implications have been estimated. On this basis, the implied annual rate of increase in the MOH recurrent-cost budget over the Plan years would be modest, from a base-year K28.0 to a 10th plan year K32.26m, or at an average annual rate of 1.58% during the Plan period. Turning to Development Policies (1, Table 23.8, p.188) we find that total government recurrent expenditure is anticipated to increase at an average annual rate of 1.13% during this period. Thus, the MOH anticipates only a slightly faster rate of increase in recurrent costs than the Department of Economic Planning and Development anticipates for the total government recurrent budget, suggesting that if the MOH recurrent costs were to be funded out of that budget, the MOH share of the total would have to increase only slightly.

TABLE IV

THE NATIONAL HEALTH PLAN OF MALAWI 1986 - 1995RECURRENT-COST IMPLICATIONS (1984 PRICES)

| <u>Plan Year</u> | <u>Cumulative Incremental Recurrent Costs (Non-Cap)</u> (K millions) | <u>Cumulative Incremental Recurrent Costs (Capital Proj)</u> (K millions) | <u>Total</u> |
|------------------|---|--|--------------|
| 1. | .250 | .094 | .344 |
| 2. | .567 | .269 | .836 |
| 3. | .730 | .658 | 1.40 |
| 4. | .766 | 1.28 | 2.05 |
| 5. | .766 | 2.19 | 2.95 |
| 6. | | 4.55 | |
| 7. | | 7.56 | |
| 8. | | 10.74 | |
| 9. | | 14.16 | |
| 10. | | 17.74 | |

Source: Calculated from National Health Plan Table 7.4 (3, p. 7-8) and Table 7.5 (p. 7-12)

TABLE V

SUMMARY BY PROGRAM OF ADDITIONAL MOH RECURRENT EXPENDITURE
THAT WILL BE REQUIRED BY APPROVED DEVELOPMENT PROJECTS IN
THE NATIONAL HEALTH PLAN (1984 prices)

| <u>Program/Delivery System</u> | <u>Expenditure (cumulative)</u> | | | | |
|-----------------------------------|---------------------------------|---------|---------|----------|---------|
| | 1985/86 | 1986/87 | 1987/88 | 1988/89 | 1989/90 |
| PHC Extension | 85,200 | 134,250 | 223,250 | 258,950 | 258,950 |
| MCH | 12,600 | 39,000 | 63,000 | 63,000 | 63,000 |
| EPI | 2,700 | 125,100 | 130,300 | 130,300 | 1303,00 |
| Manpower Developments | 77,580 | 159,980 | 199,980 | 199,980 | 199,980 |
| Central Organization Developments | 72,000 | 108,300 | 113,600 | 113,600 | 113,600 |
| TOTALS | 250,080 | 566,630 | 730,130 | 765, 830 | 765,600 |

Source: The National Health Plan (adapted from Table 7.5, p. 7-12)

Divergent Expectations on Revenue Account

MOH expectations on revenue account appear to be modest (3, p.7-16):

"Trends in budgetary allocation are difficult to predict. An assumption is made that real budgetary allocation will remain at the level of the 1985/86 allocation [K21.5m net]. With this assumption, a deficit of at least K10.76 is expected by 1995. [In that year, recurrent costs were estimated at K32,26m.] Means of financing this deficit have got to be identified."

With a 3.3% or so annual rate of increase in population, assuming no increase in the real MOH budgetary allocation also assumes a very substantial reduction in real terms in that allocation per capita.

This assumption appears to be far more pessimistic than would be warranted by the GOM fiscal policies set out in Statement of Development Policies (1) and Malawi Policy Framework Paper (2). According to these policies (see discussion above), the MOH budget is projected to increase at an average annual rate of 6.3% over the Plan period. If the MOH recurrent cost estimates are at least roughly accurate, this rate of increase in the MOH recurrent budget would mean no deficit. Indeed, even if we assumed that the 10th year recurrent cost burden was about K46.0 net of donor contributions to recurrent cost (i.e., not including these contributions as the Plan document does), the Plan would imply that recurrent costs will increase in real terms over the 10-year plan period at an average annual rate of about 5.7% -- less than 6.3% increase in the MOH recurrent budget projected by the fiscal policy statements.

It is clear that one's view of the feasibility from a recurrent-cost-burden point of view of the programs proposed by the National Health Plan will depend in good part on which of these versions of the future MOH budgetary allocation will in fact obtain, that of the MOH (which would entail responding to a projected deficit) or that of the Department of Economic Planning and Development (which, given MOH estimates of recurrent cost, would entail a surplus in the operating budget or a larger overall MOH program than projected by the MOH). Pursuant to this evaluation, we should recall from the prior discussion that Policy Framework (2) scenario one (the conservative scenario) anticipated GDP growth of 1.5% 1988, 3.3% 1989 and 1990 and then about 4% in the 90s. In this sense, Development Policy expectations about the rate of growth in the total recurrent budget appear to be themselves conservative, i.e., an average annual rate of increase of 1.1% (although this is slightly greater than scenario one's anticipated rate of increase in real government expenditure of 0.5% during the early years of the Plan period 1987/88-1990/91).

Savings Can Be Effected in the MOH Operating Budget

According to the Plan document, it has been clear for some time that savings can be effected in the hospitals (which absorb large portions of the annual budget) without detriment to the "output" of these institutions (3, p. 7-17). According to the Plan document, this potential has now been quantified by a detailed expenditure analysis carried out for the largest spender, notably QECH in Blantyre. This study concluded that, with several conceptually straightforward interventions, on the basis of the expenditure patterns in 1983/84, over 44% of all non-salary expenditure could be saved. (This would have come to about K1.2m per annum or about 10% of the total non-salary, non-grant MOH expenditure in 1983/84). Similar studies are planned for other areas where expenditures are high, headquarters and KCH in particular. And it is felt that significant savings are possible for the district hospitals. The magnitude of these possible savings and the approaches or interventions to realize them have not been worked out in programmatic detail in the Plan document. Nevertheless, the prospect for significant savings of the kind suggested in the Plan document does appear, in principle at least, to be a realistic one. The Plan document introduces the discussion of such savings in the context of finding ways to cope with the deficit on the current account projected by the MOH for the MOH budget. As we have seen, the projections for MOH operating budget by the Department of Economic Planning and Development obtain, the MOH would not seem to be confronting a deficit-financing situation. It should be emphasized, however, that whatever the outcome on this score, strategies to recoup the savings discussed in the Plan document should be prosecuted with vigor.

More Cost Recovery May Be Possible

There is also expected to be an increase in revenue for the MOH under the "Appropriations-in-Aid" account -- most of which comes from hospital fees levied in the paying sections of the three largest hospitals. By 1984/85, the historically prevailing fees for these services had become otiose such that the MOH was in fact subsidizing the paying sections of these hospitals (i.e. spending more to upgrade these services than was being recovered in fee revenue). The plan is to increase these fees to cover the costs of upgrading and then increase them periodically to keep up with changes in prices such that there is no subsidy by the MOH of the paying sections of these hospitals. The Plan document does not provide an estimate of the amount of cost recovery that would be necessary to achieve this objective.

The MOH does not at present have any plan or policy to attempt to make some "profit" from the paying sections of these hospitals, i.e., to recover more in revenue than the expenditure necessary to upgrade these services. (The MOH might, however, be interested in implementing a study looking into hypothetical prospects in this domain). We may remark in this context the a World Bank report has expressed the view (4, p. 52):

"... increased fees and a more effective collection system could increase appropriations-in-aid from the health sector from 3.0% of expenditure in FY'4 to more than 10% by FY'8."

Whether this is realistic I do not know (the basis for this conclusion is not provided), nor is it clear that this would be in line with current GOM policy in this domain. The Plan document introduces the discussion of possible increases in cost recovery again in the context of financing a possible deficit. It should be emphasized, however, that whatever the outcome on this score, there should be serious discussion and study of policy and prospects in the domain of cost recovery early in the plan period.

We provide additional discussion of this issue in a subsequent section of this report.

Overall Prospects on Revenue Account and Fiscal Discipline

For reasons explained in the Plan document, the estimates therein of the recurrent-cost implications of the planned development projects were necessarily no more than approximate. However, unless these estimates prove to be quite short of the mark, the projections of the MOH operating budget by the Department of Economic Planning and Development suggests that the prospects are good that the MOH will have the operating revenue to implement the programs which are contemplated by the National Health Plan.

In formulating the 10 year plan, the MOH was well aware that the financing context would be one of fiscal stringency and made an effort to devise a plan that would be conservative from this point of view. The plan is to review the 10 year plan on an annual basis with the intention of making such revisions as are called for. The MOH anticipates that this may allow for some upward revisions in planned programs.

During the Plan period, overall public investment will continue to be guided by the rolling three-year Public Sector Investment Program (PSIP). The Government will increase the coordination between the development budget and the recurrent budget (2, p. 17). The development projects which comprise the National Health Plan have been approved by the Department of Economic Planning and Development and other authorities as part of the Public Sector Investment Program and will be subject to the rolling three-year reviews of this Program. All the indications are that fiscal discipline will be maintained. In recent years, the MOH had been over spending its approved operating budget by as much as 50.0%. This practice will no longer be allowed.

According to the Planning Unit of the MOH, all donor-financed development projects in health are represented in the health component of the PSIP, i.e., there are no "off-plan" donor projects with significant

recurrent-cost implications. Thus, the recurrent-cost estimates for the National Health Plan cover the recurrent cost implications of the donor projects as these were known at the time of the plan and this information appears to be valid to this date.

This overview of some of the fiscal implication of the National Health Plan as a whole provides a context in which to examine the recurrent-cost setting for those component programs with which Project PHICS will be most closely associated.

PHC and Related Programs

In addition to development support for water systems, Project PHICS assistance will be mainly for PHC and related programs, particularly as these contribute to child survival. According to The National Health Plan (3, p. 4-7):

"The main constraint in achieving improvements in child survival has been the lack of access to modern health services as noted in the previous section. The key underlying constraint is the lack of knowledge and skills of families, especially mothers, about child rearing and child survival."

The PHC system in Malawi has been in a process of evolution and development. In 1981, the MOH implemented a pilot program to train 30 Primary Health Care Workers (PHWs) in three districts. Evaluation a year later showed that if the program were to be expanded to cover the whole country, the MOH would be unable to afford to pay the PHWs. A modified plan was developed, the key feature of which was the substitution of voluntary VHWs for paid PHWs. The plan stressed the importance of community participation and multisectoral collaboration. Each village health committee with the assistance of the PHC team was to identify health priorities and decide which problems it could be responsive to. The plan proposed to add three districts a year until 1990 by which time the entire country would be covered. By the time the National Health Plan was drafted, PHC activities had commenced in nine districts (3, p. 3-4).

The National Health Plan envisages (p. 5-6):

"In 1995, the peripheral health services, comprised of community based and facility-based services offered through standardized health centers, will be functioning throughout Malawi. Community-based services will have increased access by extending the community health system. Health Surveillance Assistants (HSAs), in conjunction with the PHC area team will be tested for effectiveness as agents working with communities in two major ways: helping villages identify their health problems and monitoring work of village committees trained during the Plan period."

The new HSA is to be a key health worker under this scheme. Among the tasks and activities for the Plan period will be to prepare a written description of the new role and responsibilities of the HSA.

As this brief sketch of recent history and current plans for development of the PHC system suggest, this system will at the outset of the National Health Plan period still be in an evolving and testing mode. Precisely how this system will be implemented and, just how it will perform on the ground will have to be learned through experience with implementing it during the early years of the plan period. Project PHICS will be assisting these developments and contributing to this experience.

The peripheral health services which carry the PHC are in part comprised of health centers and sub-centers of several kinds. The National Health Plan calls for a major expansion of these facilities. Based on a criterion of 10,000 population per center (and leaving out populations within hospital catchment area) 133 centers would be called for during the plan period. In addition, a number of units will have to be upgraded. Table VI (following page) exhibits the cumulative, incremental recurrent costs anticipated in consequence of expanding this network of facilities.

For several reasons it is hard to come up with a good figure for the base-year recurrent costs for this program to which the incremental costs should be added. The budget for these facilities is buried in Acct. 004, District and Other [i.e., than Central] Hospitals. There is little information available on how this account breaks down by hospital and "other" (non-hospital) facilities. A 1983 study (6) reporting data from six rural districts (Table 1, p. 9) suggests that, at a generous interpretation, perhaps about 40% of this account in 1981/82 went for the other (non-hospital) institutions. If we take 1987/88 as the second plan year, we find a Revised Estimate of K13.3m for Account 004, 40% of which, or K5.3m, perhaps was allocated for these peripheral facilities, to which we would add the K34,000 incremental cost. By the 10th Plan year, total recurrent cost (base line plus increment) would have reached about K12.2m. These rough calculations suggest that the Plan is calling for recurrent costs for the peripheral health-center network to increase at an average annual rate of almost 10.0% (even without attempting to adjust the base-line figure to reflect 1984/85 prices). Since the allocation to the peripheral facilities appears to represent only about 12% of the total MOH recurrent budget, this rate of increase would imply only about a 1.2% average annual increase in the overall budget if other programs were held constant in real terms. These calculations are obviously rough but enough perhaps to inform the conclusion that a relatively rapid increase in operating cost for the peripheral facilities is anticipated by the National Health Plan. We comment on this feature subsequently.

TABLE VI

THE NATIONAL HEALTH PLANCUMULATIVE INCREMENTAL RECURRENT COST OWING TO
EXPANDING HEALTH CENTER NETWORK

| <u>Plan Year</u> | Cost K 000s, (1984 Prices) |
|------------------|-------------------------------|
| 1. | 0 |
| 2. | 34 |
| 3. | 252 |
| 4. | 654 |
| 5. | 1,249 |
| 6. | 2,007 |
| 7. | 2,956 |
| 8. | 4,085 |
| 9. | 5,395 |
| 10. | 6,876 |

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* The Plan document assumes recurrent costs of K10,000, 7,000 and 3,000 for Health Centers, Dispensaries and Maternities respectively. In a recent study (10, p. 100) K9,900, 6,900 and 3,000 are given as estimates for these facilities respectively.

In addition to the network of health centers and related facilities, PHC services are provided by community based services and this whole delivery system is supported by a number of additional programs. The recurrent-cost implications of these programs, as estimated by the Plan document, have been exhibited in Table V foregoing. These costs were estimated for the period 1985/86 - 1989/90, most of which has already transpired. (Whether or not these additional expenditures were incurred on schedule I do not know). At least these estimates help further to inform the conclusion that The National Health Plan reflects, in its estimates of the resources to be required, its stated policy of increased emphasis on PHC services as a major feature of the Plan.

Comparing The Costs And Benefits of PHICS:

Initial Overview

In this section, we provide an introductory comparison of costs and benefits in general terms. For a project such as PHICS, attempts to do straightforward C-B and C-E analysis run into a number of difficulties. These are discussed in some of the sections to follow.

In responding to these problems, we stress that (and as the literature in this domain bears witness) it will be rarely, if ever that meaningful C-B and C-E analysis of the performance of health programs can be accomplished by what has become the conventional approach -- notably, an itinerant, short-term investigator trying to rush through such a study. If policy makers feel that C-B and C-E findings are worth assembling, then an effort should be made to assemble them in a proper way. This will require far more time and attention than usually is given to the task. Indeed, making these findings should be a regular, ongoing observation program accompanying project implementation as an integral part of that implementation. This approach is strongly recommended for Project PHICS. If Project PHICS incorporates this feature, it will thereby have made an important contribution to project design.

Project PHICS Cost Per Beneficiary

Particularly for some of the institution-strengthening components of PHICS it would probably be fair to identify the whole population of Malawi as beneficiaries -- indirectly and over the longer haul. However, for present purposes it will be better to identify beneficiaries in a more proximate way. Thus, we identify two cohorts of beneficiaries, viz:

- 245,000 beneficiaries -- these are the population to be served by the new water schemes, they get both water and the accompanying package of health service inputs.
- 1,000,000 additional beneficiaries -- these are the population served by existing water schemes, they already have water, they will get the package of health-service inputs.

Total costs for the new water scheme will include all costs assigned to the MOWS, the PHICS and HRID costs associated with these, and those costs assigned to Community for Service Delivery. Total costs for the health package will include all costs assigned to the MOH, PHICS and HRID costs associated with these. Table One (following page) assembles these costs.

TABLE ONE

PHICS COST FOR WATER COMPONENT AND HEALTH-PACKAGE COMPONENT

WATER COMPONENT

| | (K000) | | (\$000) |
|-----------|-------------|-------------|----------------|
| MOWS | 622 | PHICS | 787 |
| | 1025 | HRID | 249 |
| Community | 2458 | PHICS | 3861 |
| Total K | <u>4105</u> | Total \$ | <u>4897</u> |
| Total \$ | 1642 | Grand Total | <u>\$6,539</u> |

For 245,000 beneficiaries, about \$27 per beneficiary.

HEALTH PACKAGE COMPONENT:

| | (K000) | | (\$ million) |
|----------|------------|-----------|---------------|
| MOH | 408 | IEC | 2.6 |
| | 581 | Research | 1.8 |
| | | Epidem | 1.5 |
| Total K | <u>989</u> | HIS | .6 |
| Total \$ | .396m | Plan | .06 |
| | | Serv Del | .083 |
| | | Sub-Total | <u>\$ 4.8</u> |

| | (\$000) | | |
|-------|---------------|-------------|----------------|
| PHICS | 775 | | |
| HRID | 62 | Grand Total | <u>\$10.2m</u> |
| PHICS | 1529 | | |
| Total | <u>\$2.4m</u> | | |

For 1,245,000 beneficiaries, about \$8 per beneficiary.

Water-cum-Health-Package Beneficiaries

Consulting Table One, we find an unadjusted PHICS cost (water and health-program benefits combined) of about \$35 per beneficiary for this cohort. This figure needs to be adjusted to recognize that the PHICS outlays are over a seven year period such that the present value of these outlays is less than the simple sum of these outlays in each year. Using a discount factor of 12 percent, we find an adjusted (to reflect present value) cost of about \$23 per beneficiary for this cohort.

In evaluating the benefits yielded by this expenditure, we must take account of the circumstance that the beneficiaries will be receiving benefits over a number of years. For example, the water schemes once in will have a long life before major repairs are necessary -- say 20 years. (Routine maintenance costs are relatively very small and can be neglected here). The latrine platforms are indestructible and can be moved from pit to pit, i.e., as pits in use reach capacity or cave in. Accomplishments on the IEC front will become embodied in the beneficiaries KAP and will go on over the years yielding benefits. If the PHICS strategy succeeds, as anticipated, in enhancing the efficiency and effectiveness of the community-based PHC system, the favorable impact of this institutional accomplishment should also be felt over the years. Obviously, the benefit-yield horizon will differ for different components of the package and opinions may differ on what may be regarded as an appropriate horizon for each. For purposes of this exercise, however, we will make the assumption that the PHICS water-led package of interventions will go on yielding program benefits over a 20 year period.

It is worth an average cost of \$23 per beneficiary to achieve these benefits? A good way to gain some perspective on the answer to this question is to ask what the benefit yield would have to be, in money value terms, over the 20-year benefit period, with an appropriate rate of discount (say, 12%) -- to make the PHICS expenditure worth it. The answer turns out to be about \$3.08 per beneficiary per year. (That is, an investment of \$23 today, which yielded 20 annual payments of \$3.08 would have an internal rate of return of 12%).

Is this, then to be regarded as a costworthy expenditure? Obviously, judgment will have to be brought to the answer to this question. In our judgment, the answer to this question is "yes".

First, let us look at this matter from the point of view of improved health status as a producers good. As was pointed out in an earlier section of this project, in Malawi, the health sector is seen as an important and integral part of the overall development programme and effort. Thus, according to Policy Framework (2, p. 6):

"Malawi's large unexploited human resource investment opportunities offer significant potential for economic growth."

This is held to be owing to prevailing very low levels of education, health and nutrition. Improved health status probably does in fact contribute importantly and positively to economic growth, say to increases in GDP per capita. With GDP per capita somewhat under, say, the equivalent of US\$200, in round numbers, value added per worker in agriculture may be about the equivalent of US\$100. * If, owing to the

 * Measures such as these in US\$ equivalent are very sensitive to changes in the exchange rate which is more or less arbitrary for these purposes. Hence, approximations in round numbers are probably as meaningful as would be efforts to achieve precision in this domain.

favorable impact of PHICS on health status, total-factor productivity per worker was 5.0% higher in each of the benefit years than it otherwise would have been, i.e., the equivalent of US\$5, PHICS would thereby "recover" most of its costs. We do not, of course, know that PHICS will have such an impact -- but we can in this way show that even a very modest expectation about the impact of PHICS on productivity argues strongly for the costworthiness of expenditures on PHICS. *

 * In a following section, we will suggest the possibility of undertaking research on the relationship of health to economic development in Malawi.

Various favorable health effects can be expected from a program such as PHICS which fields a package of water/sanitation/improved household KAP/better community involvement (energized by the appeal of organizing for water). For example, decreases in morbidity owing to shisto, malaria, hookworm and others for all age groups in the community, including those in the agriculture workforce. We must not lose sight of the fact that, in Malawi, malnutrition has been identified as perhaps the major factor in promoting very high rates of infant and child morbidity and mortality. Few programs can be more important for child survival than those which promote increases in productivity in the agriculture sector (and promote economic development more generally).

Of course, PHICS is intended to have a significant impact in reducing infant and child morbidity and mortality in a direct way as well -- e.g., there is good reason to believe that the combination of clean water, sanitation (latrines) and improved household KAP can reduce the risk of childhood diarrhea substantially. * Similarly, a more effective

 * Studies seeking to establish this connection have in various ways been flawed (e.g., small samples, very wide confidence limits, etc.). (see 18, 19) It will be important for PHICS to implement, as integral to the project, better observation programs in this domain.

community-based PHC system complementing services delivered by the peripheral MOH facilities (health centers) should result in more effective delivery of EPI, ORT and malaria control services.

Health services and better health tend to be evaluated as "producers" goods in the context of economic analysis of health programs. But, health services and better health are also important as "consumers" goods, indeed many would contend that this is their major value. * Programs, such as PHICS, which seek

 * Most economic analysis of health programs at some point takes a ritualistic bow in the direction of the so-called "subjective" or "intangible" benefits, e.g., reduction in pain, suffering, grief, anxiety and the like, pointing out that, while these benefits are important, they cannot be mapped into the economic analysis. While understandable, this ritual tends to result in a disservice to evaluation of health programs in that it promotes a large under-estimate of the economic value of these programs. After all, there should be little doubt that, generally speaking, benefits such as reduction in pain, anxiety, suffering and like have substantial economic value -- witness the willingness of consumers to make substantial payments to secure benefits of this genre in the medical market place.

significant reductions in infant and child morbidity and mortality are apt to be particularly important from this point of view.

