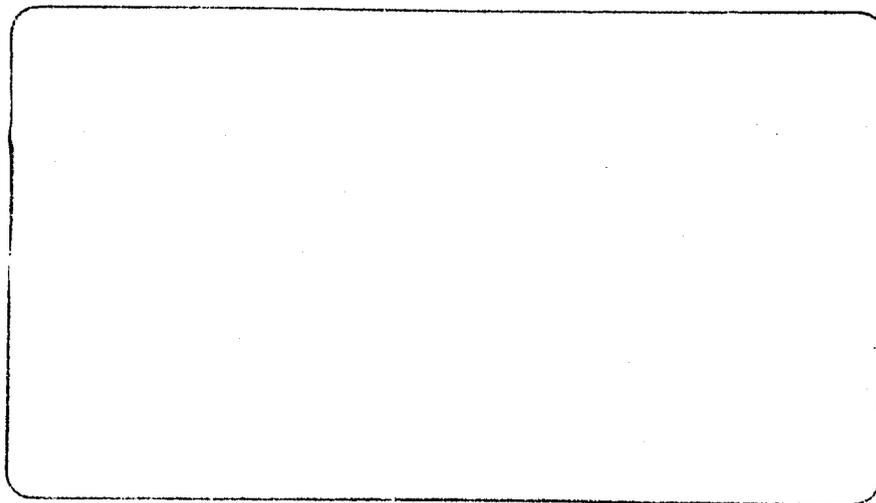


PD-ARCS-831



Automation Research Systems, Limited

4480 King Street, Suite 500

Alexandria, Virginia 22302

(703) 820-9000

FAX (703) 820-9106

PD-ABC-831

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**FINAL EVALUATION
OF THE
WORLD VISION RELIEF
AND DEVELOPMENT
AFRICA WATER PROGRAM**

Conducted By:

**Frank P. Carrol
Paul W. Jankura**

**Under Contract No. OTR-0250-00-C-7237-00
Automation Research Systems, Limited**

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RATES OF MONETARY EXCHANGE:

1 US \$ = 22 Kenya Shillings

1 US \$ = 2.8 Malawi Kwacha

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LIST OF ACRONYMS

AAG	Area Action Group
ARVP	Africa Regional Vice President
ATMS	Associates in Technology and Management Services
AWP	Africa Water Program
CDP	Community Development project
CM	Community Motivator
DAC	Development Assistance Center
DDC	District Development Committee
EM	Emurua Motivator
FO	Field Office
FY	Fiscal Year
GI	Galvanized Iron
GOG	Government of Ghana
GOM	Government of Malawi
GWSC	Ghana Water and Sewerage Corporation
HESP	Health Education and Sanitation Promotion
IBD	Integrated Borehole Development
IGA	Income-Generating Activity
KVIP	Kumasi Ventilated Improved Pit
LSP	Large Scale Project
MG	Matching Grant
MOH	Ministry of Health
MOWS	Ministry of Works and Supplies
MPP	Maasai People's Project
MWP	Malawi Water Program
NGO	Non-Governmental Organization
GRT	Oral Rehydration Therapy
PC	Project Coordinator
PHC	Primary Health Care
PVC	USAID Office of Private and Voluntary Cooperation
PVO	Private Voluntary Organization
RCC	Reinforced Concrete
RTT	Regional Technical Team
RWC	Rainwater Catchment
SIDA	Swedish International Development Authority
SPUF	Supplemental Project Update Form
SRRD	Sustainable Rural Resource Development
TPM	Team Planning Meeting
TSD	Technical Services Division
TSU	Technical Services Unit
USAID	United States Agency for International Development
VDC	Village Development Committee
VIP	Ventilated Improved Pit
VL0M	Village-Level Operation and Maintenance
WASH	Water and Sanitation for Health
WDM	Women's Development Motivator
WV	World Vision
WVI	World Vision International
WVM	World Vision Malawi
WVRD	World Vision Relief and Development
WVRO	World Vision Relief Organization
WVSO	World Vision Support Office

EXECUTIVE SUMMARY

This report represents the final evaluation of a three-year Matching Grant Cooperative Agreement (No. OTR-0293-A-00-7143-00) between the U.S. Agency for International Development (USAID) and World Vision Relief and Development (WVRD). Funds amounting to US \$1,916,000 (in addition to US \$328,000 specifically earmarked for technical assistance through the USAID Water and Sanitation for Health [WASH] Project) were awarded through the Office of Private and Voluntary Cooperation (AID/FVA/PVC) to provide support for WVRD's longer-term effort entitled "Africa Water Program" (AWP). As stated in the Cooperative Agreement, the purpose of the Matching Grant to the AWP is to establish an on-going institutional capability within WVRD headquarters and a field program management structure to plan, implement, and manage effective water development programs in four target countries in Africa (Senegal, Ghana, Kenya, and Malawi).

The overall goal of the AWP is to provide poor rural communities in Africa with improved access to water, and to do so in a manner that facilitates health, productivity, and quality of life, while maximizing community participation in all program phases. WVRD estimated that during the three-

¹ WVRD was formerly known as World Vision Relief Organization (WVRO), the original signatory to the Agreement. All references to WVRO from project documentation have been changed in this report to WVRD.

year period with USAID support, the AWP would impact approximately 300,000 beneficiaries in four countries. WVRD states that the longer term AWP effort is the first component of a projected five- to eight-year program designed to establish an ongoing, comprehensive economic development program management capability within the World Vision Partnership.² The Cooperative Agreement was approved by USAID on August 31, 1987, and provided funding for the period January 1, 1987, through September 30, 1990.

To assess the performance of the program, an evaluation team visited two of the four AWP countries (Kenya and Malawi) and WVRD in Monrovia, California. It also reviewed documentation regarding program activities in Senegal and Ghana and interviewed WASH staff in Washington, D.C. The field work included visits to eight of thirty project communities in Kenya and three of five project communities in Malawi. The field work was conducted between June 13 and July 10, 1990. The visit to WVRD occurred between July 16 and July 27.

The following is a summary of the major conclusions and recommendations of the evaluation team. Detailed discussions of the team's conclusions are presented in Chapters 9 and 10 of this report.

² Later components were possibly to include food production, income generation, health, institution building, among other single-sector concerns.

1. Field projects that have been designed and are currently being implemented in Kenya and Malawi reflect very positive accomplishments toward the development of sustainable rural water systems that are integrated with health education and sanitation. Project staff exhibit enthusiasm, sensitivity, humility, and inquisitiveness, all factors that enhance the potential for effective community-based development.

2. Through the AWP, World Vision has attained about one-third more than the expected level of 300,000 beneficiaries of improved water supplies: approximately 180,000 in Senegal; 200,000 in Ghana; 6,000 in Kenya; and 27,000 in Malawi.³ The total program expenditures during the life of the Matching Grant amounted to approximately US \$11.96 million, of which \$9.72 were contributed by the Grantee, for a match of more than 4:1 (see Appendix E). These figures apparently do not include an additional \$3.55 million of WVRD costs of the program prior to the Matching Grant.

³ WVRD's End-of-Project Report estimates "some 500,000" beneficiaries of the AWP in more than 500 communities. This higher figure primarily reflects calculations based on an approximate average service level of 1,000 capita per well in Ghana, significantly higher than the design criterion of 250 capita per well. The evaluation team saw no evidence to disprove or support this estimate. At minimum, the need for more rigorous performance monitoring and reporting is indicated. Estimates made in the final evaluation report utilize a total figure of 400,000.

3. Adding the prior WVRD costs to the grant-period total yields an approximate expenditure of \$40 per beneficiary, not accounting for salvage value of capital equipment. This cost includes WV headquarters and regional administration and management. In certain circumstances, this per capita cost also includes activities other than water supply and sanitation (WS&S). Such activities are components of integrated development strategies, which encompass education, agriculture, forestry, and income-generating enterprises, among other things. The actual country-level installation costs of improved water supplies (excluding central and regional administration) range approximately as follows:

- Senegal: US \$21 per capita
- Ghana: US \$32 per capita
- Kenya: US \$22 per capita
- Malawi: US \$26 per capita

4. Although the AWP was limited to WS&S goals, it is entirely appropriate that non-water elements be integrated with water projects. Not only do such complementary activities as education and agriculture flow directly from WS&S. But also when communities themselves identify non-water priorities and act to "own" a project, complementary activities enhance the sustainability of WS&S activities. And when managed as in Kenya, for example, a project need not experience difficulties in coordinating multi-sector initiatives.

5. The AWP receives relatively high marks for project sustainability (see section 9.4). It has had some success in redirecting priorities in what was essentially a drilling project in Ghana. It has influenced an integrated program in Senegal, adding an extension and training component. It helped to reshape the Maasai Water Project as the Maasai People's Project, a truly excellent community-based effort. And it has initiated significant activities in Malawi.

6. Regarding the institutional goals of the AWP Matching Grant, the program has experienced less success. An objective analysis must rate World Vision's performance fair at best in achieving those goals specified at the inception of the grant period. Many of the difficulties arise from implementation delays that resulted from various factors: ineffective management during the first half of the project; major reductions in appropriations for some programs; insufficient attention to hiring and staff development; and a subcontracting relationship that did little to help institutionalize important water program policies and strategies within the World Vision Partnership. Other difficulties relate to the inertia of a large organization against allowing itself to communicate and integrate with the wider development community.

7. Part of the low performance ratings (see Chapter 9) can also be attributed to the ambitious goals of the AWP for a three-year project period, a short time indeed for philosophical changes in an approach to development to be effected. Organizationally, World Vision has had a long distance to come, and it still has much more ground to traverse. Yet, there are true indications that the current direction is on track; World Vision is addressing its numerous problems in implementing the AWP. The new direction, initiated by the AWP experience, has unfortunately not been in place long enough for there to have been significant measurable impact on the institutional goals of the AWP. The evaluation team, however, prefers to view the glass as half-full rather than half-empty.

8. Based on its findings during the evaluation, the team developed a list of recommendations to improve existing projects and support WS&S planning and management within World Vision. The recommendations (Chapter 10) are divided into six sections, which cover the various entities that have played a role in the AWP and were the objects of this evaluation: World Vision/Monrovia, the Nairobi-based Regional Technical Team, World Vision/Kenya, World Vision/Malawi, the WASH Project, and USAID. In conclusion, World Vision should be encouraged to continue its work in the AWP and other projects founded on community-based development, and USAID should continue to support these efforts.

Chapter 1

BACKGROUND

1.1 Introduction

This report represents the final evaluation of a three-year Matching Grant Cooperative Agreement (No. OTR-0293-A-00-7143-00) between the U.S. Agency for International Development (USAID) and World Vision Relief and Development (WVRD).¹ Funds amounting to US \$1,916,000 (in addition to US \$328,000 specifically earmarked for technical assistance through the USAID Water and Sanitation for Health [WASH] Project) were awarded through the Office of Private and Voluntary Cooperation (AID/FVA/PVC) to provide support for WVRD's longer-term effort entitled "Africa Water Program" (AWP). The goal of the AWP is to provide poor rural communities in Africa with improved access to water, and to do so in a manner that facilitates health, productivity, and quality of life, while maximizing community participation in all program phases. WVRD estimated that during the three-year period with USAID support, the AWP would impact approximately 300,000 beneficiaries in more than 200 communities. WVRD states that the longer term AWP effort is the first component of a projected five- to eight-year program designed to establish an ongoing, comprehensive

¹ WVRD was formerly known as World Vision Relief Organization (WVRO), the original signatory to the Agreement. All references to WVRO from project documentation have been changed in this report to WVRD.

economic development program management capability within the World Vision Partnership.² The Cooperative Agreement was approved by USAID on August 31, 1987, and provided funding for the period January 1, 1987, through June 30, 1990, subsequently extended at no cost through September 30, 1990.

A "Performance Assessment," which did not include field visits, was conducted in lieu of an external mid-term evaluation in November, 1989. The final evaluation, which did include field visits to Kenya and Malawi, is a follow-up to that exercise.

1.2 World Vision Partnership

The international World Vision Partnership consists of WVRD, eight support offices, an international office--World Vision International (WVI), and thirty-eight field offices. WVRD was established in 1960 as a secular entity in order to procure institutional funding for field programs. The eight independent support offices have the primary responsibility of providing resources--which also include funds from individual donors for child sponsorship programs--to WVI in support of field projects. WVI coordinates support office contributions and provides regional management, technical assistance, training, project approval and evaluation, and

² Later components were possibly to include food production, income generation, health, institution building, among other single-sector concerns.

fiscal accountability for the field offices. The primary role of the field offices is to implement and manage World Vision's field projects.

1.3 Africa Water Program

1.3.1 Purpose

As stated in the Cooperative Agreement, the purpose of the Matching Grant to the AWP is to establish an on-going institutional capability within WVRD headquarters and a field program management structure to plan, implement, and manage effective water development programs in five target countries in Africa (Senegal, Mali, Ghana, Kenya, and Malawi).³

1.3.2 Objectives

The Scope of Work for this evaluation lists the following principal objectives of the AWP Matching Grant:

- secure experienced staff to manage activities and provide management oversight for large-scale water development projects;
- establish a regionally-based technical information and documentation center to manage and implement these projects;

³ On June 14, 1990, Amendment No. 5 to the Cooperative Agreement formally deleted Mali as a primary program country, although verbal understanding to that effect was reached at the end of FY 1988.

- institute a comprehensive program of technology transfer, training, and technical assistance for field staff;
- strengthen the existing regional technical team's capability to provide on-going technical assistance and training to field staffs;
- establish small technical resource units within five field offices; and
- procure materials, equipment, and technical services for the implementation of selected water projects.

Both the Cooperative Agreement and the AWP Proposal define these objectives as principal activities. The Cooperative Agreement does not specify objectives in particular. The AWP Proposal enumerates two sets of objectives, which differ slightly from each other, albeit related to the list above. Subsequent AWP documentation (from 1988) retains one of these two sets as the project objectives, while the Second Progress Report (the most recent AWP report, prepared during the first quarter of FY 1990) cites an entirely new set of AWP objectives. Given this diversity of specific objectives, the evaluation team has relied on the Scope of Work for precedence.