This analysis has been addressed to the water-cum-health-package beneficiaries. Consulting Table One, we find for the health-package-only beneficiaries of PHICS (who already have their water in place) and unadjusted cost of about \$8 per beneficiary. Adjusted to reflect present value (of the project outlays over a seven year period), this cost is about \$5.20 per beneficiary. A yield per beneficiary per year which could be valued at about \$0.70 over the 20 year payoff period would be enough, assuming a 12% discount rate, to make the outlay of \$5.20 worth it.

From this point, the analysis for this cohort of beneficiaries is the same as that already provided for the other cohort except that, of course, far more modest expectations about the impact of the project will lead to the conclusion that the outlays for the health-package-only beneficiaries are worth it.

In summary for both cohorts of beneficiaries, it would seem clear that the expenditures for Project PHICS should be regarded as costworthy in light of the expected value of the benefits anticipated from the project.

Introduction: Cost-Benefit (C-B) Analysis

Economic analysis of projects including Health Projects entails comparing project costs and project benefits in some way. Health projects in general afford special problems for such analysis. Project PHICS is no exception on this score, indeed, it presents some special problems peculiar to projects of this kind. Some introductory discussion will prove helpful to inform our understanding of what can be done in terms of economic analysis of Project PHICS.

Costs and benefits can be compared in various ways. However, the term "cost-benefit analysis" (C-B) has been appropriated for that kind of analysis which produces measures of program performance such as internal rates of return and which requires that the program outputs be measured in money-value terms. Health programs are intended to have a favorable impact on health status. Penultimately, the outputs of health programs are any of various "health effects" -- e.g., deaths averted or morbidities averted or ameliorated. The first problem for C-B analysis of health programs is whether there is any non-trivial way to evaluate or measure health effects in monetary terms.

In practice, the most popular solution to this problem has been the so-called "human capital" approach to C-B analysis. With this approach, the value of, say, a life saved when a death is averted, is measured as the present, discounted value of what (probably, on average) would have been that individual's future stream of production (future contribution to GNP) had he not died -- and this is taken as a measure of the benefit to averting the death in question.

Obviously, this measure of benefit fails to capture most of the real benefit realized by individuals when deaths are averted or morbidities are ameliorated (fails to capture the so-called "intangible" benefits owing to reductions in anxiety, grief and so on). (Partly for this reason, almost never will the findings from this kind of analysis be decisive for the decision whether to implement a health program). Economists doing human-capital-type C-B analysis of health programs are usually the first to admit this. They may, however, recommend the exercise on the ground that the findings will at least add some information relevant to help inform evaluation of the costworthiness of expenditure for the program in question.

For example, if human-capital C-B analysis finds program benefits thus measured are greater than program costs, this may be taken to mean that the result of the program is an increase in GNP in some relevant sense. * From this

 * In practice, attempts to apply human-capital C-B analysis are apt to run into a host of difficulties, some conceptual, some technical, which may cast doubt on this interpretation of such findings.

point of view, health services are thought of as "producers goods" -- potentially contributing through improved health status to economic growth.

In Malawi, the relationship between health status and economic growth has been identified by the GOM and others as an important policy issue. As already remarked above, Policy Framework takes the position that "Malawi's large unexploited human resource investment opportunities offer significant potential for economic growth" -- this circumstance held to be owing to prevailing very low levels of health, education and nutrition. Thus, in Malawi, the health sector has been identified as an important development sector.

Improved health status probably does in fact contribute importantly and positively to economic growth, say to increase in GNP per capita. But, traditional human-capital C-B analysis of health programs won't capture that effect. What is required is an analysis which makes findings on the impact of improved health status on productivity (distinguish production) and which is less static and longer run than conventional C-B analysis (see, e.g., 11 for some suggestions on this score). We may return to this issue subsequently. *

 * Human-capital C-B analysis used to be popular for evaluation of fertility-control programs. Owing in the main to the effects of discounting to obtain present values, this approach always found that the value of a yet-to-be-born individual's life was negative such that substantial economic benefits might be realized by averting births. (The implications of these findings may help to explain why human-capital C-B analysis has not been similarly popular for evaluation of child-survival programs). Dissatisfaction with this application of C-B analysis arose partly on the ground that an analytic procedure which uniformly finds (whatever the country, the circumstances, etc.) that fertility control will yield large economic benefits cannot be reasonable.

For economic analysis of fertility-control programs, human-capital C-B analysis has given way to more sophisticated analysis which is longer run in character and which attempts to take account of structural relationships in the economy.

In addition to human-capital C-B analysis, there is another approach to C-B analysis of health (and other life-saving) programs which, though favored by many economists, appears largely to have been neglected by the international health-services community. This approach derives from what is called in economic analysis "welfare" economics (Pareto optimality) and entails, generally speaking, attempts to estimate what the beneficiaries of given health programs would be (or, perhaps, "ought to be") willing to pay for the reductions in the risk of mortality or morbidity resulting from the program in question. *

 * The parenthetical proviso reflects the fact that for such analysis in LDC health sectors, the investigator cannot find or assemble direct or even inferential evidence on the point, at least usually. Thus, the analysis may be cast in a "simulated" or "hypothetical" mode.

For a number of reasons (see discussion to follow) it is not feasible to use this kind of analysis for evaluation of the Project PHICS components.

Introduction: Cost-Effectiveness (C-E) Analysis

In part owing to difficulties with C-B analysis, there is more frequent resort to cost-effectiveness (C-E) analysis to evaluate health programs. With C-E analysis, no attempt is made to reduce health-program outputs to money-value terms. Rather, program outputs are described in "natural" terms, e.g., deaths averted (or, better, risk of death reduced or years of life gained), or services (e.g., immunizations) provided, and so on. The analysis seeks to determine the unit costs of program outputs in these terms. The findings from such analysis may help to inform choice among program formats. Thus, C-E analysis may entail comparing two or more strategies (program formats) to achieve a given objective. The least cost per unit of output among the program formats compared is said to be the cost-effective program and (other things equal) presumably would be selected.

C-E analysis has the limitations inherent in measuring program outputs in "natural" units -- namely, the analysis and its findings do not speak directly to the costworthiness of program expenditures in any general way. Nevertheless, the findings of such analysis may help to inform judgments on this score. *

 * In practice, project selection in the health-services sector is seldom based on serious, ex ante C-E analysis. In practice, this analysis tends to be done ex post project selection to rationalize that selection. This is not actually as irrational as it might seem. Owing to implementation problems -- e.g., "organization failures" of one kind or another -- the range of likely outcomes which characterize two or more project formats being compared probably largely overlap such that selecting the cost-effective format is a probabilistic kind of exercise at best. In any case, typically, losses to resources invested in health projects owing to implementation failures tend to dwarf losses which might be owing to failure to select the theoretically cost-effective project format. For this reason, investing significant resources (time, attention) in attempting to fine tune the project selection process is not apt to contribute much to efficiency (assuming that preliminary screening has selected a plausible workable format).

The Health-Program Production-Function Problem

To inform C-B or C-E analysis, for any given health program, a production function for that program will be required. The production function is the functional relationship in physical units between the program inputs and the services and health effects which are the program outputs. The production function must be supplied to the economic analyst from, say, the engineering department (in a typical non-health program case), i.e., it is not generated by the economic analysis. Given the production-function data and prices of the inputs, the economic analysis can derive cost functions for the program in question. For health programs, the medical or health-services specialist discharges the task of supplying the production function.

For health programs, a major problem for C-B or C-E analysis ex ante program implementation is uncertainty with respect to the program production function. Even where the biomedical-technical (the "engineering") relationships are well understood (e.g., as for immunization or ORT programs), program-implementation problems will always introduce large amounts of uncertainty into the specification of the health program production function.

For less focused more general purpose health programs, e.g., those which may be described as "PHC Systems" or "Basic-Health Services Systems" and so on, the prospects for non-trivial ex ante C-B or C-E analysis are very dim. For one thing, these programs are almost always described just in terms of the inputs they are supposed to use, e.g., so many health centers, dispensaries, etc. and facility staffing patterns by occupational speciality, etc.. Seldom are the service outputs of these programs described in definite terms, e.g., the number of patients by diagnostic category the system is expected to respond to and the package of services to be provided in each case. Consequently, little can be said about the probable health-status impact of the program.

Once such a program has been implemented and has been performing long enough to generate a track record, ex post C-B or C-E analysis may be undertaken with greater prospect for meaningful findings than for ex ante (program implementation) analysis. Even in this case, and even for sharply focused health programs, however the difficulties remain formidable -- witness the difficulties encountered by, say, ORT programs, in trying to come up with meaningful findings for such measures as cost per "death averted" (so-called).

Economic Analysis of Project PHICS: General Considerations

Typically a health project will be represented by a delivery system providing health services of some kind, e.g., EPI, ORT, a package of PHC services, and so on. In principle, at least, albeit probably not in practice for the reasons set out foregoing, production functions might be written for the programs which represent the project to in this way help inform economic analysis of them.

Project PHICS is not this kind of typical project. None of its components by itself is a delivery system for health services nor do the components collectively comprise a delivery system for health services for which, even in principle, a health-services production function might be written. *

 * Of course, each of the components will have an output in a proximate sense (e.g., water, IEC materials, health manpower, etc.) and each of these outputs is expected to contribute in one way or another to improved health status for the people of Malawi.

Rather, the Project PHICS components seek to in various ways complement, support and assist the ongoing PHC services in Malawi, to generate inputs for these services, to in this way increase the efficiency and effectiveness of these services. This is the way in which the Project PHICS components are expected to have their favorable impact on health status -- as complimentary inputs, along with non-project inputs, to health programs which are the delivery systems providing health care.

Thus, the design of Project PHICS is such that conceptually an attempt to do C-B analysis, or C-E analysis referred to health -status impacts, for the PHICS components per se, would not be appropriate (indeed, would not be possible owing to the production function problem discussed above). One way, in principle at least, to approach economic analysis of Project PHICS would be to use findings from such analysis of the underlying health programs which are the delivery systems providing care which the PHICS components are supposed to complement and then try to estimate what the marginal improvements in the performance of these underlying programs might be in consequence of the complementary PHICS inputs. It is probably obvious that this approach is unlikely to be feasible in practice. Nevertheless, it will prove useful for our purposes here to take a look at the underlying health programs from this point of view.

The PHC System: Specification and Performance

As has been noted, the National Health Plan anticipates that:

"In 1995, the peripheral health services, comprised of community-based and facility-based services offered through standardized health centres, will be functioning throughout Malawi."

These are the services which carry the PHC (and other services) which Project PHICS components will complement. So far, this system has been specified only in rather general terms, mainly in terms of some of the inputs it is expected to use and some facilities/population ratios. The

designers of this system have not yet specified it in definite terms such that they might write a production function (with health-effect outputs) for it. This is appropriate for a health-services delivery system which is in several ways quite new and still in an evolving mode. It is also appropriate for a system in which the community-based component is crucial and in which flexibility and community-participation responses at the local level are central to the logic of the scheme. As the PHICS components seek to improve the efficiency and effectiveness of this system, the contribution they make to improved health status will depend in part on how this system will perform on the ground and this will have to be learned through experience with it.

The Malawi PHC package does include some more focused programs (or what may be regarded as such programs operating within the general PHC system) -- notably, the EPI and ORT and malaria services with which CCCD has been associated. In general, programs of this genre afford a better prospect for evaluation in C-B or C-E terms than do general-purpose PHC systems.

In this case, however, there appears to have been relatively little evaluation of this kind attempted. Robertson (8) produced an analysis in 1985 in which he attempted to estimate 1984-85 unit costs and total program costs for EPI, ORT and malaria services. Robertson titled his study to imply he was calculating costs of "the CCCD Project." This is misleading however. His estimate is a total cost estimate for immunization, ORT & DDC, and malaria services in Malawi, i.e., his costs are not limited to just the incremental recurrent costs owing to the CCCD project. In any event, as Robertson himself points out, although he did the best that could be done with the data that could be assembled, his findings leave a good bit to be desired. In particular, the unit cost findings are not for various reasons (e.g., small sample, large variance) very useful (see also comments on this score in 9). His estimates of national total cost for EPI, ORT and malaria control were obtained by extrapolating the cost for these components for the facilities sampled [district and similar hospitals, rural hospitals (primary health centers) and health centers (dispensaries)] to the nation as a whole. The findings obtained in this way, when compared with the budget availability to the MOH, raises some interesting questions.

Robertson found a national total cost for EPI, ORT and malaria control of K6.6m for 1984/85*. Since the 1984/85 total MOH recurrent expenditure was K28.0 (final account), these programs would have taken about one-quarter of that program. The K6.6m, however, still includes incremental costs owing to the CCCD project, costs, many of which at least,

 * Robertson's calculations were for 9 months, we have adjusted them to a yearly rate.

would not be expected to be a part of the recurrent-costs burden of a continuing, post-CCCD program. In Robertson's calculations, "Central Costs" estimated at K1.3m may represent most of these costs**. Subtracting them leaves a total cost (for Malawi health-system inputs) of K5.3m, still a relatively substantial cost burden. For present purposes, we are particularly interested in the recurrent-cost burden that these programs imply for the resources available to the PHC system with which PHICS components will in the main be associated. Robertson found costs of K2.3m for the District Hospitals (including some Central Hospitals) component of the delivery system. Subtracting these from the K5.3m derived above, we arrive at a national total cost for EPI, ORT and malaria services of about K3.0m at the rural facilities (health centers,

 * "Central Costs" also included UNICEF supplied drugs and vaccines.

dispensaries) level. It will be recalled that the recurrent funding available for these rural (non-hospital) facilities is buried in Estimates Acct. 004 and hence is not readily available. However, we suggested foregoing that such funding might represent about 12% of the total MOH recurrent budget. On this basis, there would have been available in 1984/85 about K3.4m, of which the above calculated national costs for EPI, ORT and malaria control at the rural-facilities level would have represented almost 90%. There may, of course, be additional donor contributions to this program not taken account of by my adjustment of the Robertson findings. But, in any case, the (rebuttable) implication of this exercise is that the delivery system for EPI, ORT and malaria control may be rather "rich" in terms of its resource-allocation implications for the MOH's rather lean operating budgets in recent years.

Apart from the matter of costs, there appear to have been few findings on the performance of these programs in terms of health-impact output (reductions in mortality and morbidity) (see 12, p.9).

We should perhaps remark in passing at this point that there is general agreement in the health-services community that expenditures for immunization programs are costworthy in terms of the rates of reduction in the risk of mortality and morbidity they deliver. Although, at the same time, there is rather less agreement on what is, for purposes of C-B analysis of these programs, the most appropriate way to go about putting something akin to an "economic" value on these benefits (see 13 for some discussion of these matters).

We have been considering some aspects of the underlying health programs -- the community-based and facility-based programs to carry PHIC services -- which are the delivery systems providing care which the PHICS component are supposed to complement. It appears that there have been few findings from evaluations of these programs, whether focused EPI, ORT and malaria suppression or more general purpose PHC, on the performance

and costs of these programs. And even in if such findings were available, estimating what the marginal improvements in the performance of these underlying programs would be in consequence of the complementary PHICS inputs would not be feasible.

The design of Project PHICS, and its relationship to ongoing health-sector events in Malawi are such that there is not much scope for useful economic analysis ex ante project implementation, beyond that presented in the previous section (see "Comparing the Costs and Benefits of PHICS: Initial Overview") and that directed to sustainability issues.

There will be, however, good prospects for learning much from Project PHICS of importance to the development of health services in Malawi if the implementation of the project is accompanied by planned base-line and follow-up evaluation of the performance of the health programs PHICS seeks to complement. PHICS should be implemented in a flexible mode such any design changes which might be informed by such evaluation can be accommodated during the LOP. We may now turn to these aspects of the matter. We will emphasize that for Project PHICS, the research/monitoring activities must be regarded as an integral part of project implementation (i.e., rather than being regarded as a kind of optional add-on).

The Water-Led Package of Health Interventions

There seems to be general agreement that while clean water may be a necessary condition for good health, it is not also a sufficient condition -- i.e., just providing clean water cannot be expected by itself to do much to improve health status. To contribute to improved health status, the provision of clean water should be accompanied by appropriate sanitation activities (such as the provision of pit latrines), by health education of the community to improve health knowledge and health-related behavior, by improved nutrition, in short, by a package of health interventions. Along with water, Project PHICS will field just such a package of health interventions. Indeed, a central theme which has informed the design of Project PHICS is that the provision of clean water can serve as a lead intervention which, because of its inherent appeal, will help to mobilize community participation and organization which in turn will facilitate implementation of an accompanying package of health interventions.

Prima facie, these propositions seem plausible, but they are not very definite and there is much to be learned in this domain. At this point, these propositions are best regarded as testable hypotheses, it being an important part of Project PHICS agenda to test them. The findings on this score will be important for the design of health services in Malawi.

There are many questions. For example, precisely what package of interventions must accompany the water if there is to be palpable impact on health status? There seems to be general agreement that latrines

should be included in the package. But what coverage by latrines is necessary to have an impact? According to Dr. J.J. Schmidt, based on his experience with the successful Liwonde ADD Project, latrine coverage in the typical village comes in stages with, say, 50% coverage being achieved fairly readily in say the first year and half, and an additional, say, 25% in the next year and a half, it becoming progressively more difficult to press beyond that. At what point does the coverage become general enough to have a significant impact? (Dr. Schmidt expressed the view, an informed judgment, I took it, rather than based on research, that something like a 90% utilization (of latrines) rate must be achieved to have a significant impact).

Experience in Malawi has shown that communities find the prospect of clean water attractive and will organize on a voluntary basis to help with the installation and maintenance of water systems. To what extent and by means of what strategies can community organization around water projects be turned to good account for the implementation of a broader package of health activities? Experience, e.g., with Project PHICS, will be necessary to get an answer to this question.

Additional important questions related to the performance of the water-cum-package strategy will no doubt come to mind.

The HSA and Community Participation

The general approach of community-based PHC services featuring organization modes such as Community Health Committees has been a part of Malawi health planning for some years. The general idea seems established but program details may still be in an evolutionary stage. More particularly, a relatively recently proposed health worker, the HSA, has been assigned a central role in working with the communities. Just what, precisely, should be the job description for the HSA? Such a description, in general terms, has been provided in the National Health Plan, but it is generally acknowledged that this description may be overly ambitious. It will be necessary to learn on the basis of experience just what "version" of the HSA will prove best for working with the communities and, more generally, to determine the prospects, in practice, for effective community-based PHC services.

Research and Monitoring as Integral Components of PHICS: Informing C-B/C-E Analysis

Additional questions relating to the design and performance of the health-services systems which PHICS components will be seeking to complement will come to mind. The general point should be clear however. PHICS will afford an excellent opportunity to assemble data and findings which are apt to be of great importance for the development of the health-services system in Malawi. And these findings will be central to inform C-B and C-E analysis of the health-services system.

For these benefits (among the more important to be delivered by Project PHICS) to be realized, appropriate research and monitoring must accompany the implementation of PHICS and be regarded as an integral component of PHICS. This is obviously not the place to undertake design of research protocols. Generally speaking, what will be required is population-based, base-line survey findings on various health-related "process" variables such as KAP and, to the extent feasible, on health status. Both program and control samples should be identified. And provision should be made for follow-up survey work to measure the impact of the health-services systems which the Project PHICS components will be assisting. This information, along with cost information will be necessary to inform meaningful C-B and C-E analysis of these programs.

As a relevant general point, it should be stressed that, as the literature in this domain bears witness, it will be rarely that meaningful C-B and C-E analysis of the performance of health programs can be accomplished by what has become the conventional approach -- an itinerant, short-term investigator trying to rush through such a study. If policy makers feel that C-B and C-E data are worth assembling, then an effort should be made to assemble them in a proper way. This will require far more time and attention than is usually given to the task. Indeed, making these finding should be a regular, ongoing observation program accompanying project implementation. This is what is being suggested for Project PHICS, and if Project PHICS incorporates this feature, it will thereby have made an important contribution to project design.

Research on Health and Economic Development

The admonitions set out in the previous paragraph are especially pertinent where C-B analysis is intended to measure the possible relationship between health (programs) and economic development. As pointed out, above, conventional human-capital-type C-B analysis will not capture this relationship. Given the importance that the GOM attaches to health as an important development sector, Project PHICS might be warranted in giving some attention to research in this domain, at least to the extent of giving serious attention to the possibility. Again, this is not the place to try to spell out a research protocol (some general suggestions along this line will be found in 11, p. 815 et seq.)

Sustainability I: The Programs Assisted by PHICS

Some of the Project PHICS inputs to the health programs being assisted by the project are of a kind that logically would continue to be used by these programs in the post-project years. In this way, PHICS may imply some increase in the recurrent-cost burden to be borne by the MOH (or some other source) in the post-project years when PHICS funding will no longer be picking up these expenses.

Table X (following page) exhibits the increases in recurrent costs to be assumed by the MOH owing to Project PHICS. The table reflects the plan to phase MOH assumption of these costs, 25% in the 5th project year, 50% in the 6th project year, 75% in the final project year, and 100% in the first post-project year and thereafter. Row A of the table shows the percent the incremental recurrent costs owing to Project PHICS will be of the (projected) MOH recurrent budget in these years. From this point of view, the burden implied by PHICS for the MOH recurrent budget is minor -- the incremental recurrent costs increase from 0.4% of the budget in the 5th project year to 1.3% when, in the first post-project year, 100% of costs are assumed.

Row B of the table looks at another dimension of this burden, the percent that the incremental recurrent costs owing to PHICS will be of increments to the MOH recurrent budget over these years. This percentage rises from 6.4% in the 5th project year to 20.0% in the first post-project year. Looked at from this point of view, the burden still does not appear ominous. For example, as the MOH total recurrent budget increases by K4.5 million in moving from the last project year to the first post-project year, the incremental costs owing to PHICS will claim only about 15.7% of that total.

In summary, Project PHIC does not seem to entail a sustainability problem for the MOH in so far as this depends upon apparent availability of budget resources.

The water component of PHICS will have some recurrent-cost implications for the Ministry of Works and Supplies (MOWS). According to Development Policies (1, p. 90): Recurrent expenditure by the Water Department, some K2.67 million in 1986, is expected to increase slightly faster than the rate of inflation over the next decade -- i.e., is expected to stay about the same in real terms (1986 prices) over the next decade, which implies a substantial decline in real terms per capita. According to Estimates (5, p. 159), for MOWS Program 010, Water Resources Department, the 1988/89 Estimate is about K2.4 million, which would imply some regression in real terms. *

 * Query whether the "Water Department" alluded to by Development Policies is fully represented in the budget by Estimates MOWS Program (1), "Water Resources Department"?

The PHICS MOWS service-delivery component implies only a modest increase in the direct recurrent-cost burden for the Water Department. For example, in the first project year, when the phased assumption of

TABLE X

INCREASES IN RECURRENT COSTS ASSUMED BY MOH (K)

| PHICS Project Component | Project Year / Calendar Year | | | |
|---|------------------------------|-----------|-----------|-----------|
| | 5/1992/93 | 6/1993/94 | 7/1994/95 | 8/1995/96 |
| IEC | 46,500 | 96,000 | 148,500 | 192,000 |
| Water/HESP (986/6) | 41,080 | 82,160 | 123,240 | 164,320 |
| Research, Eval, Plan, Services * | 135,750 | 271,500 | 407,250 | 542,975 |
| | 223,330 | 449,660 | 678,990 | 899,295 |
| Row A % Incremental Recurrent Cost of MOH recurrent Budget | 6.4% | 0.8% | 1.1% | 1.3% |
| Incremental Recurrent Budget | K3.5m | K4.0m | K4.0m | K4.5m |
| Row B % Incremental Recurrent Cost of MOH Incremental Recurrent Budget | 6.4% | 11.3% | 17.0% | 20.0% |
| Projected MOH Recurrent Budget ** (Km) | 55.4 | 58.5 | 62.5 | 67.0 |

* 1/4 Research Unit 12,500
 Epidem 53,750
 Annual HIS 20,000
 Plan Unit 8,500
 K's Serv. Deliv. 41,000

** Development Policies (1, p. 188)

these costs by the MOWS has reached 100%, the incremental recurrent costs owing to Project PHICS will be only about 1.0% of, say, the 1986 recurrent budget (expenditure) of K2.67 million.

Water systems maintenance appears to pose the major problems for sustainability in this domain (see 20, pp. 40 et seq. for discussion of this problem). According to a recent report (20), maintenance costs for the piped water systems are about K0.26 per person served per year, about half of which have to be met with cash. Project PHICS will add such water service for 245,000 new beneficiaries, which implies an addition to maintenance costs of about K63,700. While this does not represent a large amount of the Water Department's recurrent budget, it appears (20, p.42) that only in the last few years has the Treasury approved (at a very modest level of funding) a maintenance budget for the Water Dept.

A possible remedy for the position might be enhanced cost recovery. According to Development Policies (1, p. 90), although to date rural water schemes have provided free water, this will change as selected consumers are charged rates to cover operating and maintenance costs. Our discussions here have made it clear that any attempt to implement this scheme will confront formidable difficulties. (See further discussion in Section of this Report addressed to cost recovery). The sustainability issue for rural water schemes should be given prompt and serious study early in Project PHICS.

Sustainability II: Another View

Sometimes (as in the previous paragraph) we think about sustainability in terms of the continuing operation of health-programs themselves (those represented by the project) in the post-project years.

There is another way in which we think about sustainability. Health projects generate outputs which are supposed to have a favorable impact on health status (directly or indirectly). Sustainability may be taken to mean simply that the project outputs continue to have a favorable impact on health status in the post-project years and this may not require that a given health program represented by the project be itself continued in its project-institutional format.

This latter view of sustainability may be peculiarly appropriate for a project such as PHICS, at least for most of its outputs. For example, the information gained by the research activities which accompany implementation of the PHICS components as an integral part of the project will have its favorable impact on health status by informing the design of Malawi's health-services sector, and this effect will continue to be felt in the post-project years. As part of this, this will be true for the IEC-component findings on what formats in this domain are efficient in modifying KAP. Also, for example, clean water has its favorable impact on health status when it is combined with appropriate package of additional health interventions. But the water itself is, in any event,

a necessary condition for this favorable health impact, it is necessary to create the potential for this health-status impact. Once a clean water supply has been instituted, it will continue to have this kind of favorable impact on health status for as long as the supply itself is maintained, i.e., independently of whether the accompanying package of health interventions is itself sustained in programmatic terms.

Also, PHICS training of health manpower is apt to be a "safe" kind of project component from this point of view. It is intended, of course, that this manpower be posted to certain identified health programs. In the event, however, that these posts are not sanctioned and maintained in the post-project years, in a society in which skills of all kinds, including health-services skills, are in short supply and at a premium, trained health manpower is apt to lodge somewhere else in the system and continue in the post project years to have a favorable impact on health status. It will be recalled from our earlier discussion that the MOH system is far from coterminous with the whole health sector in Malawi (indeed, it controls only about 40% of the funds deployed in the sector). Thus the prospects for employment of health manpower extend well beyond the MOH system itself such that sustainability of the programs comprising that system becomes less important from the point of view of sustaining the contribution of health manpower to better health.

Sustainability III: Cost Recovery

The National Health Plan calls for increased cost recovery (appropriations-in-aid) in the three Central Hospitals, for those beds where special provision is made for paying patients. The policy in this domain appears to be to raise these fees (and adjust them periodically) such that the MOH is no longer subsidizing these services. There appears to be some interest in thinking about the possibilities for cost recovery in these facilities in a somewhat more general way, however, e.g., to cast some light on hypothetical possibilities in this domain.

In developing a cost-recovery program for hospital services (or, health services more generally) various factors will be taken into account, e.g., the willingness of consumers to pay for services, the equity implications of fee schedules in the light of household incomes. And, the possibilities for designing a workable program will depend importantly on how the demand for the services is to be financed, i.e., out-of-pocket payment by consumers or some form of health insurance or prepayment. To the extent that demand can be financed by insurance/prepay, it will be more feasible to implement and administer cost-recovery schemes. The discussion in this section is intended to explore some of these factors. The kinds of information that need to be taken into account will be suggested (although no claims are made for the accuracy of the exemplary numbers used). The discussion neither makes nor implies any policy recommendations.

Table VII (on the following page) exhibits an urban household income distribution for three cities. The medium income, roughly adjusted to 1988, per year, is about K2,520 in each of these cities. The upper quarter of the income distribution (approximately), roughly adjusted to 1988 is K5,040 and above. What does such a household income distribution imply about the capacity of these households to pay for hospital services and about the equity implications of various fee schedules. One way to cast some light on these questions is to try a few exemplary calculations. For example, suppose that each household at the median level of income and above were to contribute to a health-insurance fund an amount equal to, say, 1.0% of the median income -- that is K25.0 per year.

TABLE VII

URBAN HOUSEHOLD INCOME DISTRIBUTION 1979

| Income Group (K mo.) | Blantyre | | Lilongwe | | Zomba | |
|-------------------------|-------------|-------|-------------|-------|-------------|-------|
| | % for Group | Cum.% | % for Group | Cum.% | % for Group | Cum.% |
| Under 20 | 4.9 | 4.9 | 3.2 | 3.2 | 5.7 | 5.7 |
| 20-39 | 24.3 | 29.2 | 24.0 | 27.2 | 18.2 | 23.9 |
| 40-69 | 20.5 | 49.7 | 21.8 | 49.0 | 27.0 | 50.9 |
| 70-99 | 11.0 | 60.7 | 15.2 | 64.2 | 12.3 | 63.2 |
| 100-139 | 13.1 | 73.8 | 11.6 | 75.8 | 6.0 | 69.2 |
| 140-199 | 6.1 | 79.9 | 7.8 | 83.6 | 8.2 | 77.4 |
| 200-399 | 9.4 | 89.3 | 7.9 | 91.5 | 9.9 | 87.3 |
| 400 & over | 10.8 | 100.1 | 7.7 | 99.2 | 12.7 | 100.0 |

Source: Calculated from data provided by: Urban Household Expenditure Survey (14)

Median income (approx the same for each of these cities): K70/mo. 1979
 Median income adjusted to yearly rate to 1988: Approx. K2,520/yr.
 Upper quarter (approx. Blantyre and Lilongwe) K140/mo. and above 1979
 Upper quarter adjusted to yearly rate and to 1988: Approx. K5,040/yr.*

 * These adjustments assume money incomes kept up with increase in the Composite Retail Price Index (7. p. 23).

Population 1988: For Districts - **

| | |
|----------|---------|
| Blantyre | 587,893 |
| Lilongwe | 986,411 |
| Zomba | 438,150 |

 ** Population as reported in Malawi Population and Housing Census (16) for 1987

The significance of the insurance fund created in this way can be evaluated in light of estimated utilization rates for inpatient hospital services. According to Statistical Tables (17), in 1984 the government hospitals delivered 2,164,772 and the PHAM hospitals 686,350 inpatient days for a total 2,851,122. Assuming a population of about 7 million in

1984, this yields a hospitalization rate of about 400 inpatient days per 1,000 population, or per 222 households (assuming an average of 4.5 persons per household). At K25 each, 222 households would create a fund of about K5,550. Neglecting costs of administering the insurance fund, it could pay out about K14 for each of the 400 inpatient days that would be utilized by the households contributing to the fund. How would this per diem compare to hospital costs? According to Estimates for 1988/89, QECH will have an operating budget of K8,667,179 for that FY. Assume that 75% of this is for inpatient services. With 722 beds, this yields a cost of about K9,000 per bed per year. Assume the average pay bed has a 90% occupancy rate. This yields a cost per patient day of about K28, of which the insurance fund could defray K14 -- or, about one-half -- a significant rate of cost recovery. And, since the contribution to the insurance fund was set at 1.0% or less of annual income for the households in the upper half of the income distribution, perhaps such a scheme might pass muster from an equity point of view.

Obviously, the calculations foregoing are on the rough-and-ready side. They are intended to do no more than suggest a conceptual framework for exploring cost-recovery issues in this domain and to provide some general order-of-magnitude estimates. If there is continuing interest in this matter, a more systematic inquiry should be launched.

There has been discussion of cost recovery in other contexts, e.g., water. For example, in Development Policies we find (1, p. 90):

"The basic policy that all urban water supply schemes should be self-financing will remain . . . To date, all rural schemes have provided free water to consumers. For the piped and some of the borehole schemes, this will gradually change as selected consumers are charged at rates which will, taken together, cover at least operating and maintenance costs."

Our discussions here have made it clear that any attempt to implement this approach will confront formidable difficulties. One problem is the very low levels of household income in the rural area. A recent survey found for a sample of rural households a total cash income 1980/81 of about K137 per year, which works out to about K2.4 per capita per month. Other problems are of a practical, administrative kind. In any event, if this approach is a lively prospect from a policy point of view, serious study of possibly workable strategies should be an early PHICS research activity.

There have also been suggestions that some cost recovery might be attempted for health services provided at the peripheral level. A major obstacle for this scheme is the very low levels of rural incomes. Before implementing any version of this strategy, some careful thought and study will be in order. Among other things, it is far from clear that, even where the intention of cost recovery is to secure a more adequate

commitment of resources to PHC, the appropriate place to levy the fees is the PHC services themselves. It may be a much better strategy to increase cost recovery in the hospital sector, which, after all, claims the lion's share of the MOH budget, with an eye to thereby facilitate diverting more public resources to PHC.

There are various needs in the administration and design of the MOH system per se, and as it may complement the other parts of the health services sector in Malawi, for information that can be produced by research on costs and financing on health services in Malawi. As part of a health-financing study, there should be inquiry into the operation and performance of the PHAM system, e.g., how do unit costs in PHAM compare with those in the MOH system, what has been the PHAM experience with fee schedules and collection rates, and other matters.

And, pursuant to all of the cost-recovery schemes that are being suggested it would be useful to have the information that could be produced by an updated household expenditure survey in both rural and urban areas.

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PD-AA~~X~~-590

**PROMOTING HEALTH INTERVENTIONS FOR CHILD SURVIVAL
(PHICS)**

612-0231

PROJECT PAPER

ANNEXES B-Q

JUNE 1989

151

PROMOTING HEALTH INTERVENTIONS FOR CHILD SURVIVAL

ANNEXES

- A. Project Analyses
 - 1. Information, Education & Communication (IEC)
 - 2. Research, Monitoring, Evaluation & Planning
 - 3. Rural Water, Sanitation, Hygiene Education
 - 4. Service Delivery
 - 5. Financial and Economic
- B. IEE
- C. Monitoring and Evaluation Checklist
- D. Memorandum of Conversation on Project Objectives
- E. PID Approval
- F. Statutory Checklist
- G. Government of Malawi Request and Written Assurances
- H. Section 611(E) Certification
- I. Logframe
- J. MOW Organizational Chart
- K. MOH Organizational Chart
- L. Maps of Water Sites
- M. Section 110 Waiver
- N. Commodities List
- O. Detailed Budget
- P. Persons Consulted in the Preparation of the PHICS PP
- Q. Gray Amendment Certification

ANNEX B
INITIAL ENVIRONMENTAL EXAMINATION

ANNEX B

INITIAL ENVIRONMENTAL EXAMINATION

OR

CATEGORICAL EXCLUSION

Project Country: Malawi

Project Title: Promoting Health Interventions for Child (PHICS)
(612-0231)

Funding \$15,813,000

IEE Prepared by: Mexon E. Nyirongo, Health Development Specialist,
USAID/Malawi

Environmental Action Recommended:

Positive Determination _____

Negative Determination _____ X _____

A. Categorical Exclusion:

The institutional development component of PHICS includes strengthening the MOH and MOWS through IEC, research, monitoring, planning and evaluation. It is in the nature of these activities that they do not impact the environment, and therefore, meet the criteria for a categorical exclusive in accordance with section 216.2 (c) (2) (i). These activities involve technical assistance and training directed at strengthening institutional capability required in implementing the child survival health care.

B. Negative Determination:

The rural water supply component is a follow-on activity to AID assisted Rural Water Project No. 612-0219 and will include essentially the same construction activities. The final evaluation (WASH Field Report No. 186) of the previous project confirmed a negative determination in the IEE of the 1980 Project Paper. Since PHICS water activities are identical to the preceding project, a negative determination is recommended. For justification see the attachment.

Approved: _____

[Signature]
Bureau Environmental Officer
AFR/TR/PRO *Actions*

Disapproved: _____

Date: _____

Clearance: GC/AFR

IEE: attachment

Initial Environmental Examination (IEE)

The initial environmental examination is a review of the potential positive and negative environmental impacts of the PHICS project upon the physical and human environment. It is expected that the new project will have the same general environmental impacts as those arising within the current USAID-support rural piped water project (No. 612-0207). In 1980, the IEE for this first project anticipated no significant adverse environmental impacts to result from the piped water activities or its HESP component. The final evaluation of the project (WASH Field Report No. 186) confirmed the negative determination in the IEE of the 1980 Project Paper. Since the same general type of water and sanitation activities will occur in the PHICS Project, no changes in environmental outcomes are expected.

For the PHICS Project, no significant environmental impacts are anticipated in the areas that are relevant to rural piped water projects: construction, water abstraction, and community facilities. In construction, little heavy equipment is used and, therefore, land-use practices are rarely altered to provide vehicle access. Pipeline intakes are usually located in protected forested catchments that are accessible only by foot. Pipeline construction on steep hills is done in such a way as to minimize erosion and prevent endangerment of the line. In flatter areas, pipe trenches do cross cultivated fields, but the area of activity usually is only slightly over a meter in width, and the filled trenches are regraded annually by the local community and planted with drought-resistant paspalum grass.

In water abstraction, the quantity of water withdrawn from mountain streams by pipeline intakes has not had any noticeable impact on streamflow in either the lower reaches or the surrounding watershed. In a few schemes, the intakes take in the entire streamflow during the dry season (Champhira North), but such surrounding intakes are usually sited far from populated areas. the largest approved USAID scheme (Zomba West), when completed and at full design flow, will abstract only 25 litres per second (22,000 gal/hr), while the bulk of project schemes will average less than 10 litres per second (9,000 gal/hr). In most of the larger schemes, such as Mwanza Valley, multiple intakes are used to take advantage of both wet season and dry season streamflows. In Mwanza Valley, moreover, the streamflow eventually disappears into the ground at some distance below the intake.

Finally, water use impacts in the project communities are, if anything, favorable toward the environment. All taps and washing slabs are designed to have properly constructed soakaways for drainage waters. In most cases, soakaways are ringed with a border of flowers and small decorative plants intended to beautify the soakaway and its drainage channel. Similarly, the greater availability of water in the communities has encouraged the construction of sturdy, well-built latrines, whose overall effect on village sanitation is usually superior to that of the former methods of excreta disposal. Figure X is a project impact matrix of potential environmental impacts of both the water and sanitation components of the new project. In summary, a negative determination is given to the IEE of the proposed project.

Figure X. PROJECT IMPACT MATRIX

| PROJECT COMPONENTS | | PHYSICAL ENVIRONMENT | | | | | | | | | | | BIOLOGICAL ENVIRONMENT | | | | | | | SOCIAL ENVIRONMENT | | | | | | | | |
|--------------------|--------------------|----------------------|--------------|-----------------|-------------------------|------------------------|-----------------------|-----------------------|----------------------|-------------|-------|--------------------|------------------------|------------------------|--------------------|-------------------|-------------|--------------|-----------------|--------------------|-----------------------|------------|---------------------|----------------------|---------------------|-------------------|----------------------|-----------|
| | | AGRICULTURAL LANDS | SOIL EROSION | SLOPE STABILITY | LAND/ WETLAND RESOURCES | SURFACE WATER QUANTITY | SURFACE WATER QUALITY | GROUND WATER QUANTITY | GROUND WATER QUALITY | AIR QUALITY | NOISE | AQUATIC ECOSYSTEMS | WETLAND ECOSYSTEMS | TERRESTRIAL ECOSYSTEMS | ENDANGERED SPECIES | SENSITIVE SPECIES | WILD PLANTS | WILD ANIMALS | SEASIDE FACTORS | PUBLIC HEALTH | RECREATION / LAND USE | EMPLOYMENT | AT-RISK POPULATIONS | SPORADIC POPULATIONS | COMMUNITY STABILITY | CULTURAL HERITAGE | TOURISM / RECREATION | SUBSIDIES |
| PLANNING & DESIGN | Field Survey | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Community Meetings | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONSTRUCTION | Intakes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | LB | 0 | 0 | HB | 0 | 0 | 0 | |
| | Pipelines | LA | LA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MB | 0 | 0 | HB | 0 | 0 | 0 | |
| | Storage Tanks | LA | LA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MB | 0 | 0 | HB | 0 | 0 | 0 | |
| | Latrines | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MB | 0 | 0 | HB | 0 | 0 | 0 | |
| OPERATION | Washing Slat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MB | 0 | 0 | HB | 0 | 0 | 0 | |
| | Intakes | 0 | 0 | 0 | 0 | HB | HB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MB | 0 | MB | MB | MB | 0 | 0 | 0 |
| | Pipelines | 0 | 0 | 0 | 0 | HB | HB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MB | 0 | MB | MB | MB | 0 | 0 | 0 |
| | Storage Tanks | 0 | 0 | 0 | 0 | HB | HB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MB | 0 | MB | MB | MB | 0 | 0 | 0 |

HA - High Adverse
 MA - Medium Adverse
 LA - Low Adverse
 0 - None or Insignificant
 LB - Low Beneficial
 MB - Medium Beneficial
 HB - High Beneficial

23

STATE 240251

UNCLASSIFIED

ACTION: AID-3 INFO: AMB DCM/ECON

VZCZCLG0904
PP RUEHLG
DE RUEHC #0251 2080257
ZNR UUUUU 22H
P R 260257Z JUL 88
FM SECSTATE WASHDC
TO RUEHLG/AMEMBASSY LILONGWE PRIORITY 6152
INFO RUEHNR/AMEMBASSY NAIROBI 3025
BT
UNCLAS STATE 240251

LOC: 034/38 468
26 JUL 88 0822
CN: 30375
CERC: AID
DIST: AID

AIDAC NAIROBI, FOR REDSO/ESA, E. MCGOWAN

E.O. 12356: N/A

TAGS:
SUBJECT: PROMOTING HEALTH INTERVENTIONS IN CHILD
SURVIVAL (612-0231) IEE

1. INITIAL ENVIRONMENTAL EXAMINATION (IEE) REVIEWED.
BUREAU ENVIRONMENTAL OFFICER APPROVES NEGATIVE
DETERMINATION AND THIS HAS BEEN CLEARED BY AFR/GC.

2. SIGNED COPY OF IEF BEING POUCHED TODAY. SHULTZ

BT
#0251

NNNN

UNCLASSIFIED

STATE 240251

DATE: 7/26/88

| OFFICE | ACTION | INFO |
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DATE DUE: 7/28/88
 NAN:
 ACTION TAKEN:

ANNEX C

MONITORING AND EVALUATION CHECKLIST

ANNEX C

MONITORING AND EVALUATION CHECKLIST

The following is a suggested summary of key program aspects recommended for monitoring and evaluation.

A. Information, Education and Communication

1. Increase in number of established posts within the HEU.
2. Increase in staff size of the HEU.
3. Increase in the number of staff sent for training.
4. Increase in the number of regional and district health education workers.
5. Increase in the amount of MOH financial/logistical support for the HEU.
6. HEU elevated to higher status within MOH organizational structure.
7. Increase in the number and quality of educational materials produced by the HEU.
8. Increase in the number and quality of mass media health presentations, such as radio programs, films, magazines and newspapers.
9. Increase in the size of audience reached by HEU educational activities.
10. Increase in demand for health services attributable to HEU educational activities.
11. Increase in the amount of testing and formative research done and reported upon by the HEU.
12. Increase in radio listenership, conduct of health KAP study completed, results disseminated.
13. Increase in the levels of knowledge about specific health practices and services attributable to HEU educational activities.
14. Change in attitudes and practices in specific health areas attributable to HEU educational activities.

15. Increase in public discussion of health matters as evidenced by such indicators as content of public speeches, news articles, letters to newspapers and reports from health workers.

B. Research, Monitoring, Evaluation, Planning

I Research Unit

1. Increase in established posts in Research Unit, Epidemiology Section, HIS Section and Planning Unit.
2. Increase in number of members on Research Review Committee.
3. Increase in number of MOH staff at central, regional and district level who are exposed to research methodology and capable of designing research proposals.
4. Increase in number of support personnel in Research Unit.
5. Four mandated studies are designed and launched.
6. At least five research studies on priority, child survival interventions (malaria, diarrheal diseases/ORT, immunizations, child spacing, nutrition) will be designed, data collected and analysed and results disseminated.
7. At least three workshops/seminars per year to discuss research findings.
8. At least five monographs on research findings produced and distributed each year.
9. A bulletin which disseminates findings of health research projects, epidemiologic information and HIS data will be initiated and published on a regular basis.
10. A research institution will be contracted to conduct a major service delivery monitoring activity and strengthened with TA, off-shore training and equipment.