1.3.3 Outputs

The Africa Water Program Proposal submitted by WVRD to USAID on October 17, 1986, lists the following project outputs:

- improved management of a flow of more than \$15 million of project inputs under seven larger scale water development activities;

- three to four new large-scale water development projects designed with solid donor support;
- new or revised policies and procedures handbooks for the planning and management of larger scale technical projects;
- specialized strategies and materials developed and instituted for World Vision's training, evaluation, community participation and maintenance of water projects, and donor mobilization;
- direct specialized training of more than 150 water development personnel;
- one fully functioning regional technical information and documentation center;
- five field office technical resource units; and
- increased corporate capacity for planning, designing, managing, evaluating, and replicating successful water development projects.

1.3.4 Inputs

The AWP documentation also enumerates the following inputs necessary to achieve the above outputs:

- senior technical program management specialists who would be recruited on both contractual and full-time basis;
- WASH staff and external consultants who would be engaged as technical advisors and facilitators;
- a grant from AID to establish a Technical Information and Documentation Center;
- a grant from AID to help establish field office technical units; and
- a grant from AID to design and implement the WV Malawi Water Program.

The summary budget projections in the AWP Proposal for the above inputs by fiscal year and by country are presented in

Appendix C, with the approved life-of-project budget by country shown in Appendix D. Actual inception-to-date Grant expenditures are presented in Appendix E.

1.3.5 Beneficiaries

WVRD envisaged the following primary beneficiaries of the AWP:

- the rural communities in Ghana, Kenya, Malawi, Senegal, and Mali where large-scale water projects were in existence or were being planned;
- the respective World Vision field offices in the countries named above;
- the Regional Technical Team (RTT); and
- World Vision at the corporate level as well as World Vision within support offices.

1.3.6 Project Selection Criteria

World Vision employed the following guidelines in selecting countries for inclusion under the AWP:

- countries within Africa that have a per capita annual income of less than US \$450;
- countries that exhibit major water development needs as expressed in terms of limited access to water for large sections of the rural population;
- countries that have an established World Vision field office or program office;
- countries in which World Vision staff demonstrate a strong understanding and commitment to the principle of water development as expressed in the concept paper on this subject;⁴

⁴ Paper prepared by World Vision in July, 1986, prior to the AWP Proposal.

- countries that have a well-defined World Vision country strategy involving water development as a central component and where there are existing larger scale water development project activities and/or a significant number of smaller community development projects with defined water components.

The AWP Proposal also specifies the following site selection criteria for individual water projects in Program countries:

- Projects are located in poor rural areas.
- Projects will do little or no damage to the physical environment.
- Projects will serve a large number of families.
- Projects will provide sufficient quantities of water for cooking and drinking purposes.
- Project communities must show a strong commitment to the project in terms of providing labor, cash, maintenance, and management.
- Projects are sited in areas where there is no conflict with other agencies engaged in similar water development schemes.
- Projects allow for a sufficiently high degree of World Vision control to ensure that technical and social standards are met.
- Projects are located in communities facing a severe water shortage, especially for potable purposes.
- Projects utilize a technology that can be maintained in the field by trained people likely to remain in the community.
- Projects demonstrate a technology that at full capacity uses the most efficient type of power sufficient to achieve the desired output of water in a given time.
- Projects show a concern for cost-effectiveness, judged by water quantity output per cost unit.

1.3.7 History and Rationale

World Vision introduced the concept of the Africa Water Program in 1985 as a result of expanded programming intended to respond to the 1983 drought crisis in Africa. Beyond its short-term relief efforts, World Vision perceived the need to identify measures that could be taken to offset the effects of drought in the future, and to see that communities became self-sufficient in water and food. In 1984, therefore, World Vision initiated surveys and project proposals in Senegal, Ghana, and Kenya--three of the eventual four AWP countries--that addressed the lack of improved, potable water supplies in drought-affected areas. These were among the more established field offices, which adopted two basic strategies for implementing water development activities:

- to add water development components to proposed or existing small-scale community development projects (generally less than \$100,000 annual budget) where provision of adequate water supply was determined to be critical to the successful implementation of community-level food production and primary health care projects supported by the field office; and
- to identify specific people groups or larger geographic areas where there was little or no access to safe, reliable water supply, and to design and implement larger scale projects (LSPs) to provide water to all communities within the designated area.

By the end of FY 1986, field offices in the three countries above, plus Mali and Malawi, had initiated 116 small-scale projects with significant water supply components, as well as seven designated larger scale water development projects

(excluding Malawi). Even as it recognized both large needs and opportunities, however, World Vision found itself with relatively greater financial resources, due to massive donor response, than the comprehensive institutional capability required to invest and manage those resources wisely in water development.

Accordingly, World Vision designed the Africa Water Program primarily to develop this institutional capability, in order to ensure the long-term sustainability and effectiveness of water-based development activities. The AWP strategy focuses on enhancing such capability on four levels:

- at headquarters, including WVRD, WVI, and the U.S. Support Office;
- within a field-based Regional Technical Team (RTT);
- within the individual country field offices; and
- within project communities.

The AWP therefore is a project that aims not only at achieving quantitative physical outcomes in terms of water development activities, but also and equally as importantly at institutionalizing qualitative processes to support such development--as opposed to relief--activities. In the AWP Proposal to USAID, World Vision identified the following priority activities for immediate implementation that would provide and/or comprise important elements of the required institutional systems:

- developing a comprehensive corporate water development program strategy;
- establishing coherent program linkages between headquarters, regional, and country field programs;
- recruiting experienced project managers to lead project implementation;
- deploying and managing experienced technical consultants in the design and redesign of projects;
- procuring materials and equipment and hiring and directing experienced technical staff for project implementation;
- developing and administering specialized training programs for regional, field office, and project staff;
- devising country-specific program strategies for the rehabilitation of non-functioning projects and the consistent upkeep of effectively functioning equipment;
- devising and overseeing a financial management and project reporting system suitable for larger scale technical projects;
- devising community mobilization strategies to ensure that communities realize and accept responsibility for participation in all phases of project design, implementation, and maintenance;
- developing a specialized fund-raising and resource mobilization strategy geared to attract and retain the support of larger donors;
- instituting a monitoring and evaluation system that ensures early and consistent feedback of information required to correct mistakes and to adjust to new information and/or changes within communities; and
- establishing and maintaining a current library of technical materials and information resources required for accurate technical analysis and research.

Chapter 2

EVALUATION

2.1 Purpose of the Evaluation

As stated in the Scope of Work (Appendix B), USAID/FVA/PVC and WVRD require that an evaluation be undertaken of the AWP Matching Grant Cooperative Agreement. The overall purpose of this assignment, therefore, is to appraise the impact of the Matching Grant on World Vision's capability to develop long-term, sustainable water projects. This means that the evaluation focuses on:

- the institutional capacity of World Vision to plan, implement, manage, and evaluate water projects; and
- the provision of improved and sustainable water supplies to beneficiaries and the uses thereof.

The evaluation is intended to furnish PVC, World Vision, and WASH (as a participant providing technical assistance to World Vision) with:

- an assessment of compliance with the terms of the Agreement, particularly as it relates to WVRD's strengthened capacity to plan, implement, manage, and evaluate water projects in Africa; and
- lessons learned as a result of the Project's implementation, so that such experiences could be used to develop appropriate follow-on work.

This evaluation is a follow-up to the Performance Assessment: World Vision Africa Water Project conducted by Ron Parlato and reported on November 20, 1989. In connection with that exercise, some activities of this Matching Grant were examined.

2.2 Evaluation Principles

The Scope of Work for the evaluation specifies that it be governed by two principles:

- that the evaluation be conducted as a collaborative venture aimed at providing useful information to all parties involved (PVC, WVRD, and WASH, which activities as a technical assistance organization must also be assessed); and
- that the evaluation protocol be structured in ways that reflect an interest in both outcomes, as represented by quantitative data, and processes, as represented by qualitative data.

2.3 Evaluation Tasks

The tasking for the final evaluation considers work completed by the November, 1989, Performance Assessment; internal evaluations conducted by World Vision of AWP activities in Senegal and Ghana; and the lack of such evaluations for Kenya and Malawi. It has been agreed between PVC and WVRD that the requirements for internal evaluations in Kenya and Senegal would be satisfied by the external final evaluation.

The AWP is being viewed by some parties (e.g., WASH, WV) as a model or a pilot for joint participation in a matching-grant-type program; neither entity has worked under such a relationship previously. Under such circumstances, it is striking that only 2% of the USAID contribution to the AWP was allocated to evaluation. From another perspective, that amount is equivalent to the WASH costs for participation in "Rapid Assessment" exercises at the beginning of the AWP in only two of the four AWP countries. Moreover, the terms of the final evaluation were changed to operate both without the benefit of input from prior evaluations in Kenya and Malawi and without the collaboration of a third team member from World Vision/Monrovia. No adjustment to the evaluation budget was made to reflect those changes.

The following six activities form the basis of data collection for this evaluation and report:

- a review of the Performance Assessment dated November 20, 1989;
- a review of evaluation reports completed on WVRD's water projects in Ghana and Senegal;
- a visit to World Vision's headquarters;
- interviews with World Vision's Regional Technical Team staff in Nairobi;
- a field evaluation of World Vision's water projects in Kenya and Malawi; and
- interviews with WASH headquarter's staff.

As the emphasis of the final evaluation was to be placed on field-based activities of the AWP in Kenya and Malawi, the

workplan allocated the team's time among the principal activities as follows:

- reviews of prior evaluations	- 5%
- discussions with World Vision headquarters	- 10%
- interviews with Regional Technical Team	- 3%
- field evaluations (Kenya)	- 15%
- field evaluations (Malawi)	- 15%
- interviews with WASH	- 2%
- team planning and analysis	- 15%
- individual analysis and report preparation	- 35%

2.4 Evaluation Methodology

The evaluation team comprised two consultants: Frank P. Carroll, environmental health engineer, and Paul W. Jankura, organizational development specialist. The evaluation was structured into the following phases:

- evaluation organization and design;
- data collection;
- data analysis; and
- reporting.

The assembly of the team in Washington, D.C., on June 5, 1990, for a one-week team planning session initiated the organization of the evaluation. Facilitated by Claudia Liebler, the planning session focused on:

- clarifying the scope of work;
- reviewing the Africa Water Project;
- identifying key clients/actors and their expectations;
- elucidating major issues;
- developing areas of inquiry based upon the structure of the scope of work;
- preparing a workplan;
- assigning responsibilities to team members;
- drafting a preliminary outline of the report; and
- providing a briefing to interested parties from USAID, World Vision, and WASH.

The principles listed under (2.2) formed the basis for the design of the evaluation and the conduct of the team planning session. Throughout the session, close collaboration was maintained with World Vision staff who had been intimately involved with the AWP (Messrs. Pitchford and Cookingham). Likewise, the fact that WASH headquarters provided the venue for the session enabled the team to interact with AWP principals from WASH on a daily basis. While the primary client of this evaluation is USAID/FVA/PVC, the team believes that the product should benefit the interest of all parties to the AWP. Therefore, the team has made an effort to incorporate the varying perspectives of the AWP implementers into the identification of important issues, specification of areas of inquiry and analysis, and the structure of the workplan. Additionally, the design of the evaluation process for formulating key question areas relied substantially on the model developed by WASH, which categorizes a sequential linkage of project

inputs, outputs, community usage characteristics, and impacts into three levels of evaluation measures relating to project operation, project performance, and project consequences.

As the AWP Matching Grant is primarily an institutional development project, the team recognizes that the evaluation should primarily assess the administrative capability of World Vision. The major administrative functions to investigate include:

- policy-making and planning;
- financing;
- programming and implementation; and
- operation and maintenance procedures.

Coupled with institutional development goals are also those technical goals related to the provision of sustainable water systems. In this regard, the primary foci of the technical field surveys encompass:

- design and costs;
- operation and maintenance; and
- water collection and use.

¹ Evaluation Methods for Community Rural Water Supply and Sanitation Projects in Developing Countries: A Synthesis of Available Information, WASH Technical Report No. 4, March 31, 1981.

The WASH model has provided the structure for the evaluation agenda developed by the team in the above administrative and technical areas.

This evaluation is intended neither to incorporate water quality analyses nor to assess health impacts.

The team employed the following procedures during the data collection phase of the evaluation, which commenced prior to the team planning session and continued through July 27, 1990:

- examination of existing records;
- direct observation of water system performance; and
- informal interviews.

The team reviewed the Performance Assessment and the internal World Vision evaluations of Senegal and Ghana in advance of coming together in Washington. During the team planning meeting, USAID, World Vision, and WASH staff briefed the team, which followed up with interviews of key personnel from those entities as well as of various current and past consultants to the AWP. At this time, the team also assembled project documentation available from WASH and World Vision staff visiting WASH.

The team arrived in Kenya on June 13, 1990, and departed for Malawi on June 25. Carroll left Malawi on July 4, while Jankura remained until July 10. Throughout the stay in Kenya and Malawi, the team was assisted by Mr. Larry Quist,

RTT Water Development Specialist, who not only facilitated the work but also provided valuable input to the evaluation.

In Nairobi, the team conducted interviews with the Field Office Director and staff, the RTT Director and staff, and the Deputy Director of the USAID PVO Liaison Office. On June 15, the team proceeded to Narok, site of the project office for the Maasai People's Project. It spent one week visiting and observing community project sites, interviewing MPP and regional government staff, examining project files, collecting documentation, providing technical reference material to the project, and interviewing beneficiaries in the communities through the medium of MPP staff.

The team and MPP staff collaboratively developed the itinerary for visits to specific project sites. A non-random selection procedure was chosen, employing the following primary criteria:

- the range of sites visited should include examples of all water development technologies implemented by the project;
- the sites visited should reflect a geographical dispersion reflecting alternative topographical and hydrogeological conditions throughout the greater project area (approximately 600 sq.km.);
- the sites chosen should demonstrate technologies in different stages of construction;
- the sites visited should include examples of both "high" and "low" levels of community motivation and participation experienced by the project; and
- visits should cover a minimum of 25% of existing sites.

In all, the team visited eight sites, or just over 25% of the 31 sites in the current project area (see Table 2 and Figure 6). No new sites in the recently expanded project area under the next phase of the MPP were included.

The team did make a brief visit to one site outside the project area where another PVO is working and where a technology not currently employed by the project has been installed (borehole with handpump). Time constraints, however, did not allow for a truly comparative evaluation procedure, whereby non-project communities in the project area and/or communities with water development projects assisted by other PVOs could be investigated in detail.

Based upon its experience at the MPP, the team, after returning to Nairobi, conducted follow-up interviews with Field Office and RTT staff. It concluded its work in Kenya with a debriefing for USAID and World Vision staff in Nairobi that outlined preliminary findings and recommendations.

In Malawi, field office staff assigned to the Malawi Water Project (MWP) briefed the team upon its arrival. The staff and the evaluation team reviewed and revised the itinerary proposed by World Vision to the team while in Kenya. In Lilongwe, the team and MWP staff held discussions with key government personnel whose offices collaborate closely with the MWP. The team also interviewed and collected information from two MWP subcontractors based in Lilongwe

(PVC pipe manufacturer and driller). Non-random selection criteria for project site observations follow:

- visits should include the one gravity piped water scheme (nearing completion); and
- visits should cover as many of the four existing "integrated borehole development" (IBD) projects as time would allow.

Between June 27 and July 2, therefore, the team, accompanied by the principal MWP staff, visited the Chipoka gravity piped water project and two of the four IBD projects in the Southern Region--Mpanda-Namitsitsi and Muonekera. The evaluation employed similar data collection procedures as in Kenya--informal interviews with local government personnel and beneficiaries in the communities, including beneficiaries trained by the MWP in system operation and maintenance. The team had the opportunity to witness the full extent of the maintenance/repair procedures expected of IBD project pump repair teams, one of which was encountered by chance on site and was presented, unprepared, with a task by the MWP staff. The team also took simple measurements of both pump outputs at IBD project sites and delivery rates of certain taps at various locations in the piped water scheme.

In Blantyre, the team conducted additional interviews, reviewed project files, collated data for later analysis, and provided technical reference material to the AWP staff. Separate debriefings were given to the World Vision Field Office Director in Blantyre and to the USAID PVO Liaison Office in Lilongwe.

The team reassembled in Monrovia, California, on July 16 to review the operations related to management of the AWP by the elements of the World Vision Partnership based there. Between July 16 and 27, the team held discussions with key staff of World Vision International, World Vision Relief and Development, and World Vision U.S. (the support office). WV provided existing data complementing that obtained in the field and prepared additional documentation as a result of the discussions. The team debriefed WV on its findings and recommendations from the field as well as preliminary findings in Monrovia. It also provided a draft of the final recommendations to enable WV to incorporate some of the information therein in its annual budget-and-planning meeting that was held the week of August 6.

Data analysis began during the team planning session in Washington, during which time major issues and key question areas were identified from the information at hand. While in Kenya and Malawi, the team jointly reviewed and discussed the data collected from interviews and files. The RTT Water Development Specialist played a key role in this exercise and provided valuable insight to the process. In Monrovia, the team reviewed the field work prior to meeting with World Vision officials so that unresolved issues could be elaborated in the discussions. Findings and recommendations were jointly summarized in team meetings prior to the several debriefings given at various stages of the assignment.

Reporting commenced with the briefing given at the conclusion of the team planning session in Washington. This briefing was especially important given the need to bring together and coordinate the different perspectives and expectations of the diverse principals involved with the AWP--USAID, the World Vision Partnership, and WASH. Subsequent verbal reporting as noted above in Kenya, Malawi, and Monrovia kept World Vision and USAID apprised of the progress of the evaluation and provided opportunity for staff at various levels to discuss the preliminary findings and recommendations. Also as described above, the team initiated the written reporting with a draft of recommendations to World Vision in order to assist the organization in its annual meetings.

Chapter 3

REVIEW OF PREVIOUS AWP ASSESSMENTS**3.1 Senegal****3.1.1 Project Descriptions**

World Vision launched the Louga integrated development program in 1985, prior to the AWP. The primary objective of this program was to assist individuals and communities in the Louga region to develop their water resources and improve agricultural productivity, as well as to provide primary health care. Its stated goal at the time was for World Vision to drill and equip 250 boreholes over a period of five years. The hope was that water would be used as an entry point into communities, after which other developments including health, agriculture, and conservation would follow.

Two components of this integrated, nine-component program are funded as "projects" under the AWP: the Louga Potable Water Development Project and the Water Extension and Training (WET) Project.

The Potable Water Development Project involves drilling in selected villages, installing modified Mark II hand pumps, and supporting pump maintenance and repair. The project area includes approximately 4500 square kilometers. It runs

approximately 100 km from Louga town south along the road to Dakar, and approximately 45 km from east to west (see Figures 1 and 2). The five-year project budget (FY 1985 - FY 1989) was estimated at US \$3.601 million. As of July 1989, 210 productive boreholes (79% success rate) had been drilled, serving 71 villages with a total population of approximately 70,000. At that time, the production rate was estimated at 10 boreholes per month. Total costs per well at the current production rate (including capital depreciation, operation and maintenance, and pump installation) have been estimated at approximately \$10,000.

The purpose of the Water Extension and Training Project is to promote village participation in development based on access to more potable water. It was added as a component to the Louga program as a direct result of concerns expressed during the initial implementation of the AWP. Experimentation with an interdisciplinary team began in FY 1987; the project formally commenced in FY 1988. The WET project has three primary functions:

- to promote community participation in groundwater development planning and borehole siting;
- to encourage villagers to become involved in agricultural and health activities in the Louga program; and
- to train and support the network of volunteers who work with pump repair, agriculture, and nutrition.

The four-year project budget (FY 1986 - FY 1989) was estimated at US \$1.284 million.

3.1.2 Findings

The Baseline Evaluation identified three principal findings that applied to the implementation of the Louga program, which includes both the Potable Water Project and the Water Extension and Training Project:

- recruiting and keeping staff for large-scale programs is even more complex than providing staff for other ministries in World Vision;
- long-term commitment (5-10 years) by the World Vision Partnership to providing necessary resources and developing appropriate organizational structures and functions is essential; and
- integration of ministry planning and marketing planning by experienced staff over an extended period of time is essential in order to avoid unkept promises.

The Interim Evaluation concluded that progress is being made toward sustainability, as defined in the report. It also made the following specific findings regarding the two water projects implemented under the AWP:

- the drilling program is ahead of schedule; the equipment is maintained properly, and the crews perform well;
- there is evidence that the pumps are used by the villagers, and that more water is being used by households in villages where there are pumps;
- hand pump reliability is satisfactory; however, it was observed that pumps were being installed in a careless manner, which creates maintenance problems and may lead to unnecessary pump failures; and
- the pump installation crew is missing opportunities for instructing the village pump caretakers properly and for modeling positive attitudes toward pump care for other villagers.

3.1.3 Recommendations

The Baseline Evaluation recommended several initiatives specific to the two water projects. It also recommended more general undertakings relevant to the water projects.

The recommendations include:

- that the water project investigate the feasibility and value of installing Mark II hand pumps on certain existing large diameter, concrete wells as an adjunct to the program;
- that villages assume responsibility for more of the real costs of pump maintenance and repair;
- that every effort be made to identify, recruit, orient, and integrate a qualified Hygiene Educator into the WET team as quickly as possible;
- that other program staff with experience in primary health and sanitation be included in the WET team;
- that an ongoing training program be implemented to enhance facilitation skills of WET team members;
- that in FY 1988 the WET team proceed with its plans to recruit, train, and support village animators who would work with the other village consultants to help villagers sustain their development progress;
- that the WET team consider pilot-testing more intensive animation approaches, strategies, and techniques;
- that in FY 1988 the WET team develop an integrated approach to recruiting, managing, training, supervising, and monitoring all the villagers who serve as local consultants; the approach should be pilot-tested in FY 1989, assessed and redesigned, and implemented throughout the project by FY 1990;
- that a systematic monitoring system for the results of WET team activities be established immediately;
- that a few specific impact targets be set for each of the projects, and that a general monitoring system be maintained for these targets; and
- that beginning in FY 1989 someone on the Louga program staff be assigned part-time to coordinate monitoring and evaluation activities.

The Interim Evaluation made the following general and specific recommendations relevant to the potable water and WET projects:

- that marketing and fund-raising strategies be consistent with the development philosophy and strategies in the program;
- that the process of negotiating reporting requirements and then meeting those requirements in a satisfactory manner be studied thoroughly by World Vision U.S.;
- that procedures be developed to ensure that financial records maintained by different offices for the same program be consistent, and that one set of records be deemed the source of figures to be used in all subsequent reporting;
- that the pump installation crew demonstrate proper maintenance and operation procedures to the designated village "responsible" and villagers;
- that serious consideration be given to expanding the WET team that does facilitation and training;
- that records of pump repairs be kept at project headquarters; and
- that World Vision resist initiating anything new in the well drilling operation.

3.1.4 Issues bearing on the Final Evaluation

The review of the Senegal evaluations reinforces a number of issues and concerns raised during the final evaluation:

- a recurring problem with finances (the evaluations point out the need, on the one hand, for consistency between fund-raising strategies and project development philosophy and the need, on the other, for long-term financial commitments to such a project; piecemeal funding has created problems for the project);

- inconsistency of staff (has created problems to which the evaluation had to call attention for management to rectify the situation);
- documentation (reports do not adequately present critical information about the projects and there are problems with the flow of information to the appropriate parties);
- the need for proper maintenance records; and
- the careless installation of pumps (a case of the need for proper supervision and training).

On the positive side, complementary activities have been instituted, with progress recorded toward better supervision and training. The re-design work done on the drilling projects added a range of benefits to the communities-- agriculture, health and sanitation, child survival, and conservation, though a problem is raised about interacting with the government in regard to child-survival activities. Participation by the communities appears adequate. Villagers are involved in core phases of the work, with better support by staff, consultants, and volunteers. The AWP appears to be successfully transferring skills, and the communities understand their role in the process. The project reflects a relatively sound level of sustainability.

3.2 Ghana

3.2.1 Project Description

Initiated in 1985 prior to the AWP, the Ghana Rural Water Supply Program set out to provide safe drinking water and sanitation to more than 100,000 people residing in World Vision child-sponsorship communities and in church-assisted (non-sponsorship) communities. Primarily a drilling project to provide boreholes fitted with Mark II hand pumps, initial work that was performed under contract in FY 1985 completed 28 wells in 17 communities serving approximately 30,000 people at an approximate cost of US \$4,400 per productive well. In FY 1986, World Vision expended US \$1.86 million to initiate its own drilling program and expand its goal to encompass operations in 30 child-sponsorship communities and 20 non-sponsorship communities throughout Ghana (Figure 2).

A four-year budget (FY 1987 - FY 1990) of US \$6.289 million was approved, of which \$3.512 million was expended between FY 1987 and FY 1989 to produce 349 productive wells (62% success rate). In FY 1989, the average hardware cost per well was \$11,800. Community participation and health education costs were estimated to add about \$280 (2%) to the cost per well. By the start of FY 1990, the project had installed 377 productive wells (62% success rate) serving 150,000 people. Senior management estimate that by June 1990, the totals had reached approximately 500 wells and 200,000 people.

The project was also to provide improved sanitation, primarily through the construction of Kumasi Ventilated Improved Pit (KVIP) latrines at a cost of approximately \$800 per unit.

3.2.2 Findings

The Ghana Evaluation presented findings related to project activities in drilling and pump installation, community participation, pump maintenance and training, and health and sanitation:

- annual quantitative goals for productive boreholes have been reached successfully; a total of 377 wet boreholes have been drilled in nine of Ghana's ten regions, and 301 have been fitted with pumps;
- the drilling operation is technically competent, except in conditions where mud drilling is required; pump installation is technically adequate; some minor modifications can improve it;
- iron content in water has led to under-use of pumps in 40-50 communities; iron removal can be achieved at an estimated cost of \$700;
- WV Ghana has a rationale based on need for installing hand pumps on low-yielding wells: in the north, where few water supply alternatives exist and groundwater mineral contents are low, such wells are highly valued; in the south, where rainy season alternatives occur and mineral contents can be high, such wells receive less use;
- WV Ghana had not yet formally established internal criteria for borehole acceptability, and adequate equipment for testing yields and water quality is lacking;
- most villages have selected volunteers for training in pump maintenance and repair; However, training has not been provided in some cases and has been too brief in others; tools have not yet been provided for any volunteers;

- training that has been provided for 200 volunteers appears to have been effective; when supervised by project staff, the volunteer trainees performed reasonably well;
- the maintenance team is 95 villages behind for training, 45 for pump installation, and 25 for pad building;
- no cost-recovery scheme has yet been determined for long-term pump maintenance; there are difficulties faced in devising a scheme that complies with government policy;
- where community participation has been facilitated, the quality of the participation has been good; yet quite inadequate resources have been allocated to this component;
- participation goals have been achieved, with some exceptions, in the 63 child-sponsorship communities; in contrast, the 107 non-sponsorship communities with 141 wells do not benefit from any of the field office operations for sponsorship communities;
- approximately 100 communities have not received adequate facilitation in participation; significant resources must be focused on community participation and drilling slowed to match the field office's capability to provide the inputs necessary to promote sustainability;
- in sponsorship communities where boreholes had been dug, there was evidence of reduction of guinea worm and diarrhea and improved personal cleanliness;
- few non-sponsorship communities have received instruction in improving health conditions, and improvements in health appear less evident; and
- the latrine activities were discontinued early in the project due to lack of funds; limited improvement in health status can be expected until sanitation conditions are improved.