II Epidemiology Section

1. Two Malawians sent abroad for graduate training in epidemiology.
2. Fourteen clinical officers/public health nurses and senior health inspectors undergo 9-month epidemiology course each year.
3. Approximately 60 field-level health officers undergo 1 month epidemiology course (starting in year two of the project).

4. The health staffs of all 24 districts undergo epidemiological orientation (by end of third year).
5. Three regional surveillance officers will be appointed.

III HIS Section

1. Computer system of HIS Section (and possibly the MOH) will be effectively functioning.
2. Two senior HIS staff will receive overseas training on data analysis and interpretation.
3. Regional and district staff will receive in-service training on the collection, analysis and interpretation of data.
4. Six additional data clerks will be added to the three main hospitals.
5. Three main hospitals and three regions will receive computers, and staffs will be trained to use them.
6. Computer in HIS Section will be properly serviced and maintained.

IV Planning Unit

1. One member of Planning Unit will undergo PhD training overseas; another will do a Masters course.
2. The PIU will be strengthened with two additional officers (a Project Officer and an Administrative Officer).
3. Four members of the PIU will undergo orientation to USAID contracting and accounting procedures.
4. Coordination mechanism between PIU, technical Project Officer and MOWS/Rural Water Section is established and functions effectively.
5. The MOH's financial management system reviewed and streamlined and monitored quarterly.

C. Water and Sanitation

1. Program Operations: Inputs
 - a. USAID Inputs
 - 1 Construction Program
 - 2 Maintenance Program
 - 3 Information Resources Program
 - 4 HESP Program

- b GOM Inputs
 - 1 MOWS
 - 2 MOH
 - c Community Inputs
 - d Other Inputs
2. Program Operation: Institutional Development
- a Program Development Activities of the MOWS
 - 1 Water Systems Planning
 - 2 Water Systems Design
 - 3 Water Systems Procurement
 - 4 Water Systems Construction
 - 5 Promotion of Water Project Committees
 - b Program Development Activities: MOH
 - 1 Hygiene Education
 - 2 Pit Latrines
 - 3 Washing Slabs
 - 4 Promotion of Village Health Committees
 - c Water Systems Maintenance
 - 1 Routine Operations and Maintenance
 - 2 Major Maintenance
 - 3 Financing of Maintenance Costs
 - d Staffing
 - 1 MOWS
 - 2 MOH
 - e Training
 - 1 In-Service Training: MOWS
 - 2 Off-Shore Training: MOWS
 - 3 In-Service Training: MOH
 - 4 Off-Shore Training: MOH
 - f Water Quality Monitoring
 - 1 Organization of Monitoring Operations
 - 2 Monitoring Coverage
 - g Community Support
 - 1 Status of Committees
 - 2 Institutional Linkages of Committees
 - h Information Systems
 - 1 MOWS
 - 2 MOH
 - i Monitoring Activities
 - 1 MOWS
 - 2 MOH
 - j Research and Special Studies
 - 1 Engineering and Technical Studies
 - 2 Social and Health Studies
 - k Interministerial Coordination
 - 1 Program Coordinating Committee
 - 2 Project-level Coordination

3. Program Operation: Status of Schemes

- a Construction Status
 - 1 Water Systems
 - 2 Pit Latrines
 - 3 Washing Slabs
- b Operational Status
 - 1 Water Quantity
 - 2 Water Quality
 - 3 System Reliability
 - 4 System Accessibility
 - 5 System Sanitation

4. Program Utilization

- a Household Water Use
 - 1 Sources and Uses of Household Water
 - 2 Water Consumption
- b Household Sanitation Practices
 - 1 Water-Related Uses
 - 2 Latrine Usage
- c Community Support Practices
 - 1 Enforcement of Water Use and Sanitation Practices
 - 2 Community Input During Construction
 - 3 Community Input for Maintenance

5. Program Impacts

- a Health Impacts
 - 1 Diarrheal Disease
 - 2 Effects on Other Diseases
- b Economic Impacts
 - 1 Time Savings
 - 2 Other Productive Outputs
- c Social Impacts
 - 1 Experience in Project Development
 - 2 Effect of Cooperative Activities
 - 3 Involvement of Women
- d Environmental Impacts
 - 1 Effects of Changes in Water and Land Use
 - 2 Wastewater Disposal

D. Service Delivery

I Water Supply (MOWS)

1. 245,000 rural inhabitants supplied with low-cost, safe, piped water.
2. Fourteen new water schemes acquire sustainable piped water supply.
3. The RWS strengthened with the addition of 3 additional engineers (possibly PCVs) and at least 10 monitoring assistants.

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4. Routine water quality monitoring established in all piped water schemes.
5. Temporary water quality standards established for rural water schemes.
6. Overall improvement in environment health conditions in project areas.
7. Increase in disposable time for rural women in project areas.
8. Increased community involvement in other child survival/MCH interventions in water sites.

II HESP (MOH)

1. 1,500,000 villagers reached with HESP services.
2. HESP activities firmly established in all 55 existing water projects and 14 new water projects.
3. 8,000 washing slabs constructed at existing water taps.
4. 62,500 sanitary latrines constructed serving 375,000 people.
5. Additional personnel in the form of 10 supervisors, 50 HAs, and 250 HSAs will be fielded.

III Family Health (MOH)

1. 300 female HSAs will be introduced in the existing and new water project sites.
2. An additional 30 ENMs will be recruited to supervise the female HSAs.
3. Approximately 3,750 villages will be oriented, mobilized and organized in support of water, sanitation and health activities.
4. Female volunteer(s) will be selected in each of the existing and new water project villages to educate and provide simple child survival/MCH services.
5. 50,000 infants will receive basic immunizations each year once project areas are fully covered.
6. 300,000 mothers will be educated on improved MCH/child survival reaching practices.

7. 75% of diarrhea cases will be treated by ORT at the village level in the water project area.
8. 75% of the malaria cases in the project area will be treated presumptively at the village level.
9. 80% of pregnant women in the project area will receive at least 2 ante-natal examinations and receive 2 doses of tetanus toxoid.
10. The use of modern methods of contraceptive will be increased at the community level so that 10% of the eligible couples (a total of 30,000 couples) will be contracepting by the end of the project.

ANNEX D

MEMORANDUM OF PROJECT OBJECTIVES

ANNEX D

MEMORANDUM PROJECT OBJECTIVES

MEMORANDUM OF CONVERSATION

FROM: Doris Martin

Subject: Design of PHICS Project Paper (612-0234)

The purpose of this memorandum is to record discussions held June 1, 1988 between the GOM's Ministry of Health (MOH) and USAID/Lilongwe's design team for the subject project.

Two meetings were held. The first included Dr. Steve Chizimbe (MOH), Gary Newton (USAID/Lilongwe), and Doris Martin (USAID/Lilongwe consultant). In the second meeting, these individuals were joined by Dr. Alice Msachi (MOH), Dr. Teasdale (MOH), and the members of the A.I.D. project design team. The following highlights the major points covered in both meetings.

1. Logistical support, e.g., housing, for the resident advisors required during the implementation of PHICS will be provided through the HRID project.

2. The MOH attaches priority to strengthening its Health Education Unit (HEU). To accomplish this, the Ministry strongly recommends taking the following actions under the subject project: (a) that at least four regional health educators receive training at the master's degree level--one for the central office in Lilongwe and one for each of the three regional offices--to build management capability; (b) that at least one district level health educator from each district receive training at the diploma and certificate levels to improve program execution; (c) that the materials production department in the HEU be strengthened so that the MOH has an independent capability to develop, produce and disseminate health information materials; and (d) that priority be given to exploring how drama clubs and mobile vans can be used to communicate health messages. Also, the unit needs funds to maintain its computers.

3. The MOH emphasized the need to continue activities began under the CCCD project. CCCD yielded outputs that need to be utilized by PHICS, e.g., educational materials were developed under CCCD/HEALTHCOM that now should be tested and disseminated at the community level. It was noted that the MOH is particularly weak in epidemiological and related management skills and recommended the following actions: (a) that a long-term expatriate epidemiologist be funded during the implementation of PHICS to conduct and implement research; (b) that a short-term

epidemiologist be provided to instruct the staff in basic epidemiological principles and methodologies; (c) that members of the MOH staff receive academic training in epidemiology, i.e., one to two individuals trained at the Ph.D. level, three to four individuals trained at the master's level, and short-term training in basic epidemiology theory for regional and district staff to strengthen diagnostic capability at the community level. The long-term advisor would be replaced by one of the Ph.D. trainees. Two individuals are being trained in epidemiology at the certificate level in Kenya and one is training in a medical program in the U.K. .

4. The MOH emphasized that research under the project should be problem-oriented. As such, the precise topics for research should be identified during project implementation, although the general areas and selection criteria should be developed during project design. However, it is safe to conclude presently that research in certain glaring areas, e.g., cost-effectiveness and financing of health care systems is warranted. Input from the district level is needed to carry out effective research and a mechanism for identifying, promoting and utilizing research should be included in the project.

5. With regard to delivery of health services, the MOH identified an inadequate information base and lack of manpower as major constraints. Where it is widely believed that the high infant mortality rate is basically a problem of nutrition, the significance of other causes and how they can best be addressed by the MOH is unknown.

The health delivery system can be strengthened by training extension workers (HSAs, Ministry of Community Services, etc.) in problem and high emphasis areas, identifying ways to increase the number of HSAs, and conducting nutrition studies to produce information for health education. UNICEF provides money primarily for ORS supplies and from time to time for some training when funds are available; but assistance is needed in training, review of the sentinel sites, and revision and expansion of the surveillance system.

6. The MOH expressed a desire to expand the water project to the entire country. The health education aspect of this project needs to be strengthened.

7. It was agreed that the design of PHICS would look carefully at how the project will be managed within the MOH. If necessary, PHICS should consider making provisions to ensure proper management of the project.

8. Each of the A.I.D. consultants was assigned a counterpart in the MOH to work with on the design of the project. It was agreed that a meeting involving A.I.D. and the MOH will be convened at 10:00 a.m. on June 9 to review detailed outlines of the project components. A review of the draft project paper will be scheduled for the following week.

CC:

Steve Chizimbe, MOH
Charles Gurney, USAID/Lilongwe
Gary Norton, USAID/Lilongwe
Mexon Nyirongo, USAID/Lilongwe
David Pyle
William Mackie
Dennis Warner
Carl Stevens

ANNEX E
PID APPROVAL

UNCLASSIFIED
Department of State

OUTGOING
TELEGRAM

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ORIGIN AID-00

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INSTITUTIONS DEVELOPMENT PROJECT) AND OPERATIONS
RESEARCH AND IEC (THROUGH THE PROPOSED PROJECT).

ORIGIN OFFICE AFPR-04
INFO AAAP-03 AFCD-02 AFEA-03 AFSA-03 AFDP-06 SEOP-01 FPA-02
AFIO-02 SERP-01 AFTR-05 AMAD-01 PDR-01 PPPD-02 GC-01
OCAP-01 SEOS-02 OL-01 GCCM-02 STN-03 STFN-02 IT-06
PVC-02 STFA-01 RELO-01 /058 AD

INFO LOG-00 AF-00 EB-00 /000 R

DRAFTED BY: AID/AFR/PO/SA: GHEVTON: LMB: 0764
APPROVED BY: AID/DAA/AFR: WOLLINGER
AID/AFR/PO/SA: BROESER (DRAFT) AID/AFR/PO/SA: PTHORN (DRAFT)
AID/AFR/SA: RWRIN (DRAFT) AID/GC/AFR: MALEIJAN (DRAFT)
AID/AFR/TR/ARD: BUCYD (DRAFT) AID/TR/NPN: MANICKA (DRAFT)
AID/TR/NPN: JSHEPHERD (INFO) AID/AFR/NPN: VBARBIERO (DRAFT)
AID/AFR/OP/PAB: TBETHEUNE (DRAFT)
AID/PPC/POPR/SP: NPIELEMEIN (DRAFT)
AID/AFR/SA: FFISCHER
AID/AFR/PO: JGRAMAN

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FM SECSTATE WASHDC
TO AMEMBASSY LILONGWE
INFO AMEMBASSY NAIROBI

UNCLAS STATE 100020

AIDAC FOR NAIROBI FOR REDSO/E

E.O. 12350: N/A

SUBJECT: MALAWI PROJECT NUMBER 612-0231: PROMOTING
HEALTH INTERVENTIONS FOR CHILD SURVIVAL (NICS) PROJECT
PAPER GUIDANCE

1. THE PID FOR THE SUBJECT PROJECT WAS APPROVED AT THE
14 MARCH 1988 ECPR. THE MISSION IS AUTHORIZED TO
PROCEED WITH THE DESIGN OF THE PROJECT PAPER TO BE
APPROVED AND AUTHORIZED BY THE USAID/MALAWI MISSION
DIRECTOR. THIS CABLE PROVIDES DETAILED GUIDANCE FOR PP
DEVELOPMENT.

2. PROJECT RATIONALE.

(A) MISSION CHILD SURVIVAL (CS) STRATEGY. THE ADEQUACY
OF THE MISSION'S CHILD SURVIVAL ACTIVITIES WAS
QUESTIONED IN LIGHT OF THE FACT THAT MALAWI IS AN A.I.D.
CHILD SURVIVAL "EMPHASIS" COUNTRY, AND IN VIEW OF THE
MISSION'S DECISION TO PHASE-OUT THE CCCD PROJECT. THE
PID SUMMARIZED MALAWI'S CHILD SURVIVAL PROBLEMS AND THE
MULTI-DONOR EFFORT TO ADDRESS THEM. GIVEN THE SEVERITY
OF THE PROBLEMS AND THE MANY ACTORS INVOLVED, THE
QUESTION ARISES AS TO WHY SO LITTLE PROGRESS IS EVIDENT.

THE PP SHOULD PROVIDE A MORE DETAILED DESCRIPTION OF HOW
THIS PROJECT FITS WITHIN THE MISSION'S CS STRATEGY AND
WITHIN THE CONTEXT OF THIS MULTI-DONOR EFFORT. THE PP
SHOULD ANALYZE THE REASONS WHY CS INDICATORS REMAIN HIGH
IN MALAWI AND SHOW HOW THIS PROJECT, TAKEN TOGETHER WITH
OTHER DONOR EFFORTS, WILL REDUCE THESE CONSTRAINTS. IN
DOING SO, THE PP SHOULD DEMONSTRATE HOW AND WITH WHOSE
SUPPORT THE MAIN CS INTERVENTIONS DESCRIBED IN A.I.D.'S
CHILD SURVIVAL STRATEGY (IMMUNIZATION, DIARRHEAL DISEASE
CONTROL/ORT, NUTRITION, AND BIRTH SPACING) ARE BEING AND
WILL CONTINUE TO BE PROVIDED OVER THE COMING YEARS. IT
SHOULD ALSO SHOW HOW THE MISSION, THROUGH THE PROPOSED
PROJECT AND RELATED EFFORTS, WILL COMPLEMENT THE
PRINCIPAL CS INTERVENTIONS WITH ESSENTIAL SUPPORT
ACTIVITIES SUCH AS TRAINING (THROUGH THE HEALTH

IN ADDITION, THE MISSION'S CHILD SURVIVAL STRATEGY NEEDS
TO BE UPDATED AND/OR FINALIZED GIVEN THE CHANGES THIS
PROJECT REPRESENTS VIS-A-VIS THE MASH PROGRAM DESCRIBED
IN THE STRATEGY DOCUMENT SUBMITTED IN SEPTEMBER 1987.

(B) CHILD SURVIVAL NOMENCLATURE AND ATTRIBUTION. CHILD
SURVIVAL PROJECTS, AS DEFINED BY A.I.D. HEALTH POLICY,
FOCUS ON A NARROWLY-DEFINED SET OF INTERVENTIONS. IN
VIEW OF THE AGENCY DEFINITION, THE QUESTION WAS RAISED
AS TO WHETHER THE PROPOSED PROJECT IS, IN FACT, A "CHILD
SURVIVAL" PROJECT, AND WHETHER IT OUGHT TO INCLUDE THE
TERM "CHILD SURVIVAL" IN ITS PROJECT TITLE. AN EXPANDED
EXPLANATION IN THE PP OF HOW THE PROPOSED ACTIVITIES
DIRECTLY COMPLEMENT OTHER DONORS' SUPPORT FOR THE MAIN
CS INTERVENTIONS, AS DISCUSSED ABOVE, SHOULD HELP
CLARIFY WHY THIS PROJECT SHOULD BE CONSIDERED A "CS"
PROJECT. THE PP SHOULD ALSO INDICATE WHICH PORTIONS OF
THE BUDGET ARE ATTRIBUTABLE TO CS FOR CONGRESSIONAL
REPORTING PURPOSES. TAKING THE ABOVE INTO ACCOUNT, THE
MISSION MAY WANT TO MODIFY THE PROJECT TITLE.

(C) CCCD. THE QUESTION WAS RAISED AS TO HOW THE
MISSION'S PROPOSED APPROACH TO CHILD SURVIVAL IS AN
IMPROVEMENT OVER THE CCCD PROJECT IN ATTAINING CHILD
SURVIVAL OBJECTIVES. THE ECPR EXPRESSED CONCERN THAT
THE MOMENTUM AND THE GAINS OF THE CCCD PROJECT NOT BE
LOST WITH THE PHASING-OUT OF THAT PROJECT. THE ECPR

REQUESTED THAT THE PP DESCRIBE IN MORE DETAIL THE
SPECIFIC MECHANISMS BY WHICH THE WORK OF CCCD IN KEY
AREAS SUCH AS MALARIA, DIARRHEAL DISEASE CONTROL,
EPIDEMIOLOGY, AND HEALTH INFORMATION SYSTEMS (HIS) WILL
BE SUPPORTED BY THIS NEW PROJECT AND OTHER MISSION
ACTIVITIES. THE PRECISE MECHANISM FOR CONTINUING
SUPPORT FOR AN EPIDEMIOLOGIST AT THE MOM WAS LEFT OPEN
IN THE PID. BASED ON RECENT DISCUSSIONS IN AID/W
BETWEEN CCCD AND MISSION STAFF, IT APPEARS THAT REGIONAL
FUNDS COULD NOT BE USED FOR THIS PURPOSE. IT IS
RECOMMENDED THAT THE PROJECT BUDGET INCLUDE FUNDS FOR
CONTINUING THIS POSITION.

(D) HEALTH CARE FINANCING AND SERVICE DELIVERY. THE PID
IDENTIFIED THE NEED FOR MALAWI TO DEVELOP SUSTAINABLE
MECHANISMS FOR THE DELIVERY OF CHILD SURVIVAL AND OTHER
PRIMARY HEALTH CARE SERVICES AT THE VILLAGE LEVEL. THE
PID PROPOSES A RELATIVELY SMALL OPERATIONS RESEARCH
COMPONENT TO ADDRESS THESE CONCERNS. AT THE SAME TIME,
THE PID PROPOSES A MAJOR IEC EFFORT BUT DOES NOT EXPLAIN
THE LINKAGE BETWEEN IEC AND SERVICE DELIVERY. GIVEN
THEIR IMPORTANCE, THE ECPR REQUESTED THAT THE PP INCLUDE
A FULLER DESCRIPTION OF MALAWI'S HEALTH CARE FINANCING
AND DELIVERY SYSTEMS AND RELATED DONOR ACTIVITIES. THE
PP SHOULD ALSO EXAMINE THE LINKAGE BETWEEN IEC AND
SERVICE DELIVERY. FOR EXAMPLE, TO WHAT EXTENT WILL THE
IEC ACTIVITIES THEMSELVES SUPPORT SERVICE DELIVERY, AS
IN TEACHING MOTHERS TO DIAGNOSE AND TREAT MALARIA AND
DIARRHEAL DISEASE? WHERE IEC IS SOLELY FOR DEMAND
CREATION, WILL THERE BE REASONABLY GOOD ACCESS TO
SERVICES TO SATISFY THE DEMAND? THE MISSION SHOULD
CONSIDER WHETHER INCREASED PROJECT FUNDING OF OPERATIONS
RESEARCH AND HEALTH WORKER TRAINING IN SERVICE DELIVERY
AND MANAGEMENT SKILLS (AS WELL AS IN COMMUNICATION
SKILLS) IS WARRANTED TO ADDRESS THESE CONCERNS
ADEQUATELY.

(E) POPULATION. THE ECPR QUESTIONED WHETHER THE MISSION
IS DEVOTING SUFFICIENT RESOURCES TO ASSIST THE GOM

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UNCLASSIFIED Department of State

OUTGOING TELEGRAM

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ADDRESS ITS GROWING POPULATION CONCERNS. THE ECPR REQUESTED THAT THE PP INCLUDE AN OVERVIEW OF THE MISSION'S POPULATION PROGRAM AND STRATEGY AND DEMONSTRATE HOW THE ACTIVITIES UNDER THE PROJECT WILL COMPLEMENT OTHER MISSION ACTIVITIES. ALTHOUGH NOT DIRECTLY RELATED TO THE PROPOSED PROJECT, THE ECPR POINTED TO THE NEED TO DEVELOP CONTINGENCY PLANS SHOULD FPFA BE UNABLE TO SUPPLY CONTRACEPTIVE COMMODITIES TO MALAWI. OVER THE LONGER TERM, THE ECPR SUGGESTED THE MISSION BEGIN CONSIDERATION OF A

BILATERALLY-FUNDED POPULATION PROJECT TO ENSURE CURRENT FAMILY PLANNING SERVICE LEVELS ARE MAINTAINED SHOULD CENTRAL FUNDS BECOME UNAVAILABLE AND TO EXPAND ACCESS TO SERVICES, PARTICULARLY AT THE VILLAGE LEVEL.

3. OPERATIONS RESEARCH. THE ECPR RECOMMENDED THAT THE PP INCLUDE AN EXPANDED EXPLANATION OF THE MECHANISM BY WHICH OR RESULTS OF THIS PROJECT AND OF PREVIOUS PROJECTS WILL BE FORMALLY REVIEWED BY THE GOM AND UTILIZED IN THE POLICY AND PROGRAM DEVELOPMENT PROCESS.