3.2.3 Recommendations

The Ghana Evaluation developed the following detailed recommendations:

- that requests for reports by support offices and the WV International Office should be better coordinated; agreements to provide progress and financial reports to donors should be kept to a minimum and consolidated as much as possible;
- that marketing strategies which promote donor identification with specific project components should be developed by support offices in consultation with WV Ghana; such strategies should be consistent with facilitating holistic development rather than concentrating exclusively on borehole drilling;
- that conditions attached to each grant should be communicated by the Support Office and agreed to by the Field Office before a grant application is submitted; the Field Office should be informed by Support Offices of specific reporting and accounting requirements attached to funding, preferably before the application for funding is made;
- that the need and appropriateness for volunteers should be discussed in each case between WV Ghana and the relevant support office prior to any plans or commitment being made; (experiences in the Louga water program may be helpful in this review);
- that project records should clearly identify the priority category for each borehole drilled;
- that the project should drill boreholes in a chosen area until there is one borehole to every 300-500 persons for villages with populations up to 2,000 people, in accordance with GWSC policy;
- that management should ensure that no boreholes are drilled unless effective pre-drilling assessment and post-drilling facilitation of pump maintenance training and health/sanitation activities can be done;
- that a water and sanitation development plan should be established to guide development activities in both World Vision assisted and non-assisted communities where boreholes are drilled;

- that the Rural Water Project should be fully integrated with the field office operations, technical services and administrative functions; action needs to be taken to ensure coordination at the regional level regarding pre-drilling planning and animation, site locations, post-drilling pump maintenance, and health and sanitation education;
- that a protocol which addresses working relationships and other issues at different levels of government should be written for submission and approval by the relevant government ministries;
- that senior management should make adjustments at the WV International Office so that procurement procedures and consequent financial reimbursements do not delay project operations;
- that the WV Ghana field director should ensure that procurement procedures and consequent financial reimbursements do not delay project operations;
- that boreholes should be pump/bail tested to obtain technical data on borehole/aquifer characteristics; it will be necessary to replace the present submersible pump with a smaller diameter one;
- that until national standards for drinking water are introduced, WV Ghana should formalize its own standards for acceptable boreholes; after national standards are in effect, project standards for acceptable boreholes should be revised if necessary to make them consistent with national standards;
- that for future drilling operations, an independent engineer, preferably within the country of operation, should be engaged to determine equipment specifications;
- that immediate action should be taken by the engineering department to purchase spare parts and accessories to keep the rig working at its full potential; this will include both mud and air drilling at all times;
- that an inventory of broken pumps, other than those arising from mechanical failures, should be carried out;
- that additional exploration equipment should be procured to include electromagnetic and geophysical instruments, aerial photos and related instruments, satellite imageries;
- that the pace of drilling must be made consistent with the capacity of the pump maintenance and training unit to train local community maintenance volunteers;

- that a policy and procedures for the distribution of tools for pump maintenance needs to be established and the tool kits must be completed and distributed immediately;
- that a local pump maintenance strategy must be developed immediately which includes who is to do the repairs, how the repairs are to be carried out, and who has the ultimate responsibility for managing the water systems;
- that specific responsibilities of the communities should be detailed in a written agreement between World Vision and the community including the role of GWSC; the agreement should state responsibilities of pump ownership and maintenance and should be integrated with the present memorandum of agreement used in World Vision projects;
- that research should be carried out on the ability to pay and on the real costs of pump maintenance through locally available resources;
- that all communities should make a cash contribution for the drilling of a borehole and establish a fund to cover the full cost of maintaining the pump, following a process similar to what is used to initiate a sponsorship project;
- that staff skilled in facilitating community participation should be added to the project until there is one staff person per eight villages where boreholes are being drilled; off-road vehicles must also be provided;
- that the health education components of the project should be extended to all communities not yet included in the program and should be continued for future drilling sites; emphasis should be placed on enabling communities to adopt more healthful practices; and
- that much more emphasis should be given to sanitation, specifically to increasing the construction and improvement of latrines in all communities where boreholes have been drilled.

3.2.4 Issues bearing on the Final Evaluation

The Ghana Interim Evaluation raises similar issues and observations to those identified in the final evaluation of the AWP. The need for consistency of fund-raising strategies with project development philosophy is brought out here, as is the need for long-term financial commitment to the project. Issues of management were indicated; noteworthy was the fact that the project continued for some time to be strongly technology-driven, a sure prescription for problems in long-term sustainability. Also management-related were the lack of consistency in staff and the ineffective identification of technical assistance requirements. The Ghana Evaluation pointed out the need for more training in the project--community participation, pump maintenance, and health education. Greater emphasis should be placed on health benefits to the water project, sanitation, and pre-drilling assessments, as well as to post-drilling facilitation in the villages. There has been a problem organizationally with integrating this technical project into the field office's operations, principally the lack of clarity in responsibility for carrying out recommendations of the evaluation. Procurement procedures used in the project require review and revision to make them more responsive to the project's needs. The equipment is being properly maintained.

The drilling operations staff is technically qualified and achieving quantitative goals, though two issues remain: one

is the ability of the GOG to take over and sustain the projects when WV is finished, and the other is the insufficient training being delivered to the villages receiving boreholes. The villages that show the best potential for sustainability are the ones where WV also has child-sponsorship projects. Sponsorship villages receive more attention, are the first to obtain training and, therefore, have a better infrastructure. In addition, the benefits in health and sanitation are greater. The community participation workshops were considered successful activities for adding skills and techniques to WV Ghana staff and improving performance in the villages.

Overall, the country evaluations point out similar issues raised in the final AWP evaluation:

- inadequate financial support not consistent with the life-of-project funding commitment;
- lack of attention by management to consistency of staff as well as to the complementary activities given the projects;
- inadequate training for and by project staff;
- insufficient technical assistance;
- inadequate supervision of the installation of technical components; and
- incomplete documentation and the need for document revision to make it more useful to management.

Further, there appears to be a lack of interaction with USAID missions throughout all the projects. This condition should be rectified; USAID's input could have been useful, for example, in helping to correct mistakes at earlier stages.

3.3 Performance Assessment: World Vision Africa Water Project

3.3.1 Scope

For this assessment conducted in November 1989, the scope of work contained three major components:

- to review the performance of World Vision and WASH in the execution of the Africa Water Project (AWP) Matching Grant; specifically to determine the degree to which both entities met project objectives as set forth in the Grant Agreement;
- to identify major issues that had or may have had an influence on the execution of the project: issues that may have caused delay or incompleteness of project activities and issues that may still be unresolved; and
- to relate the performance of the current Grant to the proposed Sustainable Rural Resource Development (SRRD) Matching Grant; i.e., to discuss how the performance of the current grant will affect the successful implementation of that proposed.

This assessment was limited to a two-week desk study without field visits.

3.3.2 Findings

The principal findings of this evaluation can be summarized as follows:

- a trained cadre of senior water specialists now exists throughout the World Vision Africa system;
- a multi-disciplinary team exists in the four countries in which World Vision operated;
- the individual World Vision Field Office water teams are all comprised of African professionals and technicians;
- World Vision's corporate water philosophy is now one firmly based on principles of community-based operations and maintenance, realistic planning, and controlled management,
- all water projects in the four countries of World Vision's involvement under the AWP have been integrated into the World Vision Field Office programs;
- a significant commitment has been made to monitoring and evaluation;
- training activities in Ghana have been fully institutionalized;
- a significantly increased support of water projects by World Vision Field Offices has been attained; and
- a significant degree of collaboration with the Governments of Ghana and Senegal has been achieved.

3.3.3 Issues Raised by the Assessment

The assessment raised structural, management, and programmatic issues related to the following:

- the composition of the Regional Technical Team (RTT) located in Nairobi;
- the geographical distribution of RTT members;
- the filling of vacancies in key RTT and WVI staff;
- the definition of RTT workplans;
- the structure of the World Vision organization: the roles, responsibilities, and relationships between and among its various parts;
- publications and documentation: the need to have a more ample written record of project activities and experiences;
- project design: the role of complex, integrated programs of agriculture, health, nutrition, and sanitation in already complex water projects;
- community participation: ways to ensure the institutional permanence of community development workers at various levels;
- budgets and accounting: ways to improve budget and accounting procedures to make them more useful management tools;
- country selection: why Mali excluded and an alternative country not selected;
- financial constraints: how to achieve programmatic stability and continuity in donor-driven investment programs; and
- training: how to evaluate the success of training interventions undertaken by the project.

3.3.4 Comparison of Performance Ratings

In addition, an assessment of performance on the objectives listed in section (1.3.2) was conducted. A ten-point scale was employed, and the results may be compared to the ratings on an eight-point scale of the same objectives given by the final evaluation team under section (9.2). For convenience, that comparison between the performance assessment (P.A.) and the final evaluation (F.E.) is reproduced below:

<u>Objective</u>	<u>P.A.</u>	<u>% of Max</u>	<u>F.E.</u>	<u>% of Max</u>
Secure staff	8	80	3	50
Establish Doc. Ctr.	2	20	0	0
Field staff program	5	50	3	50
Strengthen RTT	8	80	2	38
Establish TSUs	3-4	35	3	50
Procurement	8-9	85	5	88

3.3.5 Comments on Issues Raised

The evaluation team disagrees with the notion that a trained cadre of water specialists now exist throughout WV/Africa. The Kenya project is weak on water skills; Malawi's is inexperienced and needs development. The team also does not believe that the AWP country projects may present problems with integrating non-water elements into water projects. WV has done this admirably in Kenya and acceptably in Ghana and Senegal. The problem appears to be more one of the attention paid and the importance given these components.

On the other hand, the final evaluation reinforces the comment about the needs for more ample written records (such as publicly disseminated papers and technical reports), changes to the budgetary and accounting systems, stability and continuity in funding of long-term projects, and the clarification of the role, purpose, and philosophy of the RTT.

Chapter 4

COUNTRY PROGRAMS: KENYA

4.1 Background of the Africa Water Program in Kenya

At the time of submission for the USAID Matching Grant, World Vision/Kenya had two large-scale water projects in the prefeasibility phase--the Maasai People's Project (MPP), then known as the Maasai Water Project, and the Karapokot Project. In the first half of 1987, during the period of pre-grant activities, the Karapokot Project was removed from the list of specially designated projects to be supported under the AWP. The Karapokot Project, therefore, is not addressed by this evaluation.

4.2 Introduction to the Maasai People's Project

4.2.1 Purpose, Goals, and Activities of the MPP

The goals of the Maasai People's Project have been revised since the early design phases to reflect the commitment of the project management in adopting a participatory approach to the learning process. The overall purpose is now "to develop a model of community-based development among the Maasai communities in arid and semi-arid areas of Narok and Kajiado districts."

The specific project goals are as follows:

- Community Motivation: to motivate Maasai communities, by living with them, in organizing local resources and multiplying solutions to their identified needs;
- Training: to build knowledge, impart skills, and create awareness in project staff, community volunteers, and workers and volunteers from overseas;
- Self-Help Activities: to encourage Maasai communities to implement development activities that are labor-intensive, people-scale, technologically appropriate, and that actively involve them in every aspect of the activities;
- Economic Enterprises: to support economic activities that promote growth, self-reliance, and self-management for Maasai people;
- Baseline Data: to collect baseline data to provide a basis for planning, for project expansion, and for monitoring and evaluation;
- Monitoring and Evaluation: to design appropriate and effective monitoring and evaluation standards and methods and to undertake monitoring and evaluation throughout the life of the project;
- Relationships: to establish and open and regular communication channels with all organizations and individuals in Maasailand who are important to the achievement of the MPP's goals and purpose;
- Evangelism: to seek opportunities to share the Gospel, live servant lives, and encourage local evangelists; and
- Management: to manage the project personnel, project assets, and project finances with integrity and sound stewardship.

The project goals are to be achieved through the following physical activities, which have been established as priorities by the communities involved in the project:

- Water: improving access to potable water;
- Health/Sanitation: improving standards of family health, including sanitation;
- Schools: improving access to educational facilities;
- Agriculture: improving agricultural practice and diet;
- Livestock: improving standards of livestock husbandry;
- Environmental Conservation: propagating and planting trees, training in soil and water conservation techniques;
- Housing: improving housing standards;
- Small Business Enterprises: promoting investment in income-generating activities (IGAs); and
- Training: training of field staff and community members in motivational techniques.

4.2.2 History of the Maasai People's Project

Discussion of a project for the Maasai within World Vision began in the early 1980s. At that time, the interest was to provide water through surface impoundment as had been successfully carried out in the nearby district of Kitui. The basic concept was that the provision of water would initiate momentum for economic development in the area. Serious environmental concerns that followed from a 1984 study by World Vision, however, led to WV funding in FY 1986 for six small pilot projects that identified complexities in the Maasai way of life that precluded a uni-sectoral approach to development. Discussions catalyzed by the WASH-assisted Kenya Planning Workshop in January 1987 finally reoriented the project toward a community-based, integrated

development model. At this time the project was renamed, and the Maasai People's Project was moved from concept to reality.

4.2.3 Description of the Project Area

Located within Narok and Kajiado Districts of Rift Valley Province, the MPP is headquartered in Narok town and largely restricted to a semi-arid region, varying between 1,400 m and 2,000 m elevation. The first phase of the project covered an area east of Narok of approximately 600 sq. km., which was subsequently expanded to approximately 1,000 sq. km. A second phase commenced in 1990 to include an additional area of almost 800 sq. km. (see Figures 5 and 6).

The project area encompasses a portion of the Mau highlands south and west of the Mau escarpment, bounded on the east by the Suswa Plains and on the west by two rivers, the Ewaso Ngiro and its tributary, the Siyabei. Perennial surface water sources are meager in the area. Rainfall varies from about 400 mm in the south near Mosiro to about 900 mm in the north near Nairagie Engare, just outside the northeastern border of the project area. Rainfall follows a bi-modal distribution. A short rainy season occurs between November and December or January, followed by a one-to-two month dry season. The long rains commence in March and end in May or June, followed by the long dry period that runs through October. In general, April is the wettest month and August is the driest. Climatological parameters for Narok town,

with almost 80 years of record and near the project area, are given in Appendix F.

The volcanic soils are light-colored and partially weathered, overlying basaltic basement material. The geology has not been mapped in detail, and groundwater potential has not been investigated comprehensively. Over much of the project area, existing wells indicate that water is not available at shallow depths. (The evaluation team visited one borehole site of approximately 100 m depth fitted with a locally-manufactured handpump that could supply a maximum of 12 liters per minute.) The promise for groundwater development is not considered to be great, but occasional geophysical investigations by the Ministry of Water Development indicate site-specific possibilities, particularly in formations with trachyte outcroppings and in the southern portion of the project area (Phase 2 area).

A detailed discussion of field observations in the project area from a 1984 water resources survey commissioned by the Ministry of Agriculture is reproduced in Appendix G.

4.2.4 Scope of the Maasai People's Project

The MPP divided the Phase 1 area into three regions and to this date has commenced work in 30 "clusters" of communities therein. The exact population served by the MPP in this area is unclear--different documents cite different figures. Limiting the current tally of direct beneficiaries to the

population of the 30 project clusters would indicate (from baseline surveys conducted by the MPP) a total of about 11,000 people. In addition, eight clusters are included in the initial action plan for the second phase now being implemented (FY 1990). No information is available on that population, although one can roughly estimate 3,000, for a 1990 total of 14,000 in 38 clusters. The initial two-year objective to be reached by the project (as stated in the June 1987 Project Planning Paper under a higher level of financing than has been the case) was almost 30,000 people, or about 12% of the total estimated Maasai population in Narok and Kajiado Districts combined.

The budget and expenditures for the MPP appear to have been revised several times. The most recent information available to the evaluation team projects a four-year budget (FY 1990 - FY 1993) of US \$1.620 million, with a four-year expenditure prior to FY 1990 of US \$1.189 million. Prior to FY 1990, expenditures allocable to the AWP have been designated as US \$0.577 million, of which \$0.135 million, or 23%, are USAID Matching Grant (MG) funds. Through Q2 of FY 1990, the total AWP expenditure for the MPP is US \$0.759 million, of which \$0.172 million, or 23%, are MG funds.

The AWP Proposal (October 1986) projected a three-year budget (FY 1987 - FY 1989) of US \$2.525 million, none of which was earmarked for Matching Grant financing. The Cooperative Agreement, however, spanning FY 1987 - FY 1990, obligated US \$0.327 million of Grant funds (not including

indirect costs), or 43% of a total budget of \$0.756 million. It is assumed that the \$0.327 million included \$0.090 million of MG appropriation for the Field Office's Technical Services Unit (TSU). The Cooperative Agreement budget is broken down as follows:

CATEGORY	WVRD	AID	TOTAL
Project inputs	228	163	391
Institution building	87	56	143
TA/contingency	0	24	24
Program management	<u>114</u>	<u>84</u>	<u>198</u>
Total	429	327	756

(Amounts listed in thousands of US \$)

4.2.5 Strategy of the MPP

Intensive pre-project planning by WV led to formulation of implementation strategies that have been described by WV Headquarters in the following manner:

- make it look big to World Vision, but [work in] small-scale [manner] from the bottom;
- process and local ownership is always the priority;
- the measure of success is what they [the Maasai] do, not what we [World Vision] do;
- use Maasai [project staff] to help the Maasai;
- begin with Maasai solutions and build on them; and
- try a little of something, see if it works.

4.3 Implementation Plan of the Maasai People's Project

4.3.1 Initial Implementation Plan

The initial MPP implementation plan specified in the June 1987 Project Planning Paper was developed under an AWP budget proposal that anticipated three-year total financing (through FY 1989) approximately equivalent to the seven-year total that has actually resulted (through FY 1993). In spite of the high ambition, however, this plan provides an adequate baseline from which to assess the progress of the MPP in verifying and replicating the development process, upon which the project was conceptually founded.

Fiscal Year 1987:

- establish guidelines for project activity, preliminary planning, and operating principles;
- recruit, hire, and train project staff;
- work through and with communities and make agreements with them;
- work in poorest areas of Maasailand and concentrate on Narok District in view of existing knowledge base;
- continue liaison with Kenya Government, related agencies, and churches in project area;
- conduct baseline surveys;
- allow communities to define the project elements of which they feel in greatest need;
- constitute Maasai Advisory Group;
- use FY 1987 activities for pilot study, carefully monitoring and evaluating performance; and
- initiate establishment of multi-purpose documentation center.

Fiscal Year 1988:

- consolidate and expand existing work;
- maintain close monitoring of project activity already underway;
- increase project staff and continue training;
- re-design project activities if needed; and
- field up to 20 community motivators with activity in up to 100 communities with an aggregate population of up to 16,500.

Fiscal Year 1989:

- begin transfer to Kenyan project management;
- expand activities into Kajiado District;
- field an additional 20 community motivators and an additional facilitator to assist them; and
- expand activities to include as many as 100 additional communities with a population up to 15,000, making the total population reached by the project almost 30,000.

Fiscal Year 1990:

- make complete transition to Maasai project management;
- prepare for handover of some community programs to full community control;
- conduct interim assessment or evaluation; and
- transfer MPP oversight responsibility to Kenya Field Office.

The Project Planning Paper also described an evaluation protocol and identified a number of targets and progress indicators.

4.3.2 Subsequent Implementation Plans

Since the Project Planning Paper, the MPP management has revised the project implementation plan on an annual basis as presented in the WVI Supplementary Project Update Form (SPUF). The action plans available to the team (FY 1989 and FY 1990) indicate a comprehensive set of detailed activities addressing all the of the MPP goals listed in section (4.2.1) above.

4.4 Technical Progress of the Maasai People's Project

4.4.1 Outputs

In terms of the activities listed in section (4.2.1), the inputs and outputs of the MPP between October 1987 and July 1990 are enumerated in Appendix H. Because of local political problems that have now been beneficially resolved, physical-infrastructure activities did not commence until February 1989. Project management have calculated unit costs based only on the directly allocable "hardware" components of each activity; the essential "software" and support components (e.g., staff salaries, vehicles, travel costs, office supplies, living units for field workers, office rent, utilities, and communication) have not been apportioned among the activities. Nevertheless, this information provides an overview of the quantitative progress of the MPP. Table 1 presents a summary of the comparative expenditures among the major project activities.

Table 1. DISTRIBUTION OF DIRECT COMPONENT EXPENDITURE UNDER THE MPP

COMPONENT	EXPENDITURE (US\$)	% OF TOTAL
Agriculture/Livestock	18,446	4
Small Business Enterprises	10,883	2
Health/Sanitation	8,720	2
Housing	3,464	1
Training	21,050	5
Schools	168,420	40
Water	124,220	29
Environmental Conservation	73,940	17
	-----	---
TOTAL	429,143	100

In terms of investment in physical infrastructure to date, the MPP has primarily provided schools (combined with improved--although not ventilated--pit latrines), surface and roof rainwater catchment (RWC) systems, and reforestation. While the evaluation team considers all component activities to be linked in a comprehensive program, the technical scope of this evaluation is limited to the water supply and sanitation improvements. Fundamentally, the water supply initiatives provided the catalyst for all the other MPP components.

Since educational facilities--the single largest expenditure item--comprise such an important aspect of the MPP, however, Appendices I and J present the most complete information available to the team about this component. (Appendix I also includes cost data for sanitation at schools.) In general, the modular design employed for classrooms facilitates replicability by local contractors, who maintain reasonable standards of construction.

The MPP has installed 23 improved water supply systems--hafirs (excavated and improved surface depressions for RWC), roof RWC, stream impoundment, or shallow well--in 15 of the 30 communities covered to date in Phase 1. Table 2 identifies those communities, the type of system, the communities visited by the evaluation team, and key numbers for location on Figure 6. Appendix K gives more detailed information from project baseline surveys on the eight communities visited.

Details regarding roof RWC systems at primary schools and hafirs (called water pans in project documentation) is presented in Appendices L and M. The available cost and population data have been combined in Appendix CC to estimate the approximate per capita installation cost for different systems, including sanitation.

In order to estimate the change, if any, in water consumption per capita and water collection time per day, the evaluation team conducted an informal, verbal-response

survey in the communities visited that had improved water systems. Based upon a relatively small sample of 17 respondents, the average daily consumption was reported to have doubled from 3-4 liters to 8-9 liters. (The prior consumption figure is corroborated by the results of a much more detailed survey conducted in 1987 by one of the MPP staff.) Time-saved was highly variable depending on the location of the community. It ranged from no time saved to as much as 12 hours.

4.4.2 Water Supply and Sanitation Planning

Planning for improved water supply and sanitation systems is initiated through the baseline survey, which collects basic information of the type shown in Appendix K. These surveys are particularly helpful not only in providing essential information for budgeting and scheduling but also for introducing communities to the concept of self-monitoring. This type of general survey could be enhanced by more specific attention to an examination of potential alternative water sources. The factors that should be considered include:

- a study of the physical characteristics of the location that indicate potential contamination;
- an estimate of the quantity of the supply; and
- an assessment of the bacteriological, chemical, and physical quality of the potential source, even if there exists no possibility for sampling and analysis.

Table 2. WATER SUPPLY ACTIVITIES AT MPP SITES

MAP #	COMMUNITY	POP	VISIT	LARGE HAFIR	OTHER	SCHOOL: X SCH w/RWC: XX
1	Enkaroni	464	X	2		
2	Enkiloriti					
3	Ndero	291	X	1		XX
4	Lesharo					
5	Oltepesi	725	X			XX
6	Ole Panyua					
7	Loibor Lukuny	437	X	2		
8	Kaita Gumoto					
9	Kojonga				Stream Impound.	
10	O/Ntulele	344		1		XX
11	Olkoroe	217		1		
12	Nkinye				Shallow Well	
13	Enooltulelei			1		
14	Nturumeti	563	X	1		X
15	Enoombalwali	215	X	1		XX
16	Ole Ngolia					
17	Tikako/Komoto					
18	Endikir Osinyai					
19	Shilarie	139				
20	O/Naado	172	X	2		XX
21	Enoolpopong	353				
22	Enatario Olkiteng	273				
23	Nkorienito	371		2		
24	Emurua Osek	62				
25	Enelerai	174	X	1		
26	Lengasamo			1		
27	Ololturot					
28	Oloitutuo Kulupuok	119				
29	Olepolos	46				
30	Eor Ekule	129				X

More attention could be given by the MPP to source evaluation of streams and groundwater. Previous analyses indicating high fluoride and iron contents of surface waters in certain areas should be noted. A critical component of preliminary evaluations is an engineering estimate of the cost of development of the particular source. Such feasibility assessments should be conducted prior to formalizing agreements with communities. (The MPP has been placed in a difficult position already with one system, the Kojonga weir, because such costs were not worked out in advance.)

Further, groundwater development using mechanical techniques should not be rejected out of hand; drilling technology is qualitatively no more capital intensive than the mechanical excavation techniques employed in the construction of hafirs. The critical element is that any decision for employing such a technology be determined by appropriate social process, to which the MPP is institutionally sensitive. An accurate assessment of total costs--including the hidden environmental costs--among various acceptable alternatives should then enable informed decisions by the communities involved. Other factors being equal, groundwater generally provides a higher quality of water than surface sources. Hafirs may provide a higher quality of water than heavily used surface streams only if they are scrupulously protected and maintained.

The MPP is effective in enlisting the financial participation of communities in their water development activities. While the portion of total installation costs has seldom risen above 10% for the works to date, the concept of local financing has been well established by the project. As the MPP matures, more attention should be given to increasing the community investment in their own systems.

4.4.3 Design of Water and Sanitation Systems

Hafirs or Water Pans. Hafirs are designed without using quantitative processes that account for rainfall, surface runoff, and catchment area; local expertise intimately familiar with the project area is utilized to study the topography and recommend sites for community-scale catchment basins. These range approximately 1/4 to 1/2 hectare in surface area, with wetted depths approximately 1 to 2 meters. The siting procedure seems to work efficiently and provides a local technology transfer benefit in that community members learn in the process about soil and water conservation from the Maasai consultant.

Engineering designs for embankments were not available; rather, standards for levee shape and size are maintained through close direction and supervision. Installed on three sides of the hafir, levees at the sites visited were of "slope in" asymmetric crown section, with outside slopes on the order of 1:1 or even 1:2 (horizontal:vertical) and

inside slopes on the order of 2:1. (Detailed measurements could not be taken during the visit). Levee crest widths varied around 4 m, with heights of 3 to 4 m. Experience has shown that for impoundments less than one hectare in surface area, freeboard of 50 cm is adequate. With a more conservative approach, however, calculations indicate that a maximum of 1 m freeboard should suffice for hafirs of the size installed by the MPP. It is not known whether any soil studies were conducted to determine attainable compaction, subsidence, and seepage characteristics. These soils are very low in clay content and are subject to percolation. Some hafirs are designed with spillways while others have no outlets, depending, it would appear, on local knowledge. (In the region, small catchments constructed by hand without outlets are known to spill over on occasion.) The design procedure does not designate intakes to protected clear water wells. Pilot studies should be undertaken to determine an appropriate, low-cost method for ensuring segregation between animal and human use and for providing low turbidity water for domestic use. Local materials and cultivation techniques are used for embankment protection. Also employing local materials, fencing is specified for all hafirs installed through the project.

Roof Catchment Systems. The MPP adapts a design standard supplied by the Ministry of Agriculture for 50 cu.m. (13,200 gal.) reinforced concrete (RCC) tanks constructed at schools for storage of rainwater collected from improved (galvanized iron [GI]) classroom roofs. To enhance the head difference

between tank height and roof guttering, however, MPP tanks are reduced in elevation to yield a volume closer to 40 cu.m. The Bill of Quantities for such a tank serving three classroom modules is shown in Appendix M. Not included in this itemization are in-kind community labor and the 3-inch GI guttering and downpipe assembly, which together add approximately 3500 Kenya Shillings (about US \$ 170), or almost 10%, to the cost of the system. Although this is the customary system, the project occasionally supplies corrugated GI tanks of about 7 cu.m. for smaller installations. These systems neither allow for filtration of the influent supply nor for easy wastage of the first rain of the season, which cleanses the collection surface. Section drawings should be improved to provide clarity in specifying offtake clearances and elevations. The designs are not based upon rainfall and intensity characteristics, catchment area, runoff characteristics, and utilization rates. Monthly rainfall and 10-day intensity data do exist, however, for two reliable stations near the project area--Narok town and Nairagie Engare. Data from these and other stations may be interpolated for RWC locations. Designs that are sized according site-specific information would enable more cost-effective design. Ferrocement technology would also be more appropriate to the goals of the MPP and less costly as well. (Ferro tanks up to 40 cu.m. have been constructed in Africa.) Ferro technology would be especially suited to smaller systems, such as individual households, as the MPP extends its work in this area.