4. RECURRENT COSTS. CONCERN WAS EXPRESSED ABOUT THE RECURRENT COST IMPLICATIONS OF ADDITIONAL STAFF REQUIRED BY THE HOW AND HOWS TO IMPLEMENT PROJECT ACTIVITIES. THE ECPR ENDORSED THE PP DEVELOPMENT PLAN TO UNDERTAKE MANPOWER AND ORGANIZATIONAL ANALYSES TO IDENTIFY POSSIBILITIES FOR IMPROVING THE PRODUCTIVITY AND CAPABILITY OF EXISTING STAFF IN LIEU OF ADDING STAFF, AND AN EXAMINATION OF THE POSSIBILITY OF USING VOLUNTARY AGENCY PERSONNEL, E.G. P.A.C.E. CORPS, TO ADDRESS HOWS ENGINEERING STAFF NEEDS. THE ECPR ALSO ENCOURAGED THE MISSION TO RESEARCH, THROUGH THIS PROJECT, A RANGE OF HEALTH CARE FINANCING ISSUES, INCLUDING FEES FOR SERVICE, AND TO ENSURE THAT THE RESULTS OF RESEARCH ARE USED IN THE POLICY DIALOGUE PROCESS TO IDENTIFY WAYS IN WHICH THE GOM MIGHT REDUCE AND RECOVER THE COSTS OF HEALTH CARE.

5. MONITORING AND EVALUATION. THE PID SUGGESTS THAT AN EFFORT WILL BE MADE TO MEASURE THE HEALTH IMPACT AND PROGRESS OF THE PROJECT INTERVENTIONS. THE ECPR NOTED THE DIFFICULTIES AND COSTS OF ASSESSING THE HEALTH IMPACT OF WATER AND SANITATION AND IEC PROJECTS AND THE DIFFICULTY OF ATTRIBUTING CHANGES IN HEALTH STATUS TO A PARTICULAR INTERVENTION OR DONOR. THE ECPR RECOMMENDED THAT THE PROJECT MONITORING AND EVALUATION SYSTEM MEASURE CHANGES IN HEALTH BEHAVIOR AND OTHER VARIABLES THAT CAN BE LINKED TO THE PROJECT ACTIVITIES. THE SYSTEM SHOULD ALSO MEASURE CHANGES IN HEALTH STATUS IN SELECTED PROJECT AREAS BUT NEED NOT ATTEMPT TO SHOW CAUSAL RELATIONSHIPS BETWEEN PROJECT OUTCOMES AND HEALTH IMPACT. FURTHERMORE, IN LIGHT OF THE INTERRELATED NATURE OF THE DONOR-FUNDED CS EFFORT IN MALAWI, THE ECPR RECOMMENDED THAT THE PROJECT'S MONITORING AND EVALUATION PLAN BE DEVELOPED IN COLLABORATION WITH OTHER KEY DONORS. THE ECPR ALSO REQUESTED THAT THE PP DESCRIBE HOW THE PROJECT'S MONITORING AND EVALUATION PLAN WILL RELATE TO THE HOW'S EXISTING HEALTH INFORMATION SYSTEM (HIS).

THE MISSION IS REMINDED THAT, MALAWI BEING A CS EMPHASIS COUNTRY, IT WILL BE REQUIRED TO MONITOR GOM PROGRESS TOWARD THE TARGETS LISTED IN THE MISSION'S 1987 CS STRATEGY DOCUMENT OR SUPERSEDING DOCUMENT, I.E., IMMUNIZATIONS AND ORT AS WELL AS OTHER TIER II INDICATORS.

6. PROJECT MANAGEMENT. THE CONCERN WAS RAISED AS TO HOW THIS PROJECT WILL EASE THE MANAGEMENT BURDEN ON THE

MISSION. THE MISSION SHOULD SEEK TO REDUCE THE NUMBER OF SEPARATE TECHNICAL ASSISTANCE UNITS TO BE MANAGED. ALSO, THE MISSION SHOULD STRUCTURE THE TECHNICAL ASSISTANCE AND PROJECT IMPLEMENTATION ARRANGEMENTS SO AS TO PROMOTE GREATER HOST COUNTRY PARTICIPATION IN AND INSTITUTIONALIZATION OF THE PROJECT ACTIVITIES. THE PP TEAM SHOULD REVIEW AND RECOMMEND NECESSARY POINTS OF AGREEMENT BETWEEN A.I.D. AND THE GOM CONCERNING THE ESTABLISHMENT OF A SEPARATE PROJECT ACCOUNT AND REQUIREMENTS FOR THE SUBMISSION OF ANNUAL FINANCIAL AND ACTIVITY PLANS.

7. ECONOMIC ANALYSIS. THE ECPR RECOMMENDED THAT THE PP ECONOMIC ANALYSIS INCLUDE, IF FEASIBLE, A COST-EFFECTIVENESS ANALYSIS OF IEC ACTIVITIES.

8. LEGAL AND PROCEDURAL CONCERNS.

(U) HOST COUNTRY CONTRIBUTION. IT WAS NOTED THAT THE COUNTERPART CONTRIBUTION IN THE PID IS JUST SLIGHTLY LESS THAN THE STATUTORY 25 PERCENT REQUIREMENT. IF THE FINAL COUNTERPART BUDGET IN THE PP ALSO FALLS SHORT, THE MISSION SHOULD SUBMIT A SECTION 118 WAIVER FOR APPROVAL BY THE AA/AFR PRIOR TO PROJECT AUTHORIZATION. SEE NB 3, APPENDIX 26 FOR CONTENTS OF WAIVER.

(U) 611 (E) CERTIFICATION. THE MISSION DIRECTOR'S 611 (E) CERTIFICATION AS TO THE GOM'S ABILITY EFFECTIVELY TO MAINTAIN AND UTILIZE THE CAPITAL ASSISTANCE PORTION OF THIS PROJECT SHOULD BE PROVIDED TO AA/AFR FOR HIM TO TAKE INTO CONSIDERATION PRIOR TO PP AUTHORIZATION. THE CERTIFICATION, INCLUDING THE FACTS ON WHICH THE MISSION DIRECTOR'S JUDGMENT IS BASED, SHOULD BE ACCOMPANIED BY A BRIEF DESCRIPTION OF THE PROJECT. SEE NB 3, APPENDIX 26 FOR FURTHER DETAILS.

(E) INITIAL ENVIRONMENTAL EXAMINATION (IEE). PROJECTS INVOLVING THE CONSTRUCTION AND MAINTENANCE OF PIPED

WATER SYSTEMS TO INCREASE THE UTILIZATION OF POTABLE WATER FALL IN THE CATEGORY OF ACTIONS NORMALLY HAVING A SIGNIFICANT EFFECT ON THE ENVIRONMENT (REG. 16, SECTION 216.2 (U) (X)). THE BUREAU ENVIRONMENTAL OFFICER FOUND THE CURRENT IEE (REF. PP. 14, 22, AND ANNEX E) INSUFFICIENT TO SUPPORT A NEGATIVE DETERMINATION. THE MISSION IS THEREFORE REQUESTED TO RESUBMIT THE IEE, BY CABLE, WITH AN EXPANDED JUSTIFICATION FOR A NEGATIVE DETERMINATION FOR THE PROJECT'S WATER AND SANITATION COMPONENT. JUSTIFICATION SHOULD INCLUDE MENTION OF ENVIRONMENTAL CONSIDERATIONS IN THE SITE SELECTION PROCESS AND EXPERIENCE UNDER THE CURRENT WATER PROJECT (012-0267).

(U) MISSION BUY-INS. IF THE MISSION INTENDS TO BUY-IN TO A CENTRAL CONTRACT (OR GRANT OR COOPERATIVE AGREEMENT) FOR TECHNICAL SERVICES FOR THE PROJECT, IT SHOULD OBTAIN WRITTEN VERIFICATION FROM S&T DURING PP DEVELOPMENT THAT THE BUY-IN ACTIVITIES ARE CONSISTENT WITH THE OBJECTIVES OF THE CENTRAL CONTRACT, THAT SUFFICIENT CEILING EXISTS AND WILL BE RESERVED FOR THIS PROJECT IN THE CONTRACT, AND THAT THE PERIOD OF THE CENTRAL CONTRACT COVERS THE REQUIREMENTS OF THE PROJECT. OTHERWISE, THE PP IMPLEMENTATION PLAN SHOULD PROVIDE FOR ALTERNATIVE CONTRACTING ARRANGEMENTS.

(E) BUDGET ALLOCATIONS. PRESENTATION OF THE BUDGET IN THE PP SHOULD INCLUDE A BREAKDOWN OF PROJECT FUNDS ATTRIBUTABLE TO THE FOLLOWING FOUR BUDGET CATEGORIES: CHILD SURVIVAL, HEALTH, AIDS, AND FAMILY PLANNING. THE BREAKDOWN IS NEEDED BY AFR/DP FOR REPORTING TO CONGRESS. WHITENHEAD

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ANNEX F
STATUTORY CHECKLISTS

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5C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable to: (A) FAA funds generally; (B) (1) Development Assistance funds only; or (B) (2) the Economic Support Fund only.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FY 1989 Appropriations Act Sec. 578(b).

Has the President certified to the Congress that the government of the recipient country is failing to take adequate measures to prevent narcotic drugs or other controlled substances which are cultivated, produced or processed illicitly, in whole or in part, in such country or transported through such country, from being sold illegally within the jurisdiction of such country to United States Government personnel or their dependents or from entering the United States unlawfully?

No

2. FAA Sec. 481(h); FY 1989 Appropriations Act Sec. 578; 1988 Drug Act Secs. 4405-07. (These provisions apply to

assistance of any kind provided by grant, sale, loan, lease, credit, guaranty, or insurance, except assistance from the Child Survival Fund or relating to international narcotics control, disaster and refugee relief, narcotics education and awareness, or the provision of food or medicine). If the recipient is a "major illicit drug producing country" (defined as a country producing during a fiscal year at least five metric tons of opium or 500 metric tons of coca or marijuana) or a "major drug-transit country" (defined as a country that is a significant direct source of illicit drugs significantly affecting the United States, through which such drugs are transported, or through which significant sums of drug-related profits are laundered with the knowledge or complicity of the government): (a) Does the country have

in place a bilateral narcotics agreement with the United States, or a multilateral narcotics agreement? and (b) Has the President in the March 1 International Narcotics Control Strategy Report (INSCR) determined and certified to the Congress (without Congressional enactment, within 45 days of continuous session, of a resolution disapproving such a certification), or has the President determined and certified to the Congress on any other date (with enactment by Congress of a resolution approving such certification), that (1) during the previous year the country has cooperated fully with the United States or taken adequate steps on its own to satisfy the goals agreed to in a bilateral narcotics agreement with the United States or

in a multilateral agreement, to prevent illicit drugs produced or processed in or transported through such country from being transported into the United States, to prevent and punish drug profit laundering in the country, and to prevent and punish bribery and other forms of public corruption which facilitate production or shipment of illicit drugs or discourage prosecution of such acts, or that (2) the vital national interests of the United States require the provision of such assistance?

N/A

3. 1986 Drug Act Sec. 2013; 1988 Drug Act Sec. 4404. (This section applies to the same categories of assistance subject to the restrictions in FAA Sec. 481(h), above). If recipient country is a "major illicit drug producing country" or "major drug-transit country" (as defined for the purpose of FAA Sec. 481(h), has the President submitted a report to Congress listing such country as one (a) which, as a matter of government

policy, encourages or facilitates the production or distribution of illicit drugs; (b) in which any senior official of the government engages in, encourages, or facilitates the production or distribution of illegal drugs; (c) in which any member of a U.S. Government agency has suffered or been threatened with violence inflicted by or with the complicity of any government officer; or (d) which fails to provide reasonable cooperation to lawful activities of U.S. drug enforcement agents, unless the President has provided the required certification to Congress pertaining to U.S. national interests and the drug control and criminal prosecution efforts of that country?

N/A

4. FAA Sec. 620(c). If assistance is to a government, is the government indebted to any U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies, (b) the debt is not denied or contested by such government, or (c) the indebtedness arises under an unconditional guaranty or payment given by such government or controlled entity?

No

5. FAA Sec. 620(e)(1). If assistance is to a government, has it (including any government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

No

6. FAA Secs. 620(a), 620(f), 620D; FY 1989 Appropriations Act Secs. 512, 550, 592. Is recipient country a Communist country? If so, has the President determined that assistance to the country is vital to the security of the United States, that the recipient country is not controlled by the international Communist conspiracy, and that such

- assistance will further promote the independence of the recipient country from international communism. Will assistance be provided either directly or indirectly to Angola, Cambodia, Cuba, Iraq, Libya, Vietnam, South Yemen, Iran or Syria? Will assistance be provided to Afghanistan without a certification, or will assistance be provided inside Afghanistan through the Soviet-controlled government of Afghanistan?
7. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, damage or destruction by mob action of U.S. property?
8. FAA Sec. 620(1). Has the country failed to enter into an investment guaranty agreement with OPIC?
9. FAA Sec. 620(0); Fishermen's Protective Act of 1967 (as amended) Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. fishing vessel because of fishing activities in international waters? (b) If so, has any deduction required by the Fishermen's Protective Act been made?
10. FAA Sec. 620(q); FY 1989 Appropriations Act Sec. 518. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any loan to the country under the FAA? (b) Has the country been in default for more than one year on interest or principal on any U.S. loan under a program for which the FY 1989 Appropriations Act appropriates funds?
11. FAA Sec. 620(s). If contemplated assistance is development loan or to come from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget and amount of the country's foreign exchange or other resources spent on military equipment? (Reference may be
- No
N/A
No
No
- No
- No
- No
N/A
- Yes, but rescheduling agreement went into effect April 6, 1989
- No

made to the annual "Taking Into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur).

N/A

12. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have relations been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?

No

N/A

13. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget? (Reference may be made to the "Taking into Consideration" memo).

Taken into account by the Administrator in determining the AID OYB.

14. FAA Sec. 620A. Has the President determined that the recipient country grants sanctuary from prosecution to any individual or group which has committed an act of international terrorism or otherwise supports international terrorism?

No

15. FY 1989 Appropriations Act Sec. 568. Has the country been placed on the list provided for in Section 6 (j) of the Export Administration Act of 1979 (currently Libya, Iran, South Yemen, Syria, Cuba, or North Korea)?

No

16. ISDCA of 1985 Sec. 552(b). Has the Secretary of State determined that the country is a high terrorist threat country after the Secretary of Transportation has determined, pursuant to section 1115(e) (2) of the Federal Aviation Act of 1958, that an airport in the country does not maintain and administer effective security measures?

No

17. FAA Sec. 666(b). Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA? No
18. FAA Secs. 669, 670. Has the country, after August 3, 1977, delivered to any other country or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards, and without special certification by the President? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device? (FAA Sec. 620E permits a special waiver of Sec. 669 for Pakistan). No
No
19. FAA Sec. 670. If the country is a non-nuclear weapon state, has it, on or after August 8, 1985, exported (or attempted to export) illegally from the United States any material, equipment, or technology which would contribute significantly to the ability of a country to manufacture a nuclear explosive device? No
20. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Assembly of the U.N. on Sept. 25 and 28, 1981, and did it fail to disassociate itself from the communique issued? If so, has the President taken into account? (Reference may be made to the "Taking into Consideration" memo). Taken into consideration by the Administrator in determining the FY 1989 OYB.
21. FY 1989 Appropriations Act Sec. 527. Has the recipient country been determined by the President to have engaged in a consistent pattern of opposition to the foreign policy of the United States? No

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22. FY 1989 Appropriations Act Sec. 513.
Has the duly elected Head of Government of the country been deposed by military coup or decree? If assistance has been terminated, has the President notified Congress that a democratically elected government has taken office prior to the resumption of assistance?
- No
N/A
23. FY 1989 Appropriations Act Sec. 540.
Does the recipient country fully cooperate with the international refugee assistance organizations, the United States, and other governments in facilitating lasting solutions to refugee situations, including resettlement without respect to race, sex, religion, or national origin?
- Yes

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?

No

N/A

FY 1989 Appropriations Act Sec. 536. Has the President certified that use of DA funds by this country would violate any of the prohibitions against use of funds to pay for the performance of abortions as a method of family planning, to motivate or coerce any person to practice abortions, to pay for the performance of involuntary sterilization as a method of family planning, to coerce or provide any financial incentive to any person to undergo sterilizations, to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning?

No

2. Economic Support Fund Country Criteria

FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the President found that the country made such significant improvement in its human rights record that furnishing such assistance is in the U.S. national interest?

N/A

FY 1989 Appropriations Act Sec. 578(d). Has this country met its drug eradication targets or otherwise taken significant steps to halt illicit drug production or trafficking?

N/A

5C(2) - PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B(1) applies to all projects funded with Development Assistance; B(2) applies to projects funded with Development Assistance loans; and B(3) applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

Attached

Attached

A. GENERAL CRITERIA FOR PROJECT

1. FY 1989 Appropriations Act Sec. 523; FAA Sec 634A. If money is sought to obligate for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified?

The FY 1989 planned obligation of \$5,120,000 was included in the "Global Report" to Congress which expired on March 21, 1989.

2. FAA Sec. 611(a)(1). Prior to an obligation in excess of \$500,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance, and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Yes

Yes

3. FAA Sec. 611(a)(2). If legislative action is required within recipient country, what is the basis for a reasonable expectation that such action will be completed in time to permit orderly accomplishment of the purpose of the assistance?

No legislative action is required.

4. FAA Sec. 611(b); FY 1989 Appropriations Act Sec. 501. If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. 1962, et seq.)? (See A.I.D. Handbook 3 for guidelines).
- Yes, see economic analysis and rural water sections in the PP and annexes.
5. FAA Sec. 611(e). If project is capital assistance (e.g. construction), and total U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively?
- Yes
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.
- No. Project's objectives are to develop national capability to plan and deliver health services in Malawi and to address Malawi's severe child survival problem. The project will be coordinated with other donor efforts through the donor's coordination group in Malawi.
7. FAA Sec. 601(a). Information and conclusions on whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
- (a) Not expected to have a direct impact on international trade. (b) Will foster private initiative and competition in the distribution of drugs and medicines by equipping village health workers with simple drugs to sell on an experimental basis. (c) Not expected to have a direct impact on cooperatives, credit unions, and savings and loans associations. (d) Not expected to have any direct impact on monopolistic practices. (e) Not expected to have a direct impact on industry, agriculture and commerce. (f) Not expected to have any direct impact on labor unions.
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- Long-term training and technical assistance will be provided through private institutions.

9. FAA Secs. 612(b), 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars. Malawi will provide local support costs and some operating expenses for project-financed technical assistance and training.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? No
11. FY 1989 Appropriations Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? N/A
12. FY 1989 Appropriations Act Sec. 549. Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel? No

13. FAA Sec. 119(g)(4)-(6) & (10). Will the assistance (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas? No
No
No
No
14. FAA Sec. 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (either dollars or local currency generated therefrom)? N/A
15. FY 1989 Appropriations Act. If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government? N/A
16. FY 1989 Appropriations Act Sec. 538. If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.? N/A
17. FY 1989 Appropriations Act Sec. 514. If funds are being obligated under an appropriation account to which they were not appropriated, has prior approval of the Appropriations Committees of Congress been obtained? N/A

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

Case-Zablocki Act requirements will be met.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FY 1989 Appropriation Act Sec. 548 (as interpreted by conference report for original enactment). If assistance is for agricultural development activities (specifically, any testing or breeding feasibility study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities (a) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (b) in support of research that is intended primarily to benefit U.S. producers?

N/A

b. FAA Secs. 102(b), 111, 113, 281(a). Describe extent to which activity will (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.

(a), (b), (c), and (d): The direct beneficiaries of this project are the Malawian children under 5, women of child-bearing age, and those rural communities that receive the piped water. Special efforts will be made to improve health status through mass media. The rural people of Malawi will benefit from enlightened health leadership and sound health policy development emanating from the Malawian Government agencies strengthened by this project.

c. FAA Secs. 103, 103A, 104, 105, 106, 120-121; FY 1989 Appropriations Act (Development Fund for Africa). Does the project fit the criteria for the source of funds (functional account) being used?

Yes

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

Yes

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

The requirement has been-waived.

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

Yes

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

The project will improve on the existing efforts of the Government of Malawi to integrate rural Malawians into the economic mainstream of the country by increasing the access of this group to primary health services.

h. FY 1989 Appropriations Act Sec. 536. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions?

No

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

No

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

No

- i. FY 1989 Appropriations Act. Is the assistance being made available to any organization or program which has been determined to support or participate in the management of a program of coercive abortion or involuntary sterilization?

No

If assistance is from the population functional account, are any of the funds to be made available to voluntary family planning projects which do not offer, either directly or through referral to or information about access to, a broad range of family planning methods and services?

N/A

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

Yes

- k. FY 1989 Appropriations Act. What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and

universities having a student body in which more than 40 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?

Participation of these groups will be encouraged and promoted in contracting and placement of participants.

1. FAA Sec. 118(c). Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16? Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (a) stress the importance of conserving and sustainably managing forest resources; (b) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas; (c) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (d) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (e) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded; (f) conserve forested watersheds and rehabilitate those which have been deforested; (g) support training, research, and other actions which lead to

Yes

No, N/A

sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (h) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (i) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, or by helping to identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas; (j) seek to increase the awareness of U.S. government agencies and other donors of the immediate and long-term value of tropical forests; and (k) utilize the resources and abilities of all relevant U.S. government agencies?

- m. FAA Sec. 118(c) (13). If the assistance will support a program or project significantly affecting tropical forests (including projects involving the planting of exotic plant species), will the program or project (a) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and (b) take full account of the environmental impacts of the proposed activities on biological diversity?

N/A

n. FAA Sec. 118(c)(14). Will assistance be used for (a) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; or (b) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas?

No

No

o. FAA Sec. 118(c)(15). Will assistance be used for (a) activities which would result in the conversion of forest lands to the rearing of livestock; (b) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands; (c) the colonization of forest lands; or (d) the construction of dams or other water control structures which flood relatively undegraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

No

No

No

No

p. FY 1989 Appropriations Act. If assistance will come from the Sub-Saharan Africa DA account, is it (a) to be used to help the poor majority in sub-Saharan Africa through a process of long-term development and

economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) being provided in accordance with the policies contained in section 102 or the FAA; (c) being provided, when consistent with the objectives of such assistance, through African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of long-term development in Sub-Saharan Africa; (d) being used to help overcome shorter-term constraints to long-term development, to promote reform of sectoral economic policies, to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities, to bring about appropriate sectoral restructuring of the Sub-Saharan African economies, to support reform in public administration and finances and to establish a favorable environment for individual enterprise and self-sustaining development, and to take into account, in assisted policy reforms, the need to protect vulnerable groups; (e) being used to increase agricultural production in ways that protect and restore the natural resource base, especially food production, to maintain and improve basic transportation and communication networks, to maintain and restore the renewable natural resource base in ways that

(a) The Project will assist in raising the health status of the poor majority in Malawi and thus their economic development potential.