Sanitation. No design exists for the improved--but not vented--single-pit latrine installed by the MPP at primary schools. Drop hole covers are included. Utilizing local materials to the extent possible, screened ventilation should be provided for odor control, thus converting these latrines to VIP (ventilated improved pit) latrines. With the help of the Maasai People's Project, SIDA, the Swedish agency for development assistance, has constructed VIP latrines at one of the MPP sites. The SIDA latrines can provide a model upon which to base further improvements. Since permanent superstructures are employed, one such improvement would be to install double pits for each single-drophole unit. Such a design enables alternating use on a 3 to 5-year basis in order to decompose fecal material in situ. A simple drophole cover made from screening and a one-gallon paint container also would act as a fly trap to minimize breeding in the pit. All these modifications should be set down in proper engineering drawings approved by the MPP.

Stream Impoundments and Shallow Wells. A minor component of MPP water supply options to date, application of these technologies follows no particular design guidelines. This deficiency should be addressed so that the high integrity the MPP has earned to date will not be compromised.

The evaluation team noted two items in particular with the systems in place. First, development of springs or stream impoundments should place strong emphasis on sanitary

protection of the source. Second, shallow wells should be capped and fitted with reliable village-level operation and maintenance (VLOM) handpumps, such as the Afridev.

4.4.4 Construction of Water Supply and Sanitation Systems

Hafir construction is implemented under sole source to a local contractor. Excavation and levee construction take approximately three weeks with a Caterpillar D5. Project staff and consultant supervised the initial work closely until the contractor became familiar with the expected standards. Although no construction drawings were used, the process appears to have been successful, as the contractor now can replicate the process with relative uniformity. Nevertheless, the MPP should strive to enable the project engineer to visit construction sites at least once per week to monitor the work.

Some compaction is achieved with the Cat, but initial infiltration in these large-particle soils has still been noted by local residents to be relatively high. As yet there has been no evidence of improper embankment construction.

Community labor and materials are provided in-kind for fencing and levee protection and stabilization. Cash is normally also contributed for the initial installation. Together, these components bring the community share of

total construction cost as high as 15%, but normally less than 10%. Except for one case in which the MPP installed two hafirs before the community invested its share--and for which the project is still trying to collect--this partnership between the project and communities has worked well.

Roof-catchment storage tanks are also installed under contract after the foundation is constructed by in-kind community labor. All work is supervised by the MPP water engineering technician. Five weeks are required to complete one tank. In general, construction is of high quality. In some instances, offtake pipes, valves, and boxes have been installed in a manner that makes user access difficult. Steps are being taken to remedy these situations, which have arisen primarily due to unclear engineering drawings. GI roofs and guttering are installed under separate contracts for school construction.

Improved latrines are constructed by local masons after community labor digs the pits. This work should also be supervised and standards maintained after project design drawings are approved.

4.4.5 Operation and Maintenance

Most hafirs have less than one full season of operating history. Dry season storage levels need to be monitored to assess the continuity of supply.

Although fenced, several newly constructed hafirs were observed to allow mingling of animal and human access. It is appreciated that the current design does not allow for an easy alternative; with the luxury of multiple hafirs, however, a project community has preempted one for exclusive domestic use. In any case, design changes that segregate humans and animals, providing better security and simplified maintenance, should be investigated.

It is also important that the community attend scrupulously to levee protection and stabilization for the first several years of operation. On the other hand, the more numerous and smaller traditional hand-dug catchments require more attention to the control of embankment vegetation.

It appears that little maintenance is currently directed toward roof RWC systems. Filters that should be specified in designs should be cleaned frequently during the rainy seasons. The tanks should be scrubbed down with a hypochlorite solution once per year prior to the long rains. The first rain of each year should be wasted to cleanse the roofs. Gutters and GI sheeting should be checked annually for secure attachment and fit.

Latrines should have a drophole cover in place when not in use. Doors, if provided with latches both inside and out, should be kept closed to minimize fly breeding as well. Vent pipes should be checked to ensure that screening remains in place. If alternating pits are used, they should

be sealed off with soil when filled to a minimum of 30 cm from the top, and the squatting slab should be emplaced over the empty pit. If the single pit is used, the superstructure will have to be moved.

The MPP has initiated the concept of recurrent-cost financing by project communities with the support of IGAs, a portion of the profits of which would go primarily to operation and maintenance of project systems. One method of accessing profits from IGAs merits consideration: The MPP and the community could be regarded as a proportional partnership. The costs of a particular IGA are thus evaluated jointly by the partners and the share of the total costs, including in-kind costs, are negotiated. The share of the profit (or loss) from the IGA is subsequently divided in conformance with the cost-share proportion. According to consensual agreement, however, the MPP profit is banked in a community-based (or committee-based) fund to be used only for specified purposes (such as maintenance activities, for example). In any case, the project should continue the dialogue about local financing commitments by developing with the communities more details about the kinds of activities that will be required as the project matures.

4.4.6 Technical Monitoring and Documentation

Whereas the Project Planning Paper set out a protocol for monitoring and evaluation, it is not evident that the types of relevant information therein specified have been collated

in a fashion that can be easily communicated to headquarters and outside parties. Progress-report data that enumerates quantities of outputs achieved is insufficient. Rather, monitoring data should focus on developing with the communities involved certain indicators of the quality of ongoing performance of water and sanitation systems (and other project infrastructure) installed under the MPP. Performance monitoring could build on the experience of the baseline surveys and should complement the analytical procedures for planning described in section (4.4.2). Because of its great importance to health and the integrity of systems installed under the MPP, a program should be set up for monitoring hafir water quality on a regular basis at least during the early stages of the project.

The MPP has done an exemplary job in putting together information required by the evaluation team that had not been either collated or set down on paper. The project could also build on the evaluation experience to develop monitoring formats that would facilitate data collection and presentation.

Moreover, project staff are in great need of more and better technical reference material appropriate to technologies applied by the MPP. The project should therefore proceed as soon as possible with implementing the project-level documentation center as specified in the action plan of the June 1987 Project Planning Paper.

4.4.7 Technical Training

The training that project staff have received in participatory evaluation and facilitation techniques has been a hallmark achievement by the MPP and a major reason for its great success. Training in technical skills has been somewhat more limited but has nevertheless addressed some key issues such as environmental health, nutrition, and child survival. Through the community motivators (CMs) and especially the women's development motivators (WDMs), the staff learning experiences have been effectively transferred to members of the communities. These technical trainings should be expanded. They should include proper use of VIP latrines where installed. Primary health care training should be intensified both for WDMs and project beneficiaries. WDM staffing should be increased significantly as the MPP now expands within the Phase 1 and to the Phase 2 areas.

External technical assistance could be useful to both the project staff and local government technicians who deal with low-cost WS&S technology development. Benefits could be derived from community-based workshops focusing on engineering project planning and design/construction of low-cost technologies for water supply and sanitation (e.g., ferrocement construction, home water storage techniques, dug well construction, VIP latrine construction).

4.5 Institutional Development Progress of the MPP

4.5.1 Structure and Facilitation Approach of the MPP

The project's structure is organized into operations, administration, and human development entities, all overseen by a project manager. There are 27 people on the staff, 18 of whom work in operations: 12 community motivators (CMs), 4 women's development motivators (WDMs), and 2 technical motivators (tree nurseries, water). All community workers are Maasai themselves, so language and tribal differences are not an impediment. The operations are headquarters in Narok, within 50 kms of each community; thirty-one communities are included in the initial project. Two CMs are stationed within a 5-km radius of six to eight communities and live on site (in a tent) four days a week. The four WDMs service all 31 communities, so their abilities are stretched, given the terrain and distances involved. This set-up, however, has allowed for extensive contact with the communities. The CMs and community members are familiar with each other and have a good working relationship. Each CM is accepted as advisor and facilitator for the community. The MPP has designed for the recruitment and development of "emurua" motivators (EMs)--members of the communities, or "clusters," themselves. The role of the EM is similar to that of the CM, whom the EM will eventually replace at a later stage in the project. The project has identified 2-5 EMs in each community in which they are working.

Key to the structure is the absence of a local project committee to advise the project. This is unique to the WV projects in Kenya and, in this case, has proved to be very beneficial. This absence has allowed greater flexibility to the project and quicker decision-making when opportunities present themselves.

These teams of community workers spent at least half a year in each village working on establishing relationships, breaking down the concept that this is another "hand-out" project, and collecting baseline data, as well as identifying locally felt needs, key individuals, and locally expressed potential solutions to the communities' problems. Only after that initial work did the project assist in implementing the community solutions. Although this preparatory period was undertaken, in part, because of early project difficulties with the district government in Narok, this extra time enabled the development approach to take a stronger hold in the communities.

After the initial phase, because the communities had to propose solutions that could be understood, managed, and basically afforded, there was rapid development in the project. The community provided time, labor, and some portion of the cost for the solutions. The level of the technologies employed is rudimentary, but effective. Because the community proposed the "solutions" and contributed inputs to them, and because the MPP spent time in preparing the proper attitude, understanding, and

organization, the communities own the projects--they understand, operate, and maintain the systems.

The success of this project, which is remarkable, is based upon the emphasis on the development "process," the time spent in the community, and the commitment and skills of the local staff. It is even more remarkable because of the long, documented history of the ineffectiveness of external assistance to the Maasai.

There are four keys to this success:

- the adherence to the development philosophy;
- the quality and importance of staff development;
- the flexibility of the program in adjusting to changing circumstances; and
- the intelligence manifested in managing the development of the project.

4.5.2 Staff Development

Because of the commitment to this development philosophy and the need for everyone on staff to "own" it, extensive training and consultation has been provided for staff development. The initial project manager (Harry Clark) as well as the current one (Daniel Ole Shani) have been key in emphasizing the training. Numerous training and workshops have been provided to the staff at milestones in the project's development: development philosophy, community entrance skills, facilitation skills, community organization

techniques and technical demonstrations. Consultants have been called in to assist the project as needed (much of this consultancy was handled successfully by the Regional Technical Team in the early years; now it is managed by the project itself).

4.5.3 Reporting and Documentation

Throughout the duration of the project, the CMS return to Narok at the end of each week, prepare a written report on the week's activities, and present an oral program report to a group of the CMS, share ideas and problems, and prepare a work plan for the following week. The written progress reports are summarized as progress reports monthly and quarterly and distributed to appropriate parties. There exists an acceptable documentation of these activities. Detailed documentation of the content of training and workshops--a major strength of the MPP that should be communicated, perhaps as a Technical Paper--is lacking, though the number of such events and their participants are available.

4.5.4 Networking

Because the MPP acted upon the needs for staff development and technical assistance, an extensive network has been established between the MPP and other non-governmental organizations (NGOs), the Government of Kenya, the University of Nairobi, and other donor organizations. This

network has proved to be a two-way street, with the MPP receiving assistance where and when needed, and the MPP giving assistance (e.g., the Swedish environmental health program using CMs to assist in organizing communities receiving its assistance). The MPP has a good working relationship with the district government structure in Narok--the Administration, Agriculture, and Water Departments. Though this has not always been the case, the evolution of these relationships has contributed to the strength of the project.

4.5.5 Technology Transfer

There has been a considerable transfer of skills, knowledge, and awareness to the communities involved in this project. Technology transfer has taken place through various training programs, workshops, demonstrations, and individual guidance. Though many of the technologies employed are rudimentary, the skills necessary to develop, operate, and maintain these systems have been successfully transferred and reinforced through the people-to-people contact generated in the project. The following is a list of the technical, community, and managerial skills and knowledge that the MPP has transferred to the communities involved:

- the development and maintenance of a water pan;
- the construction and maintenance of a roof catchment system;
- soil-conservation techniques;
- tree-planting techniques;
- gardening techniques;
- improved grain-storage techniques;
- improved cattle-raising techniques;
- animal-traction techniques;
- chicken-raising techniques;
- latrine-construction and sanitation techniques;
- boiling of milk and water;
- oral rehydration techniques;
- importance and availability of a balanced diet;
- awareness of the need for inoculations;
- mid-wifery techniques;
- community-organization techniques;
- community-facilitation skills;
- management of a cooperative; and
- management of income-generating activities (IGAs).

4.5.6 Benefits of the MPP

As a result of the MPP's efforts, the Maasai have undertaken a large range of development activities. The primary benefit has been the provision of water nearby the communities. This has allowed the members of the communities to feel settled and to have more time available to devote to other activities. A host of complementary

benefits has ensued. As can be seen from the above list of skills transferred, the range of activities is extensive. An example from one of the communities serves as an indication of the benefits accrued. In Enkaroni, the evaluation team spent a morning talking with the community and looking at the various projects. From what we observed and from comments from the community members, the following is a list of the benefits to this community:

- Improved water supply:
 - a large water pan constructed, allowing the community members to feel settled.
- Improved food supply:
 - development of home gardens;
 - improved grain-storage facilities;
- Improved health:
 - more balanced diet;
 - boiling water;
 - boiling milk;
 - learned oral rehydration techniques;
 - children taken to clinic (inoculations);
 - knowledge of mid-wifery.
- Improved community:
 - community school nearby;
 - improved housing (galvanized iron roofs);
 - tree seedlings and other techniques for soil conservation;
 - cooperatively owned grist mill;
 - purchased milk separator (IGA).
- Major attitude/behavior changes:
 - a sense of working together for the benefit of the community;
 - women expressing their ideas in group meetings, actions taken on those ideas;
 - established committees, which have brought the families and the community closer together.

4.5.7 Sustainability

The MPP earns a high rating for sustainability, given the effect of the community linkages established, the self-help development theory imparted, and the skills and knowledge transferred. The Maasai have thus been empowered to deal with basic developmental issues. This empowerment rests upon attitudinal changes and the technology transfer. These positive changes are reflected behaviorally:

- the communities act more in concert with a greater understanding of how mutual efforts increase benefits for all;
- women are now not only included in meetings, but their ideas are acted upon and have proven beneficial;
- the communities have established a variety of committees to deal with problems, bringing understanding and cooperation among members; and
- a mechanism for managing these projects and reporting to the community the results has sustained progress.

Communities were observed maintaining their water systems because it provided obvious benefits--and it was theirs. The maintenance was performed as part of the system management and not because of prodding from the outside or "to impress" the evaluators who were visiting.

Additionally, linkages to the MPP and, more importantly, to the Kenya government agencies have been established along with access to other NGO and donor organizations services. Add to this the development of the EMs, and the potential sustainability of the project is great.

4.5.8 Summary of MPP Institutional Development Findings

The MPP is an excellent example of the community-development process properly executed, resulting in a transfer of technologies and a sustainability of project benefits. Though the structure follows a common organizational breakdown by functions, it does contain elements integral to its success: location of headquarters near the project, use of Maasai to work with Maasai, and sound judgments and competence of a developed, committed staff. The process employed by the MPP is founded on a development theory that believes in empowering the local participants, using staff members as facilitators for the communities, and implements the activities determined by the community as being in the community's best interest. Though this process was slow and frustrating at times, and lacked quantifiable outcomes in its early stages, the resulting sustainability by the community to maintain its own development and the range of benefits accrued has compensated for the time and effort put into the project.

The development of the MPP staff has had high priority since the inception of the project. The reward to World Vision is a local staff competent in carrying out the project's mission and ready to evolve for other community endeavors. In addition, the competence of the project staff has made it easier for the Field Office to oversee the project.

The development of the MPP's network for training and technical assistance has helped ensure the benefits to the participating communities. The communities have been introduced to a variety of governmental agencies and other donor organizations and NGOs that will serve them well as they continue with their development activities.

The breadth of the activities undertaken by the various communities highlights the need and potential for an integrated approach to a "supposedly" sectoral problem-- water. The range of activities underscores the ability of a particular technological approach to evolve into a full complement of benefits. The persistence of efforts and the time spent with the communities are integral to the development of these benefits. Lessons learned from this project can have far-reaching effects for development projects in other sectors and places.

The MPP can be judged a success in institutionalizing capacities within World Vision/Kenya and the communities involved. This is not to say that the project is over or that the communities are ready to be on their own yet, but that the process employed in the project has yielded remarkable results. There is a need for this process to be documented as a model of excellent community development. The documentation of the project is adequate for enumerating events, but documentation of the process is needed to describe the training contents and the stages implemented in

its evolution. This would be beneficial to both the MPP staff and to the larger development community as a whole.

There is a basic caveat about the project. The Maasai are in the early stages of transition from nomadic society. Having achieved the rudimentary sense of settlement, the people's needs in all other areas of settled life are great. Hence, there is a particular ease with which these "other" activities have come about--gardens, health, education, etc. As the Maasai become more established in their settlements, their needs will become more complex--in terms of technologies applied, economic factors impinging upon them, and the structures necessary for dealing with the "outer" world. Progress in this stage of development will be as frustrating and slow, or more so, than it was in the early stages of this project. The same skills and attitudes in community development that have brought about these successes will be amply needed for further development. The point to be made is that three years is a relatively short period of time for having accomplished as much as this project has; with a settled community, such results may not be achieved in so short a time. However, the development principles and philosophy employed here are the necessary ingredients for the development to take place.

4.6 World Vision/Kenya Field Office

4.6.1 Structure

The Kenya Field Office is organized by the nature of each project undertaken--those traditional to World Vision activities, those of a high technical content, those reflecting a development approach, and those that perform the standard administrative functions. The divisions are as follows:

F/A/H/A -	Finance, administration, human relations, and auditing
Operations -	Traditional World Vision child-sponsorship programs
Technical Services -	Child survival (health-oriented), and education, agriculture, leadership for church and pastors (management training)
Sponsor Relations Operations -	Management of sponsoring children's program
Special Projects -	Food-Aid Program, Urbanization Project, Women-in-Development Project, Development Assistance Centers (DWC's), Maasai People's Project
Special Assistant -	Government relations, public relations, corporate planning, troubleshooting

The management style in the Field Office gives autonomy to the division directors and project managers. The degree of autonomy is on a case-by-case basis. Trust in the individual leads to an extension of autonomy for the project; a reduction in autonomy is made when forthcoming evidence dictates greater control by the Field Office Directors.

The Field Office supports these managers for their various administrative duties and offers assistance where and when needed. Top management handles government and public relationships to ensure a smooth functioning with the various projects. A senior management team is made up of the division directors and key project managers. This team meets regularly (once a month) and keeps the Director apprised of how the various projects and the organization are performing. The Director is involved with important decisions regarding the larger projects (MPP, Food-Aid, Child Survival, etc.). It is the competence of the Field Office Director that allows the organization to function in this manner.

A few instances were noted where top management took actions affecting a program without first properly communicating with the project manager. This indicates a need for an occasional reminder of the roles of the various parties as well as a need for proper and clean channels of communications. For the most part, however, the organization is operating smoothly.

The MPP is somewhat a special case in the structure of the organization. Although by organizational chart it falls under the Director for Special Projects, in actuality it reports directly to the Field Office Director, with cursory communications with the Director for Special Projects. This case has developed because of the long history that the Field Office Director has with the MPP Manager and the role the MPP has played in leading World Vision/Kenya into new development projects. (It was the first "development" project for the

office.) There have been no reported problems within the organization because of this informal structure.

It is assumed that the Field Office's Technical Services Division (TSD), which has no functional link to the MPP, is the "Technical Services Unit" specified in the AWP budget proposal; the Field Director was not specifically informed to that effect, however. In any case, the strength of the TSD lies in the area of health/child survival, with the only water supply engineering expertise in WV/Kenya existing as one seconded technician from the government to the MPP. The TSD has successfully embarked on a long-term child-survival program and is giving technical assistance to some of the traditional sponsorship programs.

One aspect of the Field Office structure that merits a reassessment is the inclusion of a local project committee in the project development process. In the traditional child-sponsorship projects, the community is asked to develop a committee of local important people to help oversee the development of the project. This practice has carried over to most all other projects. These committees have control over the hiring, firing, and salaries of project managers--which also spills over into other areas of project management. This on occasion has undermined the authority of the project manager. In light of the success the MPP has had with the absence of such a structure, it behooves World Vision/Kenya to assess the effectiveness of these committees and see if they can be redefined, restructured, or eliminated to remove the

occasional impediments they have created in the effective management of the project.

4.6.2 Budget

The Kenya budget for FY 1990 was \$1.073 million for all programs; the MPP budget was \$217K. The AWP proposal projected a Kenya budget of \$2,615K (less Karapokot) for the life of the project, an amount including \$90K of USAID Matching Grant (MG) funds for the TSU. (It is impossible to determine the amount from the documents.) In actuality, the three-year budget for Kenya was \$756K, with \$327K AID MG funds; it is broken down as follows:

	WVRD	AID	TOTAL
Project inputs	228	163	391
Institution building	87	56	143
TA/contingency	0	24	24
Program management	<u>114</u>	<u>84</u>	<u>198</u>
Total	429	327	756

The difference between the initial project budget and the actual one is great (\$2734K). This difference is the result of the slowdown in donor financing to World Vision since the program's proposal. However, the USAID MG-funds spent in Kenya appear to be close to those initially envisioned, and were matched more than one-to-one by World Vision. Taking out \$90K of USAID funds earmarked for the development of the Kenya Field Office's Technical Services Unit, the MPP had about \$670K available to it over the life of the project. Though the MPP has been constrained at times by its budget, and

particularly in facing its FY 1991 budget (with the absence of USAID MG-funds), the project has progressed well--merely at a slower pace, which seems to have been appropriate. (One can wonder where the additional \$2.7 million would have gone.)

A point that needs mentioning is that in FY 1988 there were monies left in the account near the end of the fiscal year, which the project believed it had to spend or lose. The MPP proceeded to build a water pan in a community before the community was properly prepared, with the result that this was the worst of the projects from a community-development point of view. The MPP is still trying to collect the community's monetary contribution to this system. At best it points out the value of doing the necessary preparation work before a physical project is undertaken. Because of the confusion around year-end funds, it behooves World Vision to clarify the status of these funds and to do all that is possible to ensure that they can be rolled over.

4.6.3 Summary of Field Office Findings

The Kenya Field Office is properly managed, operating smoothly, and basically organized in an effective manner. The Office has demonstrated its ability to support the various field projects under its domain and, for the most part, has been able to offer timely and useful assistance. It has grown with a number of large projects and has increased the level and range of skills on its staff, particularly in health and child survival.

The style and competence of the Field Office Director is directly responsible for the smooth functioning of the operations. The Field Office is demonstrating its ability to effectively manage long-term projects.

A Technical Services Unit has been established with its technical strengths in the areas of health and child survival. Technical skills in the development of water projects is lacking.

The MPP is successfully running as an autonomous program, reporting directly to the Field Office Director. This arrangement is not reflected in the organization chart.

The requirement for local project committees in project structures should be reviewed by World Vision/Kenya for its efficacy to those projects.

Chapter 5

COUNTRY PROGRAMS: MALAWI**5.1 Background of the Africa Water Program in Malawi**

Malawi was the first country program to be initiated entirely under the mechanism of the AWP. In June 1987, World Vision Malawi drafted a project identification document for a rural water project. As a result of discussions during the WASH-assisted AWP Workshop held in Nairobi in October 1987, World Vision decided to field a joint team comprised of Field Office, RTT, and WASH personnel to develop a program design for Malawi.

5.2 Introduction to the Malawi Water Program**5.2.1 Program Goal and Objectives**

The goal of the World Vision Malawi Water Program is:

- to enable selected Malawian communities to enhance their quality of life by improving access to, and use of, potable water and sanitation facilities.

The objectives of the program are as follows:

- to improve the technical skills of WVM staff relating to water and sanitation development;
- to improve management skills in WVM relating to water and sanitation development;

- to rehabilitate 15 existing boreholes in WVM assisted CDPs;
- to develop ground water resources in an "integrated" mode in 15 sites;
- to develop piped water systems in 5 sites;
- to establish community-level maintenance for all systems installed in project sites;
- to promote the construction and use of latrines;
- to promote sanitation and hygiene practices in project sites; and
- to promote oral rehydration therapy (ORT) and growth monitoring in all homes housing young children in project sites.

5.2.2 History of the Malawi Water Program

By the end of 1987, World Vision/Malawi was operating 94 small-scale (approximately US \$15,000 per year, 1,500-2,500 people) community development projects (CDPs) in dispersed locations throughout the three regions of the country. Between 1982 and 1987, WV had helped communities to sink 53 boreholes (by contract) in connection with an integrated package of assistance in 38 CDPs. Almost all CDPs have water supply goals, however, and prior to the AWP many requests by communities for improved water systems were unable to be addressed by WV, primarily because of limitations of technical staff and institutional capacity. Moreover, under normal procedures communities may have to wait 4-5 years for improved systems through the Government of Malawi (GOM) program administered by the Ministry of Works and Supplies (MOWS). In order to respond both to the

great needs in Malawi and to United Nations water policy calling for an increased role for non-governmental organizations (NGOs), World Vision initiated the design of the Malawi Water Program in January 1988 under the AWP.

5.2.3 Description and Scope of the Malawi Water Program

The MWP Design Document proposed a five-year project for US \$ 1.34 million (subsequently revised by MWP management to US \$2,2 million), of which \$320,000 would come from USAID. The project would utilize two technologies: gravity piped water and boreholes. In addition, a health education and sanitation promotion (HESP) component would be initiated, as well as the rehabilitation of 15 existing boreholes. The community development approaches of the MOWS and the Ministry of Health (MOH) would be followed, utilizing the World Vision/Malawi committees that have been established in communities.

The program would benefit a total of 63,500 people living in 35 rural communities. The beneficiary population can be divided into three groups corresponding to the three types of water intervention:

- The first population consists of 6,000 people who would benefit from the repair of 15 boreholes.
- The second population consists of 37,500 people who would benefit from the 15 "integrated" groundwater sites where on average 10 boreholes will be sunk in each site.

- The third population consists of 20,000 people who would gain access to piped water supplies at 5 sites.

The various sanitation, hygiene and health services will be offered to all three populations, but the adoption will vary widely. It is, however, anticipated that adoption will occur according to the following pattern:

- The availability of latrine platforms would benefit 15,000 people.
- The promotion of sanitation and hygiene practices would benefit 30,000 people.
- The promotion of ORT and growth monitoring would benefit 8,000 children.

These three groups form sub-sets within the total beneficiary population of 63,500 people. The distribution of beneficiaries is given in Table 3.

Table 3. MWP BENEFICIARY POPULATION

Program Component	No. of sites	No. of facilities	Avg. no. of persons per facility	No. of beneficiaries
Existing boreholes	15	15	400	6,000
New integrated boreholes	15	150	250	37,500
New piped water systems	5	5	4000	20,000
All water systems	35	170	--	63,500

5.2.4 Criteria for Community Selection

As project sites were not pre-selected in the Design Document, and the selection process must follow GOM procedures, criteria were established for programming in both the surface water component and the groundwater component.

Surface Water. The proposed WVM water program will complement the MOWS' highly successful piped water projects which have been given first priority for water development by the Government of Malawi. WVM will consider piped water projects only in areas NOT included in the MOWS program being funded by USAID. The following criteria will be used by WVM to determine which project areas to work in. It is assumed that not all criteria will be met by the selected community but at least 75% of them should be fulfilled.

- the need for accessible clean water is evident;
- the District Commissioner and the DDC have given their agreement to the proposed scheme;
- the community has shown a high level of participation in previous development activities;
- the community shows a reasonable degree of unity and agreement;
- the committee represents all interested groups in the community;
- the Ministry of Health (MOH) is active in the community;
- the community can provide housing for the water operator;
- the community agrees to all MOWS conditions for participation;

- there is a school, health clinic or community center needing water;
- water is to be used primarily for drinking and domestic purposes;
- the cost is within WVM financing capability;
- the MOWS agrees to take over the operation and maintenance function after WVM phases out; and
- the water source has sufficient flow (36 liters per person per day in the dry season) and the watershed is protected so that no treatment is required.