(b) The Project will make extensive use of self-help efforts of the rural poor in the construction and maintenance of water systems. The need for such systems has been identified as a priority by the beneficiaries. The project's main purpose is a reduction in infant and maternal mortality. The Project will improve rural health standards and the status of women.

(c) No PVO involvement is anticipated.

(d) The Project will promote long and short-term improvement in the health status of rural Malawians.

(e) The Project will improve the health conditions of rural residents with special emphasis on maternal and child health emphasizing preventive care.

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increase agricultural production, to improve health conditions with special emphasis on meeting the health needs of mothers and children, including the establishment of self-sustaining primary health care systems that give priority to preventive care, to provide increased access to voluntary family planning services, to improve basic literacy and mathematics especially to those outside the formal educational system and to improve primary education, and to develop income-generating opportunities for the unemployed and underemployed in urban and rural areas?

- q. FY 1989 Appropriations Act Sec. 515. If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same general region as originally obligated, and have the Appropriations Committees of both Houses of Congress been properly notified?

N/A

2. Development Assistance Project Criteria (Loans Only)

- a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan at a reasonable rate of interest.
- b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of

N/A

N/A

the enterprises's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest?

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

N/A

3. Economic Support Fund Project Criteria

- a. FAA Sec. 531(a). Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA?

N/A

- b. FAA Sec. 531(e). Will this assistance be used for military or paramilitary purposes?

N/A

- c. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

N/A

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. PROCUREMENT

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

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

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

4. FAA Sec. 604(e); LSDCA of 1980 Sec. 705 (a). If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.) N/A

5. FAA Sec. 604(g). Will construction or engineering services be procured from firms of advanced developing countries which are otherwise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.) N/A
6. FAA Sec. 603. Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per cent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates? No
7. FAA Sec. 621(a). If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? Yes
Yes
8. International Air Transportation Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? Yes

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9. FY 1989 Appropriations Act Sec. 504.
If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? Yes

10. FY 1989 Appropriations Act Sec. 524.
If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)? Yes

B. CONSTRUCTION

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services be used? N/A

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? Yes

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP), or does assistance have the express approval of Congress? N/A

C. OTHER RESTRICTIONS

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

2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? N/A
3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? Yes
4. Will arrangements preclude use of financing:
- a. FAA Sec. 104(f); FY 1989 Appropriations Act Secs. 525, 536.
(1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; or (4) to lobby for abortion? Yes
Yes
Yes
Yes
- b. FAA Sec. 483. To make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated? Yes

- c. FAA Sec. 620(q). To compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President? Yes
- d. FAA Sec. 660. To provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes
- e. FAA Sec. 662. For CIA activities? Yes
- f. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S. unless a waiver is obtained? Yes
- g. FY 1989 Appropriations Act Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? Yes
- h. FY 1989 Appropriations Act Sec. 505. To pay U.N. assessments, arrearages or dues? Yes
- i. FY 1989 Appropriations Act. Sec. 506. To carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? Yes

- 2372

- j. FY 1989 Appropriations Act Sec. 510. To finance the export of nuclear equipment, fuel, or technology? Yes
- k. FY 1989 Appropriations Act Sec. 511. For the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights? Yes
- l. FY 1989 Appropriations Act Sec. 516 State Authorization Sec. 109. To be used for publicity or propaganda purposes designed to support or defeat legislation pending before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress? Yes
5. FY 1989 Appropriations Act Sec. 584
Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate? Yes

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ANNEX G
GOM REQUEST

5/23



19th May, 1989.

The Mission Director,
USAID,
P.O. Box 30455,
LILONGWE 3.

Dear Madam,

PROMOTING HEALTH INTERVENTION FOR
CHILD SURVIVAL (PHICS) PROJECT

Please refer to the discussions that have taken place for some time on the Ministry of Health's (PHICS) project.

I am directed to submit the revised project dated April, 1989 for your consideration with a view to implementing it. Issues to do with creation of posts will be dealt with administratively during the monitoring/evaluation of the project performance as explained in a telephone conversation with the undersigned.

I sincerely hope that with this note, preparations will be put in place to start the project.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'B.B. Mawindo'.

B.B. Mawindo
for: SECRETARY TO THE TREASURY

- cc : The Secretary for Health, Lilongwe 3.
(Attention : Mr. Chizimbi)
- : The Secretary for Economic Planning
and Development, Lilongwe 3.
(Attention : Mr. Zimalirana)

3/26

Telegram: FINANCE, Lilongwe
Telephone: Lilongwe 731 311

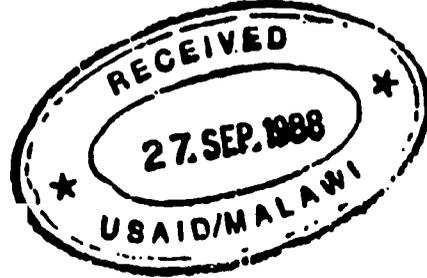
Communications should be addressed to:
The Secretary to the Treasury



MINISTRY OF FINANCE
P.O. BOX 30049
LILONGWE 3
MALAWI

26th September, 1988

The Mission Director,
USAID,
P.O. Box 30455,
LILONGWE 3.



Dear Ms. Peasley,

REQUEST FOR ASSISTANCE

Based on collaborative design work of the Ministry of Health (MOH), Ministry of Works (MOW), and USAID, I would like to formally request assistance from USAID to support: (1) the strengthening of key units within the MOH (Research, Health Education, Epidemiology, Health Information Systems); (2) an expansion of rural piped water and sanitation systems and (3) the provision of health and child survival services.

I confirm that the Government of Malawi wishes to proceed with negotiations of the Grant agreement for this seven year US\$17 million project.

Yours faithfully,

F.N.D. Kaluma

for SECRETARY TO THE TREASURY

DATE: 9/27/88

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NOTE DUE: 10/5/88

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Telegram: FINANCE, Lilongwe
Telephone: Lilongwe 711 311

Communications should be addressed to:
The Secretary to the Treasury



MINISTRY OF FINANCE
P.O. BOX 30049
LILONGWE 3
MALAWI

26th September, 1988

The Mission Director,
USAID,
P.O. Box 30455,
LILONGWE 3.



Dear Ms. Peasley,

NEW GOVERNMENT OF MALAWI (GOM)/USAID HEALTH PROJECT

With reference to the USAID letter dated August 1, 1988, the Ministry of Finance has reviewed the issues related to new staff and recurrent costs associated with the GOM/USAID health project. The Ministry of Finance is now in a position to provide USAID with the assurances requested in the referenced letter that:-

1. The new positions requested by the Ministry of Health in connection with the development of the new USAID health project, will be formally established and filled with qualified individuals as soon as possible.
2. Certain recurrent costs of the new health project, those mainly associated with new positions, will be assumed by the the Malawi Government according to a schedule whereby costs will be borne by the Project for the first four years, after which the Malawi Government will begin to assume these costs at a rate of 25% year five (approximately K223,330), 50% year six (approximately K449,660), 75% year seven (approximately K678,990), and 100% year eight, the first post-project year (approximately K899,295).

Yours faithfully,

F.N.D. Kaluma

for : SECRETARY TO THE TREASURY

DATE: 9/29/88

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ANNEX H
611 (E) CERTIFICATION

UNCLASSIFIED

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E.O. 12356: N/A

SUBJECT: PROMOTING HEALTH INTERVENTIONS FOR CHILD
SURVIVAL (612-0231) - 611 (E) CERTIFICATION

AA/APR HAS FAVORABLY TAKEN INTO CONSIDERATION THE 611
(E) CERTIFICATION OF THE ACTING DIRECTOR OF USAID/MALAWI
FOR THE SUBJECT PROJECT. WHITEHEAD
BT
#7724

NNNN

UNCLASSIFIED

STATE 277724

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DATE DUE: 08/31/88
MAN:
ACTION TAKEN:

ANNEX H

FAA SECTION 611(E) CERTIFICATION

The Promoting Health Interventions for Child Survival Project (PHICS) will strengthen the capability of the Government of Malawi to deliver health services and increase the access of rural Malawians to health services. The Project consists of assistance to develop the capacity of Malawi Government institutions to plan and carry out interventions in health service delivery, particularly in maternal/child health. The Project, as further described in the Project Summary attached to this certification, will also finance the development of a sustainable system for the village-based delivery of MCH/CS services. This service delivery element will finance the construction of piped water systems and related sanitary facilities; the construction component of this element will entail approximately \$4,882,000 worth of A.I.D.-financed inputs.

As the officer serving as principal representative of the Agency for International Development in Malawi, having taken into account the maintenance and utilization of project capital assistance in Malawi previously financed by the United States, particularly the Health Institutions Development Project, Rural Piped Water Supply Project, Southern Africa Regional Malawi Northern Corridor, Chikwawa-Bangula Road, the Science Laboratory and Library at the Polytechnic, Agricultural Research Facilities, the Bunda College Projects, the Lilongwe School of Health, and the performance of the Ministry of Works and Supplies and Ministry of Health with regard to previous and on-going A.I.D. projects in Malawi, I hereby certify that in my judgement the Government of Malawi has the financial and human resource capabilities to maintain and utilize effectively the capital assistance to be carried out under this Project.

In making this determination, I am taking into account the ability of the rural beneficiaries of this Project to maintain and utilize the water and sanitation systems financed by the Project. These systems have been identified by the ultimate beneficiaries as a high priority need; similar systems in place in the villages have in fact been maintained. The ultimate beneficiaries will contribute approximately \$1,064,000 worth

of construction materials and labor to the construction of these Project-financed systems, which represents approximately 18 percent of the cost of the systems. This high level of the local contribution indicates the importance that the beneficiaries attach to the construction of the systems, and their commitment and ability to maintain these systems.

Richard L. Shortlidge, Jr. 8/5/88

Richard L. Shortlidge, Jr.
Acting Mission Director
USAID/Malawi

PHICS Project Summary to Append to 611(E) Certification

1. **Purpose:** This seven year program will assist the GOM to increase institutional capacity of the Ministry of Health (MOH) and Ministry of Works and Supplies (MOWS) to support and manage Maternal Child Health/Child Survival services and the provision of potable water, and to increase the availability and utilization of such services in rural communities.

2. **Background:** The reported death rate of children under one in Malawi is 151/1000 live births. The major causes of infant and child mortality are measles, malaria, and diarrheal disease. Poor infant and maternal nutrition is a major contributing cause. Over the past decade, the GOM has sought to improve this situation through the development of MCH/CS services, including oral rehydration therapy, an expanded immunization program, and other child survival interventions. A large number of donors are providing support to CS programs in the form of commodities, training, and other resources.

3. **Project Description:** This project will complement and reinforce the ongoing child survival programs in Malawi by focusing on two areas: institutionalization of child survival support in the MOH; and development of a sustainable system for the village-based delivery of MCH/CS services. The institutional strengthening activities include: (a) Development of health education and communication techniques to promote demand for MCH/CS services and to support service delivery at the village level; (b) expanded operations research focusing on CS service delivery; (c) increased MCH epidemiological capacity; and (d) refinement of the MCH health information system. The service delivery component will build largely on Malawi's successful rural piped water program and the high level of community organization and motivation generated by the water schemes. New schemes will be constructed and latrine coverage will be increased in the project areas. Expanded cadres of MOH field staff will work with village health committees and workers to provide MCH/CS services and health and hygiene education. The service delivery activities will focus on malaria, diarrheal disease control, measles and other immunizable diseases, child spacing, and nutrition education.

4. **Beneficiaries:** An estimated 1.5 million rural Malawians will benefit from integrated packages of piped water, sanitation and health services and education. Support of health education activities will increase health related knowledge on a national scale.

5. **Major Outputs:** 14 new water schemes serving 250,000 people; an estimated 62,500 low-cost latrines; rationalized health information system; 50 operations research projects; health education messages; extensive training of MCH personnel in epidemiology, research, health education, etc.

| | |
|----------------------------------|----------------|
| 6. Aid Financial Inputs: | |
| - | (US dols. 000) |
| - Technical Assistance | 4,455 |
| - Training | 1,862 |
| - Commodities/Equipment | 5,922 |
| - Operating Expenses | 2,924 |
| - Financial Management and Audit | 350 |
| - Evaluation and Monitoring | 800 |
| - Contingency | 687 |
| - Total | 17,000 |

ANNEX I
LOGFRAME

Project Title & Number: Promoting Health Interventions for Child Survival (612-0231)

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|---|--|--|---|
| <p>Goal:</p> <p>To improve the health status of rural Malawians with emphasis on decreasing child mortality and morbidity</p> | <p>1. Reported infant mortality rate decreases from 154/1000 (1989) to 100/1000 (1997)</p> | <p>1. MOH Health Information System 2. Special studies</p> | <p>1. The provision of CS services, sanitation and potable water, combined with increased health and hygiene knowledge and practices will result in decreased mortality and morbidity 2. Other necessary child survival interventions are being adequately provided by GOM and other donors. 3. Health and child survival is considered a GOM priority.</p> |

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|-------------------|---|---|--|
| Purpose: | <p>Institutional Strengthening</p> <ol style="list-style-type: none">1. MOH Health Education Unit<ol style="list-style-type: none">a) Additional trained health education staff posted at central, regional and district levels;b) IEC surveys and studies completed and results utilized in the design of health education materials;c) Existing and newly-developed IEC materials tested and disseminated nationally; andd) HEU facilities expanded and remodeled.2. MOH Research Unit:<ol style="list-style-type: none">a) Additional trained staff;b) Provision of support services to health researchers in Malawi;c) Health surveys, assessment, and studies which conform to agreed-upon child survival research program guidelines and criteria;d) Workshops and publications to disseminate and utilize research findings; ande) Policy and program decisions based on research findings which lead to improvements in the efficiency and sustainability of child survival services.3. Epidemiology Unit:<ol style="list-style-type: none">a) A new epidemiology Unit staffed by trained Malawians;b) GOM personnel trained in epidemiology; andc) Policy and program decisions formed based on epidemiologic data analyses. | <ol style="list-style-type: none">1. Periodic evaluations Routine USAID Project monitoring3. KAP and special studies | <ol style="list-style-type: none">1. GOM committed to continue funding of additional recurrent costs resulting from project.2. Local populations will practice and utilize preventive and curative health care if it is understood and accessible.3. Training and technical assistance effective in transferring skills to Malawians.4. Malawian Epidemiologist counterpart assigned to technical advisor.5. MOH and MOW staff have adequate incentives to perform effectively in positions for which they are trained under the project.6. Adequate logistical systems to support village based service delivery are in place or can be ensured through technical assistance and other project inputs. |

2410

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|-------------------|-----------------------------------|-----------------------|-----------------------|
|-------------------|-----------------------------------|-----------------------|-----------------------|

Purpose (cont.):

- 4. Health Information System:
 - a) Additional trained staff
 - b) A rationalised MOH computer system;
 - c) A decentralized HIS system; and
 - d) Policy and program decision based on more accurate and up-to-date health information.

- 5. MOW:
 - a) Water quality adopted by the GO^{PP};
 - b) A management information system established to track project status, system reliability, etc.;
 - c) Rural Water Section (RWS) personnel trained in computer-assisted design; and
 - d) Research conducted on willingness-to-pay, to-pay, low-cost water treatment, etc.

Service Delivery

- 1. MOW
 - a) 14 new gravity-fed piped water systems installed in rural areas serving approximately 250,000 people;
 - b) 1 existing rural piped water system rehabilitated;
 - c) Approximately 8,000 washing slabs constructed at piped water taps.

- 2. MOH information Education and Communication
 - a) Additional health workers and community members trained in hygiene and sanitation; and
 - b) Washing slabs and latrines constructed and installed.

2/1/62

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|---|--|---|---|
| Outputs: | 3. Child survival services (MOH/ Preventive Health Services) a) Additional trained service delivery staff at the community and district level; b) Mothers and village health volunteers trained in priority health interventions; c) Enhanced CS service delivery program implemented in seven districts with the highest infant mortality. | | |
| <u>Institutional Strengthening</u> | | | 1. GOM approves additional MOH personnel and recurrent cost financing as required by the project. 2. MOH is committed to village-based service delivery . |
| 1. MOH Health Education Unit: a) Additional staff hired b) Staff trained c) Existing graphic and audio materials tested and disseminated nationwide d) New materials developed, tested, and disseminated nationwide e) HEU facilities remodeled and expanded | 31 58 | X Films, video, radio programs, drama/musical presentations, graphics. | |
| 2. MOH Research Unit a) Staff hired b) Studies (OR, health care financing, etc.) and related workshops, seminars and monographs | 1 20-30 | | |
| 3. Epidemiology Unit a) MOH Epidemiology Unit established b) Additional staff hired c) Unit staff trained d) Other MOH staff trained e) Other MOH staff received short term epid. training | X 5 3 45 | | |
| | 360 | | |

2/20

NARRATIVE SUMMARY**OBJECTIVELY VERIFIABLE INDICATORS****MEANS OF VERIFICATION****IMPORTANT ASSUMPTIONS**

Outputs (cont.):

| | | | |
|---|---|--|--|
| 4. Health Information System | | | |
| a) Additional staff hired | 6 | | |
| b) Staff trained | 2 | | |
| c) Data input decentralized | X | | |
| 5. MOW | | | |
| a) Temporary water quality standards adopted by GOM | X | | |
| b) Management information system established to track project status, system reliability, etc | X | | |
| c) Rural Water Section personnel trained in computer-assisted design | X | | |
| d) Study of willingness to pay for piped water systems | X | | |
| e) Research conducted on low-cost water treatment | X | | |

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|--|---|--|-----------------------|
| Outputs: (cont.): | | | |
| <u>Service Delivery</u> | | | |
| 1. Audience reached with health education messages via mass media (including radio and cinema), print media, traditional drama and music. | All rural population | 1. Project evaluations 2. Routine USAID project monitoring 3. MOH progress reports | |
| 2. New positions established and staffed to support village-based service delivery, and incumbents trained in community organization, supervision of village health workers, CS and sanitation and hygiene | 550 HSA's, 35 ECHNs, 7 PHNs, 50 HA's; 10 HESP supervisors, 3 HESP regional coordinators, and 1 HESP national coordinator | | |
| 3. Latrines constructed | Specific targets will be determined after baseline survey of project areas | | |
| 4. New water schemes installed | 14 serving 250,000 people | | |
| 5. Washing slabs constructed at all piped water taps | 8,000 | | |

2/5/90

| NARRATIVE SUMMARY | OBJECTIVELY VERIFIABLE INDICATORS | | | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS | |
|-----------------------|-----------------------------------|------------|-------------------------------|-----------------------|-------------------------------|---|
| Inputs: | | | | | | |
| | <u>A.I.D.</u> | <u>GOM</u> | \$000's <u>Comms Cont*</u> | <u>Total</u> | | |
| Technical Assistance | 2,340 | | | 2,340 | 1. AID audits and evaluations | 1. AID funds will be available |
| Training | 1,959 | 380 | | 2,339 | 2. AID financial reports | 2. GOM able to assume recurring costs as required. |
| Commodities/Equipment | 6,148 | | | 6,148 | | 3. Villages provide self-help |
| Operating Expenses | 3,491 | 947 | 1,173 | 5,611 | | |
| Evaluation and Audits | 340 | | | 340 | | |
| Contingencies | 772 | | | 722 | | labor for construction of and sanitation facilities |
| TOTAL | 15,000 | 1,327 | 1,173 | 17,500 | | |

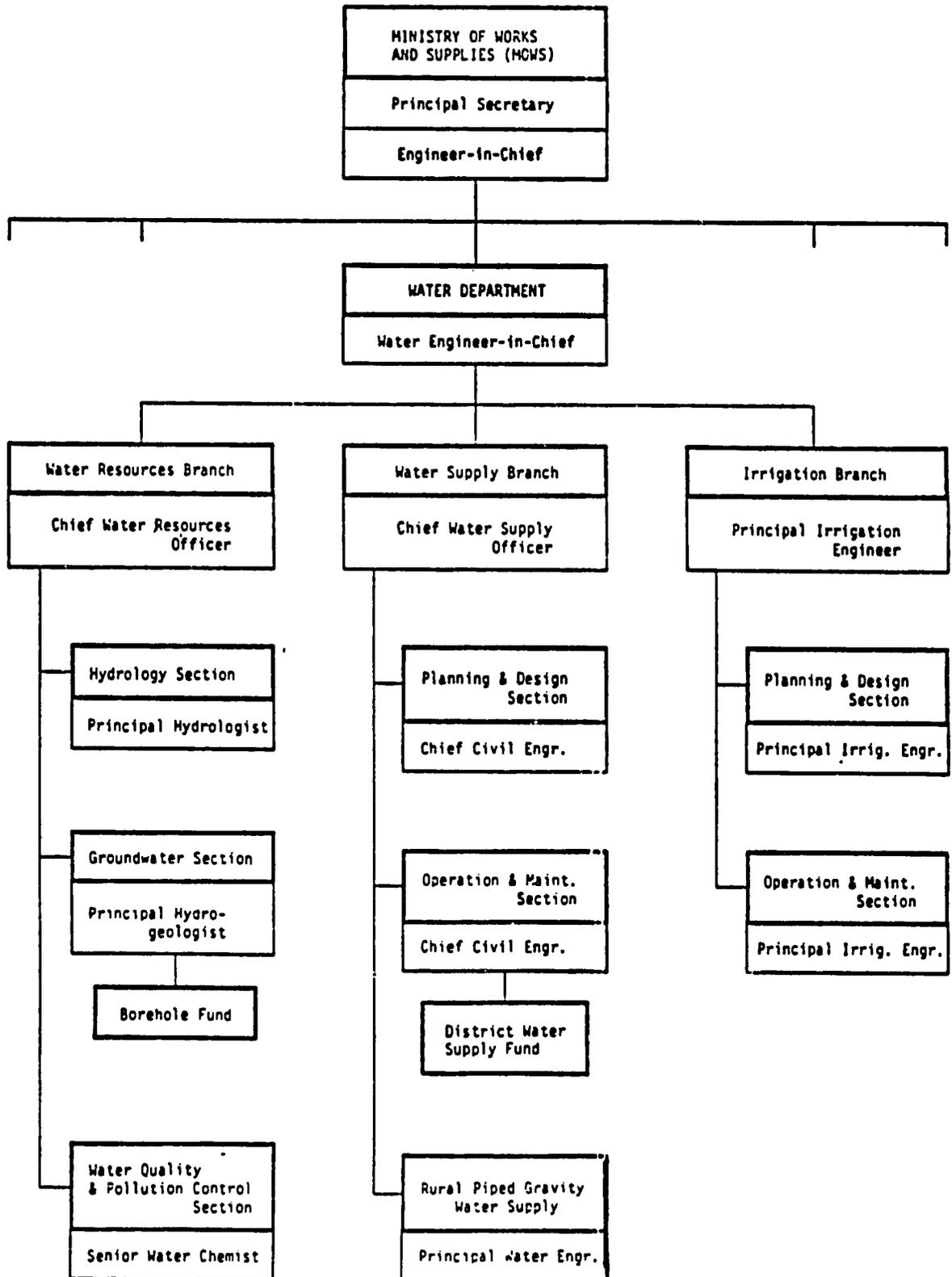
251

ANNEX J

MOWS ORGANIZATIONAL CHART

Figure 2.

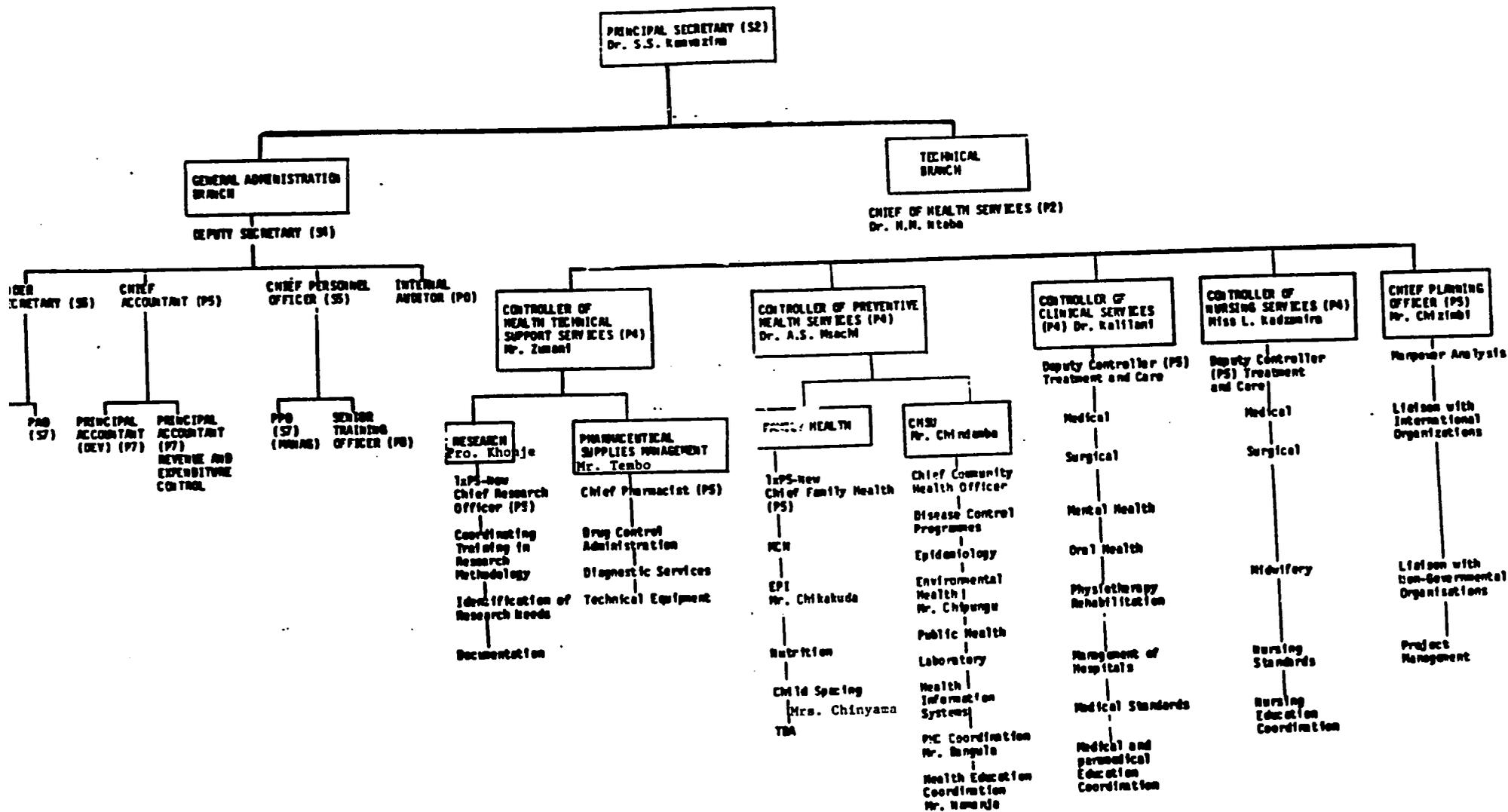
WATER DEPARTMENT
EXISTING ORGANISATION



ANNEX K
MOH ORGANIZATIONAL CHART

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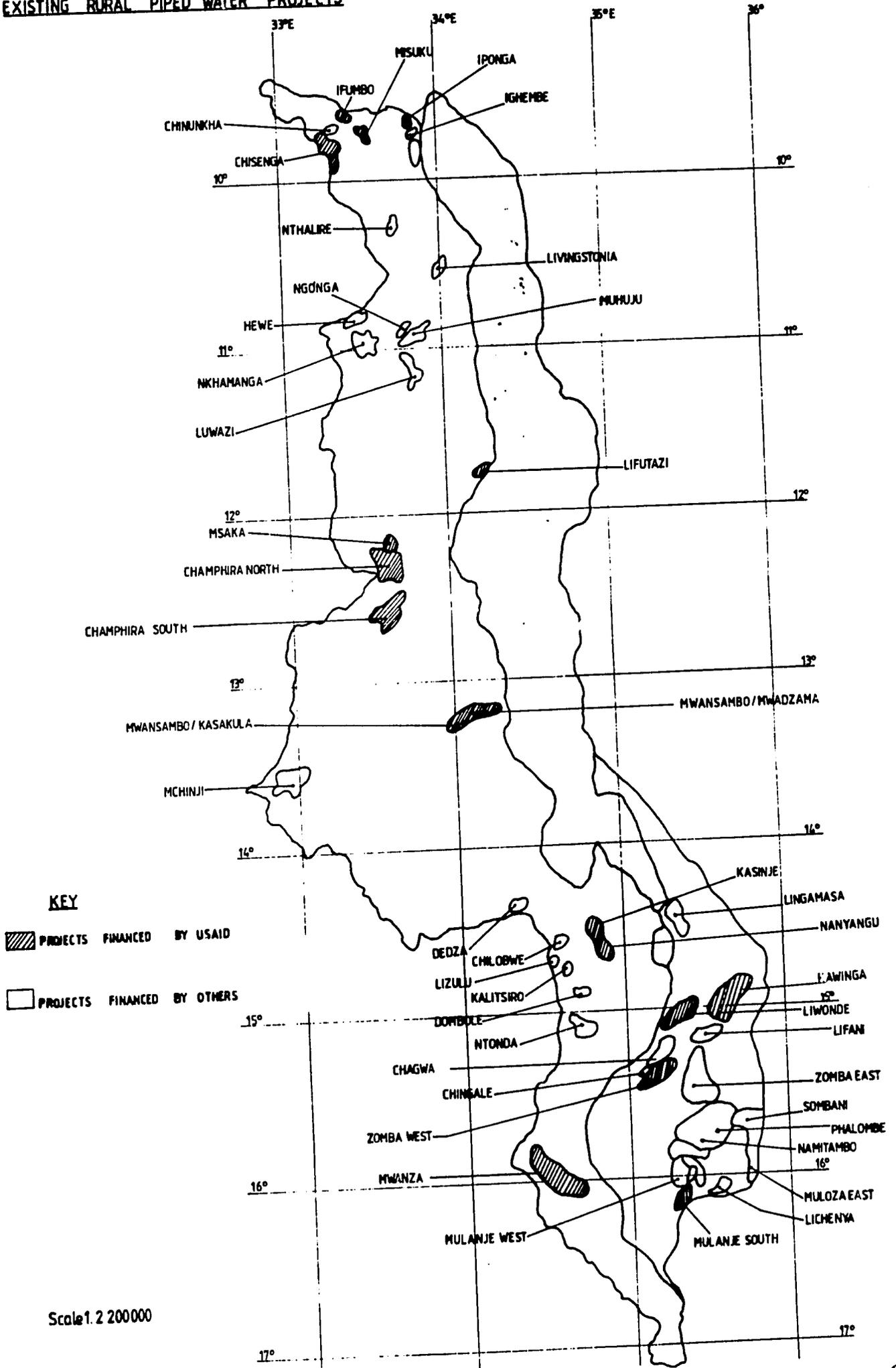
**NEW ORGANISATION STRUCTURE
MINISTRY OF HEALTH HEADQUARTERS**



253

ANNEX L
MAPS OF WATER SITES

EXISTING RURAL PIPED WATER PROJECTS



KEY

 PROJECTS FINANCED BY USAID

 PROJECTS FINANCED BY OTHERS

Scale 1:2 200000

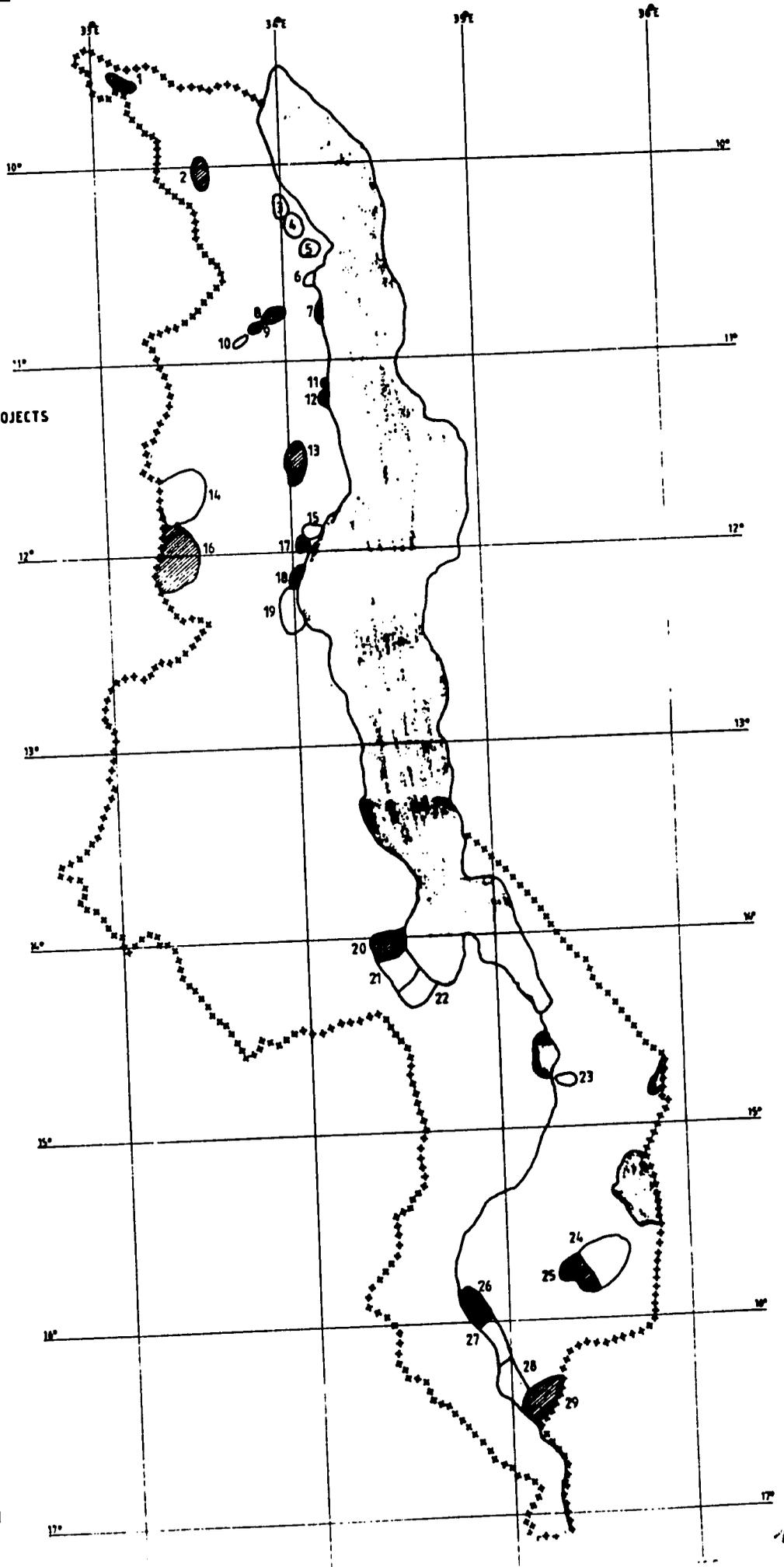
351

**RURAL PIPED WATER
PROPOSED PROJECTS**

LEGEND

-  PROPOSED PHICS PROJECTS
-  ADDITIONAL OPTIONS

- 1 CHINTEKWA
- 2 SENWA
- 3 RUWILE
- 4 WOVWE
- 5 CHILUMBA
- 6 CHITIMBA
- 7 THIMBA
- 8 NTCHEMACHEMA
- 9 MUHUJU
- 10 NGONGA
- 11 RUARWE
- 12 USISYA
- 13 LUWAWA
- 14 MZIMBA II
- 15 KAWIYA
- 16 MZIMBA I
- 17 KAWIYA II
- 18 MLOWI
- 19 DWAMBADZI
- 20 GOLOMOTI I
- 21 GOLOMOTI II
- 22 GOLOMOTI III
- 23 MASANJE
- 24 PHALOMBE
- 25 NAMITAMBO
- 26 SHIRE EAST BANK I
- 27 SHIRE EAST BANK II
- 28 SHIRE EAST BANK III
- 29 SANKHULANI



358

ANNEX M
SECTION 110 WAIVER

UNCLASSIFIED

STATE 283681

ACTION: AID-3 INFO: AMR DCM/ECON

VZCZCIG0020
RR RUEHLG
DE RUEHC #3681 2431813
ZNR UUUUU ZZH
R 301812Z AUG 88
FM SECSTATE WASHDC
TO RUEFLG/AMEMBASSY LILONGWE 6519
INFO RUEHNR/AMEMBASSY NAIROBI 4698
BT
UNCLAS STATE 283681

LOC: 230/081 560
31 AUG 88 2451
CN: 36152
CHRG: AID
DIST: AID

AIDAC NAIROBI FOR REDSO

F.O. 12356: N/A

SUBJECT: PROMOTING HEALTH INTERVENTIONS FOR CHILD SURVIVAL (6120231): WAIVER OF SECTION 110 REQUIREMENT

1. ON AUGUST 26, 1988, AA/AFR APPROVED A WAIVER OF THE 25 PERCENT HCST COUNTRY COST-SHARING REQUIREMENT OF SECTION 110 OF THE FAA, AS AMENDED, FOR THE PHICS PROJECT.

2. SIGNED WAIVER BEING FORWARDED TO MISSISSIPPI. WHITEHEAD
FT
#3681

NNNN

UNCLASSIFIED

STATE 283681

DATE: 8/31/88

| OFFICE | ACTION | INFO |
|--------|--------|------|
| D | | |
| DD | | |
| PDD | | |
| EO | | |
| ISN | ✓ | |
| ASD | | |
| MS | | |
| COMT | | |
| GSO | | |

DATE DUE: 9/8/88

NAME:

ASSIGNMENT:

360

**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO MALAWI**

P.O. Box 30455
Lilongwe 3
Malawi



NICO House, City Center
Tel: 731 455/731 632/731 093
Telex: 4627

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: Acting Director, Richard L. Shortlidge, Jr. *RS*

SUBJECT: Waiver for Malawi of the 25 Percent Cost-Sharing Requirement of Section 110 of the Foreign Assistance Act of 1961, as amended, for the Promoting Health Interventions for Child Survival Project (612-0231)

Problem

Section 110 of the Foreign Assistance Act of 1961, as amended, requires the host country to contribute a minimum of 25 percent of the cost of a project which is grant-financed with DA funds (including DFA) either with cash or in-kind resources. Section 124(d) of the FAA provides that a country meeting the criteria of relatively least developed, based on the United Nations Conference on Trade and Development (UNCTAD) list of RLDCs, may be relieved of the cost sharing requirement. Given Malawi's severe financial constraints and its commitments to lowering its national debt, meeting the 25 percent requirement for the Promoting Health Interventions for Child Survival (PHICS) Project would put upward pressures on the national budget and be counter-productive to the ongoing structural adjustment and policy reform program. Moreover, both the Government and the people of Malawi are contributing substantially to the PHICS Project in cash and in-kind. Therefore, the requirement should be waived.

Discussion

The Malawi economy is passing through one of its most difficult periods since the early part of the decade. From a growth rate of 2.8 percent in 1986, the growth rate fell below zero in 1987. A number of factors have come together to create this situation. These include increasing transportation costs, large debt service payments and serious reductions in the availability of foreign exchange. The annual per capita income has dropped to \$154 in 1987, below average in sub-Saharan Africa.

Malawi has for the last seven years been engaged in a determined effort to carry out major policy reforms to improve its terms of trade, rely increasingly on a free market, and increase the efficiency of public and private sector resources utilization. In the last year, Malawi's commitment to reform has undergone one of its most severe tests. The value of imports rose sharply while exports lost ground due to depressed world market conditions for Malawi's major agricultural exports and to major transport system disruptions which have driven up costs. With no further rescheduling of the debt in 1985 and 1986, the debt service ratio rose from 34 percent of exports and non-factor services in 1984 to 46 percent in 1987 as the debt rescheduled earlier under the London Club became payable in 1985. The GOM had forecast a reduction in the debt service ratio for 1987 but major devaluations in August, 1986, and February, 1987, kept the ratio above 40 percent. The ratio will continue to be high for the next few years despite rescheduling at both the Paris and London Clubs in 1988. Transportation costs have continued to escalate. From 25 percent of the value of imports in 1980, freight and insurance costs have increased to between 50 to 60 percent in 1985 and 1986.

The budget deficit for 1986/87 including development assistance grants was 12 percent of GDP, considerably above the initial estimate of 9.3 percent, and only dropped slightly to 10.2 percent in 1987/88. For the 1988/89 budget year which commenced the 1st of April, the GOM is forecasting a deficit of MK 102.5 million, which is 8.1 percent of GDP. This assumes a modest (1.5%) positive growth in GDP. However, in the current economic climate even this may be difficult to achieve. The fiscal program is based on new revenue measures, real cuts in the recurrent budget as a result of a freeze on civil service employment and wages, and no real growth in the development budget. Clearly, the GOM will be under extreme pressure to control fiscal outlays in order to achieve this target.

Under these circumstances, it would be extremely difficult and undesirable in terms of the broader economic policy framework to require the GOM to meet the 25 percent host country contribution under the PHICS Project. Applying the 25 percent requirement, the GOM would have to come up with \$4.642 million in cash and in-kind.

Waiving this requirement does not imply a lack of commitment and will not release the GOM from its responsibility to contribute what it can to the cost of the Project. The GOM will be providing counterpart personnel for Project long-term technical assistance, will pay the salaries of these personnel while in training, will provide office space and operating expenses, will create 700 new government positions for health workers, and over the seven-year life of Project will assume an increasing proportion of recurrent costs for the project (phased in from years five to seven, from 25% to 75% of total recurrent costs). These expenses, conservatively calculated, represent at least the equivalent of \$1,200,000, or approximately 6.2 percent of Project costs. Moreover, the GOM has made a substantial commitment to the health sector as a whole, even while responding with fiscal discipline to current macro-economic problems.

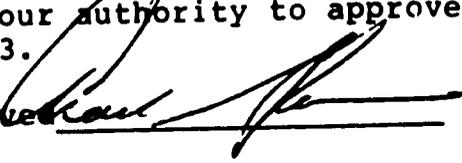
As spelled out in the Statement of Development Policies 1987-1996, the Government plans an average annual rate of increase in the MOH budget in real terms of 5.7 percent over this period, a significantly faster rate of growth than is projected, even under the more optimistic scenarios, for GDP or for overall Government expenditures.

Lastly, the beneficiaries of Project Assistance will be contributing labor and materials for the construction of water and sanitation systems under the Project. The total value of this contribution is estimated at \$1,064,000, constituting 5.5 percent of total project costs.

The Government and the villagers to be served by the project are together contributing over \$2 million in cash and in-kind towards the costs of this project. Under the circumstances this is a substantial contribution and commitment. To ask the Government to do more would be counter-productive to the ongoing structural adjustment and policy reform program.

Recommendation

That you approve the waiver of the 25 percent cost-sharing requirement of Section 110 of the Foreign Assistance Act of 1961, as amended, for the Malawi PHICS Project, in accordance with Section 124(d) of the FAA, which permits such waivers for relatively least developed countries (RLDCs) whenever the initiation and execution of otherwise desirable projects is handicapped primarily by the 25 percent requirement. Malawi is defined as a RLDC by A.I.D. (Handbook 1, Supplement B, Chapter 5). The financial constraint, country commitment and nature of the Project considerations of the waiver guidelines in HB3, App 2G are fully met for this activity. Your authority to approve this waiver is contained in DOA No. 403.

Approved 

Disapproved _____

Date 8-26-88

USAID/MALAWI Clearances:

PROG:RCDay ch. 1/18

FMO:RBamin ch. 1/18

Drafted by: AD:RLShortlidge

AID/W Clearances:

DAA/AFR:ESaiers 8/26/88

AFR/TR:GMerritt 8/22

AFR/DP:JWestley 8/23

GC/AFR:MAKleinjan 8/19

AFR/PD:RRoeser 8/18

AFR/SA:TWare 8/18

AFR/PD/SA:PThorn 8/18

AFR/PD:JGraham 8/18

DAA/AFR:WBollinger 8/18

2/18/88

ANNEX N
COMMODITIES LIST

Annex N

DETAILED COMMODITY LIST
(IN US\$)

Information, Education, and Communication:

| | |
|------------------------------------|---------|
| 1. Film for EAB | 35,000 |
| 2. Audio Equipment | 63,000 |
| 3. Radios, Batteries & Cassette | 50,000 |
| 4. Music/Drama Equipment | 20,000 |
| 5. Vehicles | |
| a. 4 Mobile cinema vans | 160,000 |
| b. 2 Utility vehicles | 60,000 |
| 6. Still Photography Equipment | 53,500 |
| 7. Video equipment | 45,000 |
| 8. Printing and Graphics Equipment | 78,000 |
| 9. Remodeling of HEU Buildings | 30,000 |

Research, Monitoring Evaluation and Planning:

| | |
|---|---------|
| 1. Computer/desk-top publisher (RU) | 11,000 |
| 2. Computer - 1 mini or PCs (HIS) | 45,000 |
| 3. Computer - 3 PCs for regions (HIS) | 30,000 |
| 4. Computer/PC (RU/Library) | 10,000 |
| 5. Vehicles - 4 for Epidemiology Unit | 148,000 |
| 6. Vehicle - for HIS Unit | 35,000 |
| 7. Vehicle for Research Unit | 35,000 |
| 8. Furniture - for document centers (3 main hospitals) HIS | 13,000 |
| 9. Calculators - 100 for field workers | 1,000 |
| 10. Modems & phone links (HIS) | 30,000 |
| 11. Data base/CD reader (RU) | 10,000 |

Service Delivery - Health

| | |
|---|---------|
| 1. House Building materials | 140,000 |
| 2. Primary Health Care Kits (4000 community workers) | 81,000 |
| 3. PHC Kit storage/carry bags (for 300 female HSAs) | 14,000 |
| 4. 30 Motorcycles (ENMs) | 48,000 |
| 5. Bicycles (for 300 female HSAs) | 90,000 |
| 6. Training book production (2000 copies of 10 diff, booklets) | 30,000 |
| 7. 6 (4WD) vehicles | 180,000 |

Water, Sanitation, Hygiene Education:

| | | |
|-----|----------------------------|---------|
| 1. | 1 7-ton lorry Truck | 40,000 |
| 2. | 1 Land Cruiser (4wd) | 30,000 |
| 3. | 10 Light pickups | 170,000 |
| 4. | 50 Motorcycles (HAs) | 75,000 |
| 5. | 250 bicycles (HSAs) | 70,000 |
| 6. | Misc. Tools | 21,000 |
| 7. | House-Building Material | 130,000 |
| 8. | Tools and equipment | 15,000 |
| 9. | Materials | 8,000 |
| 10. | San Plat Latrine Materials | 136,000 |
| 11. | Washing slab materials | 286,000 |

MOWS-Water Programs:

| | | |
|-----|--------------------------------------|-----------|
| 1. | Pipes, Cement and Reinforcement Rods | 3,104,000 |
| 2. | 2 7-ton Pipe Carrier Trucks | 60,000 |
| 3. | 3 7-ton Dropside Trucks | 100,000 |
| 4. | 1 7-ton Tipper | 40,000 |
| 5. | 1 Land Cruiser (4wd) | 30,000 |
| 6. | 4 Light pick-ups | 70,000 |
| 7. | 3 Motorcycles | 6,000 |
| 8. | 3 Concrete Mixers | 30,000 |
| 9. | 3 Poker vibrators | 15,000 |
| 10. | 2 Portable Rock Drills | 5,000 |
| 11. | 3 Field Test Kits | 11,000 |
| 12. | 3 Refrigerators | 3,000 |
| 13. | Tools and Misc. | 100,000 |
| 14. | Computer | 10,000 |

Project Management:

| | | |
|----|---|--------|
| 1. | Office supplies & equipment including PC for USAID PSC | 18,000 |
| 2. | Vehicle for Project Management | 35,000 |

01700

361

ANNEX O
DETAILED BUDGET

PROMOTING HEALTH INTERVENTIONS FOR CHILD SURVIVAL (PHICS)

DETAILED PROJECT BUDGET (DOLLARS)

| Activity/Input ----- | A.I.D. ----- | Host Country ----- | Community Contribution ----- |
|---|-----------------|--------------------------|------------------------------------|
| I. Information Education and Communication | | | |
| A. Technical Assistance | | | |
| 1. Long Term | | | |
| 2. Short Term | | | |
| IEC/Health Education (22pm) | 330,000 | | |
| B. Training | | | |
| 1. Long Term | | | |
| a. 2 MAs (48)(US) | 116,000 | | |
| b. 2 MAs (48)(local) | 17,000 | | |
| c. 6 BSc (28 ¹ / ₂ m)(local and regional) | 191,000 | | |
| d. 24 Diplomas (576m) (local) | 144,000 | | |
| 2. Short Term | | | |
| a. 24 Certificates (144m) (local) | 34,000 | | |
| b. Seminars/Workshops/Courses (Off-shore) | 61,000 | | |
| C. Commodities | | | |
| 1. Film for EAB | 35,000 | | |
| 2. Audio Equipment | 63,000 | | |
| 3. Radios, Batteries, & Cassette Players | 50,000 | | |
| 4. Music/Drama Equipment | 20,000 | | |
| 5. Vehicles | | | |
| a. 4 Mobile Cinema Vans | 160,000 | | |
| b. 2 Utility vehicles | 60,000 | | |
| 6. Still Photography Equipment | 53,000 | | |
| 7. Video equipment | 45,000 | | |
| 8. Printing and Graphics Equipment | 78,000 | | |
| 9. Remodeling of HEU | 30,000 | | |
| D. Operating Expenses | | | |
| 1. Salaries (31 positions) | | | |
| a. 4 Senior HE Officer (MOH/HEU) | 38,000 | 17,000 | |
| b. 3 Regional HE Officers | | | |
| c. 24 District HE Officers | | | |
| 2. Other | | | |
| a. Vehicles operating costs | 100,000 | 34,000 | |
| b. Contract Production | 120,000 | 40,000 | |
| c. Supplies | 50,000 | 18,000 | |
| d. Monitoring/Formative Research | 10,000 | | |

II. Service Delivery Support

A. Technical Assistance

1. Long Term

| | | |
|--|---------|--|
| a. Epidemiologist; MOH/EU (60m) | 600,000 | |
| b. Public Health Advisor; MOH/EU (24m) | 240,000 | |

2. Short Term

| | | |
|---------------------------------------|---------|--|
| a. Documentation Expert; MOH/RU (12m) | 180,000 | |
| b. Research; MOH/RU (6m) | 90,000 | |
| c. Computer/HIS: Field (4m) | 60,000 | |
| d. Documentation/HIS (4m) | 60,000 | |
| e. Computer/HIS HQ (2m) | 30,000 | |

B. Training

1. Long Term (US)

| | | |
|-----------------------|---------|--|
| a. 1 MA MOH/RU (24m) | 54,000 | |
| b. D.Sc. MOH/EU (48m) | 116,000 | |
| c. 2 MA MOH/EU (48m) | 116,000 | |

2. Short Term

US

| | | |
|---------------------------------|--------|--|
| a. Data analysis; MOH/HIS (12m) | 30,000 | |
|---------------------------------|--------|--|

Regional

| | | |
|-------------------------------------|---------|--|
| b. Workshops, conferences, seminars | 100,000 | |
|-------------------------------------|---------|--|

Local

| | | |
|---|---------|--------|
| c. Orientation workshops; MOH/RU (3) | 16,000 | |
| d. Epidemiology Diploma Course; MOH/EU (24m) | 285,000 | 78,000 |
| e. Epidemiology Course: districts MOH/EU (1m) | 92,000 | 34,000 |
| f. Epidemiology Orientation w/s MOH/EU | 45,000 | |
| g. HIS in-service (18 sessions) MOH/HIS | 14,000 | |

C. Commodities

| | | |
|---|---------|--|
| 1. Computer/desk-top publisher (RU) | 10,000 | |
| 2. Computer/PC (RU/Library) | 10,000 | |
| 3. Data base/CD reader (RU) | 10,000 | |
| 4. Vehicle for Research Unit (RU) | 30,000 | |
| 5. Vehicles - 4 for Epidemiology Unit | 120,000 | |
| 6. computer - 1 mini or 4 PCs (HIS) | 43,000 | |
| 7. Computer - 3 PCs for regions (HIS) | 30,000 | |
| 8. Vehicle - for HIS Unit (HIS) | 30,000 | |
| 9. Furniture - for document centers (3 main hospitals) (HIS) | 13,000 | |
| 10. calculators - 100 for field workers (HIS) | 1,000 | |
| 11. Modems & phone links (HIS) | 30,000 | |

D. Operating Expenses

1. Salaries

| | | |
|---|--------|-------|
| a. 1 Assistant Documentation Officer MOH/RU | 7,000 | 2,000 |
| b. Principal Epidemiologist | 21,000 | 6,000 |

| | | |
|---|---------|--------|
| c. Epidemiologist | 18,000 | 5,000 |
| d. 3 Regional surveillance Officers; MOH/EU | 22,000 | 4,000 |
| e. Data clerks; MOH central Hospitals (HIS) | 25,000 | 7,000 |
| 2. Other | | |
| a. Vehicle operating costs | | |
| MOH/RU | 9,000 | |
| MOH/EU | 36,000 | |
| MOH/HIS | 9,000 | |
| b. Research Review Committee; MOH/RU: | 5,000 | 15,000 |
| c. Research Support Funds | 518,000 | 2,000 |
| d. dissemination of research; MOH/RU: | | |
| Publications | 95,000 | 26,000 |
| Workshops (25) | 68,000 | |
| e. Computer maintenance and supplies; MOH/HIS | 96,000 | |

III. Rural Piped Water Supply (MOW)

A. Technical Assistance

1. Long Term

| | | |
|----------------------------|---------|--|
| a. Water Engineer (36m) | 360,000 | |
| b. PCV (3 Civil Engineers) | 21,000 | |

2. Short Term

| | | |
|--|--------|--|
| a. Info. systems (1m) | 19,000 | |
| b. Computer-assisted design (1m) | 25,000 | |
| c. Willingness-to-pay study and Manpower needs assessment | 40,000 | |

B. Training

1. Long Term

2. Short Term Local

| | | |
|---|-------|--------|
| a. 105 Water Operators and Monitoring Ass'ts (1wk) | 5,000 | 37,000 |
| b. 15 Water Supervisors (1wk) | 2,000 | 9,000 |
| c. 10 senior Staff (1wk) | 2,000 | 6,000 |
| d. 12 Water Supervisors (30wk) | 3,000 | 14,000 |
| e. 20 Water Operators (4wks) | 2,000 | 4,000 |
| f. 400 Local Leaders 4 Repair Teams (1wk) | 7,000 | 49,000 |
| g. 200 Local Leaders (1day) | 2,000 | 2,000 |
| h. 12 Trainers MOH MOUS MOCS (2wks) | 3,000 | 5,000 |
| i. HAS, HSAs 4 MAS (1wk) | 5,000 | 8,000 |

C. Commodities

| | | |
|---|-----------|--|
| 1. Pipes, Cement and Reinforcement Rods | 3,104,000 | |
| 2. 2 7-ton Pipe Carrier Trucks | 60,000 | |
| 3. 3 7-ton Dropside Trucks | 100,000 | |
| 4. 1 7-ton Tipper | 40,000 | |
| 5. 1 Land Cruiser (4wd) | 30,000 | |
| 6. 4 Light pick-ups | 70,000 | |
| 7. 3 Motorcycles | 6,000 | |
| 8. 3 Concrete Mixers | 30,000 | |

| | | |
|------------------------------------|---------|---------|
| 9. 3 Poter vibrators | 15,000 | |
| 10. 2 Portable Rock Drills | 5,000 | |
| 11. 3 Field Test Kits | 11,000 | |
| 12. 3 Refrigerators | 3,000 | |
| 13. Tools and Misc. | 100,000 | |
| 14. Computer | 10,000 | |
| D. Operating Expenses | | |
| 1. Salaries - Field Staff | | 264,000 |
| 2. Others | | 84,000 |
| a. Subsistence | | |
| b. Systems Maintenance | 214,000 | 49,000 |
| c. Fuel and Maintenance | 647,000 | |
| d. Water Quality Monitoring | 88,000 | |
| e. Water System Construction | | 918,000 |
| f. Applied studies | | |
| . Willingness-to-pay | 50,000 | |
| . Low cost water treatment methods | 10,000 | |
| . Reliability of system | 10,000 | |

IV. Hygiene Education and Sanitation (HESP) (NOH)

A. Technical Assistance

1. Long Term
2. Short Term

B. Training

| | | |
|------------------------------------|--------|--------|
| 1. Long Term | | |
| 2. Short Term (local) | | |
| a. Trainers (NOH MOWS MOCS) (2wks) | 6,000 | 2,000 |
| b. VHC Members (1wk) | 65,000 | 30,000 |
| c. Women and Tap Committees (1wk) | 65,000 | 30,000 |
| d. New HSAs (2wks) | 17,000 | 6,000 |
| e. HAs HSAs MAs (1wk) | 65,000 | 30,000 |
| f. HSAs (1wk) | 65,000 | 30,000 |
| g. Supervisors and Trainers (1wk) | 7,000 | 2,000 |
| h. Supervisors (1wk) | 7,000 | 2,000 |

C. Commodities

| | | |
|--------------------------------|---------|--------|
| 1. 1 7-ton Lorry Truck | 40,000 | |
| 2. 1 Land Cruiser (4wd) | 30,000 | |
| 3. 10 Light pickups | 170,000 | |
| 4. 50 Motorcycles (HAs) | 75,000 | |
| 5. 250 bicycles (HSAs) | 70,000 | |
| 6. Misc. Tools | 21,000 | |
| 7. House-Building Material | 130,000 | 50,000 |
| 8. Tools and equipment | 15,000 | |
| 9. Materials | 8,000 | |
| 10. San Plat Latrine Materials | 136,000 | 46,700 |
| 11. Washing Slab Materials | 286,000 | 49,300 |

D. Operating Expenses

| | | |
|------------------------------|---------|---------|
| 1. Salaries | | |
| a. 1 HQ staff coordinator | 13,000 | 6,000 |
| b. Field staff: 3 Reg. Coord | 321,000 | 124,000 |
| 10 HIs/SHA | | |
| 50 HA | | |
| 250 HSA | | |
| c. Subsistence | 154,000 | 67,000 |
| 2. Others | | |
| a. Fuel & Maintenance | 84,000 | |

V. Child Survival

A. Technical Assistance

1. Long Term

2. Short Term

| | | |
|---|--------|--|
| a. CS service delivery (e.g. logistics, CBD Training (3m)) | 45,000 | |
|---|--------|--|

B. Training

1. Long Term

2. Short Term:

| | | |
|---|---------|--|
| a. Conferences, seminars re: CS (off-shore) | 105,000 | |
|---|---------|--|

C. Commodities

| | | |
|---|---------|--------|
| 1. House Building Materials | 140,000 | 60,000 |
| 2. Primary Health Care Kits (4000 community workers) | 81,000 | |
| 3. PHC Kit storage/carry bags (for 300 HSAs) | 14,000 | |
| 4. 35 Motorcycles (CHNs) | 52,000 | |
| 5. Bicycles (for 300 HSAs) | 90,000 | |
| 6. Training book production (2000 copies of 10 different booklets) | 30,000 | |
| 7. 7 Vehicles | 210,000 | |

D. Operating Expenses

1. Salaries

| | | |
|----------------------------|---------|--------|
| a. 300 HSAs | 116,000 | 67,000 |
| b. 35 ECHNs/HAs | 51,000 | 29,000 |
| c. 7 PHNs | 116,000 | 42,000 |
| d. Vehicle Operating Costs | 63,000 | |
| e. Subsistence | 223,000 | 80,000 |

2. Other

| | | |
|--------------------------------|--------|--|
| a. Fuel and Maintenance (ENMs) | 30,000 | |
|--------------------------------|--------|--|

VI. Project Management/Support, Evaluation and Audit

A. Technical Assistance

1. Long-term

| | | | |
|--|--------------|-------------|-------------|
| a. USAID Ass't Project Manager (24m) | 240,000 | | |
| 2. Short Term | | | |
| a. Evaluation and Technical Assessments | 215,000 | | |
| b. Audits and financial services | 125,000 | | |
| B. Training | | | |
| 1. Long Term | | | |
| 2. Short Term | | | |
| a. Computers and Planning MOH/PU (1.5m) | 35,000 | | |
| b. Project Management MOH/PU (1.5m) | 30,000 | | |
| c. USAID Project Implementation Course MOH/PU (0.5m) | 30,000 | | |
| C. Commodities | | | |
| 1. Computer (PC) | 10,000 | | |
| 2. Office supplies/equipment | 5,000 | | |
| 3. Vehicle | 30,000 | | |
| D. Operating Expenses | | | |
| 1. Salaries (MOH) | | | |
| a. Project Coordinator (MOH/PU) | 20,000 | 6,000 | |
| b. Accountant (MOH/PU) | 17,000 | 4,000 | |
| c. Subsistence | 10,000 | | |
| 2. Other | | | |
| a. Vehicle operating and maintenance | 3,000 | | |
| b. Subsistence | 4,000 | | |
| VII. Contingencies | 722,000 | | |
| TOTAL | \$15,000,000 | \$1,327,000 | \$1,173,000 |

* Community self-help contribution

ANNEX P
LIST OF PHICS PP
TEAM CONTACTS

Annex P

LIST OF PEOPLE MET BY PHICS PROJECT PAPER TEAM

Dr. S.S. Kamvazina, Principal Secretary, MOH
Mr. P.E. Kaliati, Deputy Secretary, MOH
Dr. A. Msachi, Controller of Preventive Health Services, MOH
Ms. L. Kadzamira, Controller of Nursing Services, MOH
Mr. Dzumani, Controller of Health Technical Support Services, MOH
Mr. S. Chizimbi, Acting Chief Health Planning Officer, MOH
Dr. C.H. Teesdale, Co-ordinator of Disease Control Programs, MOH
Dr. Kure, Acting Head of Community Health, MOH
Prof.P. Khonje, Chief Research Officer, MOH
Mr. Takula, Chief Accountant, MOH
Mr. L. Chipungu, Chief Environmental Health Officer, MOH
Mr. B. Chandiyamba, HESP Coordinator, MOH
Mr. N. N. Kalanje, Health Planning Officer, MOH
Dr. G. Malenga, Regional Health Officer (Southern Region) MOH
Dr. Spurr, District Health Officer, Mulanje District MOH
Mr. Nsapato District Health Inspector, Mulanje District MOH
Muloza Health Centre Staff, Mulanje District MOH
Mr. T.P. Zamaere, Head of HIS section, MOH
Mr. G. Namanja, Acting Head of HEU, MOH
Mr. J. Chikakuda, Head of EPI section, MOH
Mr. W. Mknoma, TB/ARI Manager, MOH
Mr. A. Macheso, DDC/Malaria Manager, MOH
Mrs. Chinyama, Child Spacing Program Manager, MOH

Mr. Jere, Nutrition Section, MOH
Mr. R. Doorly, VSO HIS Section, MOH
Ms C. Bailey, Chief of Party, Howard Project HID/MOH
Dr. D. Heymann, Regional Epidemiologist CCCD/MOH
Mr. R. Hawkins, Technical Officer CCCD/MOH
Ms D. Helitzer-Allen, HealthCom Advisor CCCD/MOH
Dr. Herera, Havard Nutrition Project Consultant HIID
Dr. S. Stansfield, Consultant to Save the Children Federation
Mr. R. Klaus, Chief of Party HRID Project/Malawi
Dr. S.H. Siwale, WHO Representative Malawi
Mr. Perera, Co-ordinator WB/IDA Health II Project, MOH
Mr. E. Joe, WHO/UNFPA Advisor to HEU, MOH
Dr. Darfoor, WHO/UNFPA Child-Spacing Advisor, MOH
Dr. R. Biritum WHO/UNFPA Statistician, MOH
Mr. B. Musoke, UNFPA Representative Malawi
Mr. H. Mwanza, UNFPA Program Officer Malawi
Mr. K. Williams, UNICEF Representative Malawi
Mr. R. Shresta, UNICEF Program Officer Malawi
Mr. Visser, EEC, Malawi
Mr. Mapondo, Deputy Secretary, MOF
Mr. Nthenda, EP and D, OPC
Mr. H.E. Namarika, Commissioner for Census and Statistics, NSO, Zomba
Mr. C. Clark, Principal Secretary, MOWS
Mr. S. DeSouza, Acting Water Engineer in Chief, MOWS
Mr. Y. Mhone, Principal Water Engineer(RWS), MOWS

Mr. C. Kharapuwa, Senior Publications Officer, Extension Aids Branch, MOA
Mr. T. Mbuka, Cinematographer, Extension Aids Branch, MOA
Mr. E. Mwale, Cinema Producer EAB MOA
Mr. M. Culp, Director Peace Corps, Lilongwe/Malawi
Mr. J. Barbee, Deputy Director, Peace Corps
Ms. D. Thyangathyanga, Associate Director for Health, Peace Corps
Dr. S. Richardson, Public Health Physician, Salima ADD, MOA
Dr. Schmidt, Public Health Physician, Liwonde ADD, MOA
Dr. L. Msukwa, Director, Centre for Social Research, Zomba
Ms N. Ngwira, Research Associate, Centre for Social Research, Zomba
Mr. W. Bomba, Lecturer/Health Education, Malawi Polytechnic
Mr. Masamba, Audio-Visual Faculty, Malawi Polytechnic
Mr. S. Morrow, Association of Canadian Community Colleges Representative,
Audio-Visual Faculty, Malawi Polytechnic, Blantyre
Mr. Waldron, Audio-Visual Faculty, Malawi Polytechnic, Blantyre
Prof. D. McCarry, Educational Media and Technology Faculty, Chancellor
College, Zomba
Dr. Mwale, Head of Department of Education Chancellor College, Zomba
Mr. Mpheluka, Educational Media and Technology Faculty, Chancellor
College, Zomba
Mr. H. Chirwa, Head of Production, Malawi Broadcasting Corporation,
Blantyre
Mr. B. Kaimila, Malawi Broadcasting Corporation Studio, Lilongwe
Mr. V. Nyengani, Technical Supervisor, Lilongwe MBC Transmitter, Lilongwe
Mr. D. Addy, General Manager, Blantyre Print and Packaging, Blantyre
Mr. L. Chinawa, Acting Works Manager, Blantyre Print and Packaging
Mr. S. Littleton, General Manager, Graphics Lintas Worldwide Ltd. Blantyre

Mr. S. Donde, General Manager, Nzeru Radio Company, Blantyre

Mr. Sadik, General Manager, Sorex Radio Company, Lilongwe

ANNEX Q

GRAY AMENDMENT CERTIFICATION

GRAY AMENDMENT CERTIFICATION

I, Carol A. Peasley, the Principal Officer of the Agency for International Development in Malawi, do hereby certify that the acquisition plan in the Promoting Health Interventions for Child Survival Project Paper was developed with full consideration of maximally involving minority and women-owned firms, or Gray Amendment organizations, in the provision of required goods and services. To the extent possible at this stage, opportunities for such organizations to participate in the Project have been identified. The nature of the Project, however, will not permit major minority or Gray Amendment contracting.

Carol A. Peasley

Carol A. Peasley
Director, USAID/Malawi

30 June 1989
Date

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