Groundwater. Priority for the selection of communities to receive a new WVM sponsored borehole will be given to areas where an integrated groundwater program could be developed. The following criteria will be used by WVM to determine which project areas will be chosen:

- there is no viable possibility of a piped water project in the area;
- MOWS has approved the site and the survey;
- the community is prepared to provide labor, sand and stones for apron construction, washing slab and soakaway;
- the community is prepared to identify a person to be trained as the handpump caretaker;
- the site will be conducive to an integrated program of drilling;
- the community accepts the Government of Malawi policy of 250 people per borehole;
- there are no MOWS or other NGO plans to install boreholes or wells in the area; and
- sufficient quantities of groundwater are available; a minimum of 27 liters per person per day is required.

5.2.5 Government Liaison

It is imperative to liaise closely with government and non-government organizations, particularly those that are involved in water supply activities. It also helps in coordination of development.

The GOM has laid down a structure for carrying out development work, particularly that which involves the active participation of communities. At the lowest end of this structure is the Village Development Committee. Above this is the Area Action Group which covers a number of VDCs. Above the AAG is the District Development Committee (DDC) at district level. The DDC reports to the Regional Development Committee which in turn reports to the National Economic Council. It is important that all World Vision assisted water supply activities are registered and approved by the DDCs.

It is recommended that sites be identified from requests by partner agencies and DDCs, and through inspection by WVM staff. Priority consideration will be given to areas where WVM is already active. When any site is identified, approval by the DDC and partner agency must also gain concurrence from the Water Department and MOH. In each project site a WVM staff person must be given the responsibility of reporting to the DDC and to the government technical staff at the local level on project progress.

It is also recommended that a higher level WVM have consultative meetings with MOWS, MOH, Save the Children Federation, CSC, UNICEF, and USAID.

In order to make the relationship with the GOM operational, the Design Document recommended that a specific set of operating principles be established for both the surface water component and the groundwater component of the MWP.

5.3 Implementation Plan of the Malawi Water Program

The MWP Design Document developed a five-year budget (Appendix N) that reflected the following phasing of activities under the program components:

- five gravity piped water schemes at the equal rate of one per year;
- 150 borehole-handpump systems at the equal rate of 30 per year, total of 10 sites;
- 15 rehabilitated boreholes fitted with handpumps evenly divided between the first two years; and
- an equal rate of HESP activities over the five years.

The high ambition of the original implementation plan has required action plans to be revised downward on an annual basis. In effect these plans reflect approximately a one-year delay in "hardware" activities. Appendices O and P detail some of the consolidations, most notably the decision to forego drilling during FY 1991.

5.4 Technical Progress of the Malawi Water Program

5.4.1 General Progress

Although work was initiated on all program components during FY 1988 (the first year of the MWP) progress has been delayed by a number of factors not anticipated by the project design team. These include:

- cutbacks in WVI appropriations in spite of initial budgetary approval;
- discontinuity in program management;
- difficulties with hiring of technical staff;
- procurement delays; and
- waning of community interest.

Only one of these factors is technical in nature-- procurement. Yet procurement problems (Afridev pumps as a primary case) can be expected to remain a problem for the foreseeable future in Malawi, a landlocked country with restricted commerce and little competition in locally produced industrial goods. The other major project constraints primarily relate to management.

Nevertheless, significant accomplishments are being achieved, especially when consideration is given to the nascent nature of a large-scale water program in World Vision Malawi, which had no technical staff or institutional experience prior to the AWP. Further, recognition should be made of the urgent refugee problems that are consuming much

attention of not only World Vision but also the entire development community in Malawi.

5.4.2 Outputs

Under the backdrop of constraints, the following major outputs have been achieved:

Surface Water Systems.

- one gravity piped system (Chipoka [see Figures 7 and 8]) nearing completion; service population 8,000: trench digging 82% complete (47 km); pipelaying 81% complete; tap installation 58% complete (45 taps); construction of washing slabs 36% complete.
- feasibility studies completed on three sites (Bale, Choma, Mzokoto)
 - Bale (Figure 7, Appendix S) judged feasible;
 - Choma not feasible due to insufficient flow;
 - Mzokoto not feasible due to low quality source.
- design and materials procurement complete for Bale; service population 4,800.

Groundwater Systems.

- 49 productive boreholes drilled (77% success rate) and fitted with Afridev handpumps in 4 villages (Figure 7), total population 21,718 (443 capita per borehole):
 - Muonekera - 15 boreholes, 6933 population;
 - Mpanda/Namitsitsi - 16 boreholes, 4916 pop.;
 - Nzimhiri - 15 boreholes, 6831 population;
 - Chikonde - 3 boreholes, 3030 population.
- 3 boreholes rehabilitated in Central Region, but fitted with disapproved National Pump.

HESP Activities:

- 136 improved ("Sanplat") latrines distributed, estimate 600 population in project villages;

- 3 health education sessions per week through village health volunteers and growth monitors;
- 500 children registered for growth monitoring in project villages;
- greater than 20% adoption rate of ORT.

Total MWP expenditures between FY 1988 and the preliminary FY 1991 appropriation amount to US \$ 0.937 million, in comparison to the budget request corresponding with the Design Document of US \$ 1.473 million. The former figure represents an underfunding of 36%. When the evaluation team was in Monrovia, WVRD restored \$ 100,000 of the FY 1991 cut to decrease the current life-of-project reduction to 30%. Annual details can be found in Appendix P. Estimates of per capita installation costs for both surface water and groundwater systems provided by the MWP are shown in Appendix CC.

5.4.3 Surface Water Systems

The MWP performs feasibility studies, detailed project design, and supervision of installation under contract with local consulting engineers. The Consultancy Agreement is reproduced in Appendix Q. The Principal Engineer has long experience in gravity systems in Malawi and the quality of the work provided is high. Project planning and staging is conducted in a rational and systematic manner, with appropriate concern for economic, social, and environmental factors. Scrupulous adherence to GOM feasibility and design criteria is maintained. As a result of the evaluation

team's visit to the Chipoka Project (see Appendix R for a technical brief), however, some design considerations may be noted:

- MOWS design criteria requiring provision for daily consumption of 36 l/day is approximately double the actual consumption rates in rural Malawi; strict adherence to this figure could rule out otherwise adequate sources; applying for a variance to this specification should be considered;
- the MWP might consider source evaluation based not only on low-flow measurements, but on flood conditions as well; a washout of the source works at Chipoka might have been avoided if more conservative construction specifications had been utilized;
- for projects planned in stages (such as Chipoka), detailed design considerations should be applied at the earliest stage; the siting of a second-phase storage tank at a lower elevation than a section of its service area may have thus been avoided;
- gate valves at tap tees should be boxed and thrust blocking should be considered at pipe angles and tees.

At the stage of construction, the adherence to standard designs and quality of major works such as sedimentation and storage tanks are good. These facilities are installed by local contractors under supervision by MWP staff and the Consultant. Bills of Quantities are presented in Appendix T, while standard prices are listed in Appendix V. In general, tolerances were found to be within 10 cm of specifications.

Much greater quality control problems (especially curing of mortar) are experienced with the construction of tap aprons and washing slabs by local masons (see Appendix U). These

problems result primarily from a lack of regular supervision by qualified staff. Seriously inadequate supervision of community labor in trenching and pipe-laying procedures is also evident. The team witnessed little attention given to maintaining straight lines, sufficient and uniform depths, proper joining technique, careful backfill and tamping, and leaving joints exposed for testing. In fact, no testing of the lines is conducted. Reports by repair teams of pipe breakages may be traced to such unsupervised practice; indeed the team observed numerous instances of sink holes over recently laid lines, traceable to improper backfilling. Major deficiencies in supervision are the main technical problem with MWP projects. The team was informed that MWP technical staff spend 50% of their time in the office--not by choice but by necessity because of lack of transport. No more than 20% of staff time should be spent at desk work while projects are ongoing. A remedy for this situation should be found as soon as possible.

PVC pipe supplied by the sole domestic manufacturer is of high quality and timeliness. Sample prices are shown in Appendix V. Pipe is stored properly on site prior to use.

One procurement problem results from decisions about priorities under budgetary cutbacks. From cement mixers to geophysical monitoring devices, a range of equipment delineated and budgeted in the Design Document has not been purchased. The MWP has been borrowing what it can from the MOWS, but the available items are either of poor quality or

soon to be recalled, as the Ministry gears up for a major USAID-financed project. In the opinion of the evaluation team, this development will severely tax the ability of MOWS to assume responsibility for major system repair after one year of operation as specified in the Design Document and previously agreed with MOWS. The implications for WV are requirements for increased materials and staff development costs.

5.4.4 Groundwater Systems

Planning, design, and siting of boreholes by the MWP is conducted as a cooperative activity between the Project, MOWS staff who assist with geophysical surveys, and the communities, which select desirable locations. The MWP has attempted to maintain the MOWS standard of 250 capita per borehole, but it is estimated that because of the great needs and the distances people are known to travel to access an improved supply, the current project average exceeds 400. The variability of population estimates requires that the HESP baseline activities be maintained at a higher level than currently in order to establish reliable planning figures. The cooperation between the MWP and MOWS is excellent, and the investigative procedures are efficient.

Most drilling is effected under contract with an expatriate firm (see Appendix X for quotations and contracts). The cost of drilling has been rising steeply--50% within the

last two years. (Current petroleum price inflation has not been figured into that level.) Still, the MWP manages to effect some discount because of the "integrated" (i.e., package) approach to contracting (e.g., 30 boreholes per contract in one general region). This procedure marks a significant departure from past practice under the CDPs and should be continued. Drilling is done with a down-the-hole-hammer and is primarily limited to dry season operations due to road conditions and terrain. Since the Contractor is paid by the unit, drilling crews place a premium on speed. This modus operandi sometimes creates difficulties; monitoring of the quality of installations is difficult because of MWP logistical constraints. The Project is essentially at the mercy of the Contractor to do a good job. While the arrangement has been relatively acceptable (77% success rate for the 49 productive boreholes to date [see Appendix Z for a listing of WV boreholes]), the MWP should strive to provide more oversight. One situation was recounted in which the driller stopped at the estimated 30 meters depth without striking water. MWP staff encouraged him to return and try a little deeper, whereupon water was struck at about 40 meters.

A sample handing-over certificate is reproduced in Appendix Y. Improvements could be made in this reporting system and in the functions performed as recommended in section (10.4.9). For example, even though a yield on the order of one cu.m. per hour suffices for a handpump, the airlift method of estimating yield is inadequate for determining

well characteristics. Further, high fluoride and iron contents are suspected in some groundwater where the project is operating. Results of water quality analyses should be produced before the well is completed.

The Afridev handpump, a sturdy reliable VLOM pump, has been placed by the MOWS on its "preferred" list (along with the Climax and Mark II for deep well applications; the Mark IV, another VLOM pump; and a direct action Afridev). The MWP has contracted with a foundry in Nairobi to supply 120 Afridevs. Although of higher quality and lower cost than a local manufacturer, procurement required almost a year, setting the IBD component back. (When the pumps were finally received, a great number of rubber centralizers for the rod assembly were not included. A further delay was experienced, yet there was little the project could do.) A proforma invoice for the order is reproduced in Appendix AA.

The evaluation team visited two of the four IBD sites, Mpanda/Namitsitsi and Muonekera. Pumps recently installed by the drilling contractor were inspected at both locations. Eight of sixteen were visited at Mpanda/Namitsitsi and two of sixteen at Muonekera. Borehole depths were estimated at about 30 m on average in the former location and about 35 m at the latter. Yields averaged 0.30 liter per sec and 0.25 liter per sec, respectively. The pumps delivered averages of 0.34 liter per stroke at 52 strokes per minute and 0.33 liter per stroke at 46 strokes per minute at the two sites.

The pumps had been installed in a sound, uniform manner and were robust in performance. Similar quality control problems exist with the apron and washing slab construction by local builders as has been experienced with the piped water scheme, however.

The borehole rehabilitation component has progressed slowly due to pump procurement delays beyond the control of the MWP. It has since been determined that some sites may require redrilling in addition to being fitted with the Afridevs. Unit costs should be considered when programming such activities for isolated locations.

Given all the constraints that have impacted the MWP since its inception, however, the staff should be proud of their accomplishments. The evaluation team considers it fortuitous that no drilling will be conducted during FY 1991. This time should be maximally utilized to intensify the HESP component activities, which have not proceeded as expeditiously as they should have, relative to the IBD and piped water schemes.

5.4.5 HESP Activities

HESP activities have been operating at a higher budgetary level than originally programmed, which was only 6% of the total MWP budget. These amounts were clearly insufficient to conduct such essential work. Nevertheless, the Health

Manager estimates that HESP could easily absorb a doubling of its current allocation of 22,000 M.K. The evaluation team agrees with this assessment. At this point, HESP activities are barely able to keep up with the pace of "hardware" installation. Rather, HESP should be funded at a level of effort that enables the program to precede hardware interventions by 3-6 months. Not nearly enough promotional work has been accomplished in MWP communities, in spite of the vigor and commitment of the staff. These MWP management lapses show in the subdued community participation efforts in some communities. (In one community, for example, the village water committee was not even chosen until after boreholes and pumps had been installed.)

The HESP team has shown that it can make great impact in family health education and motivation, but it needs greater support and confidence from program management. Such support can be evidenced by increased appropriation and more reliable transport. See Appendix BB for an example of the breadth of HESP impact.

HESP promotes a self-help latrine slab construction program, providing a one-meter square foot-pedestal slab (the "Sanplat") at a cost of approximately US \$ 3-4. Response has been encouraging to date. Though much conviction is placed on this technology alone, the evaluation team believes that the addition of vent pipes to the package would provide a superior product at a low per capita cost. In particular, the MWP should sponsor research into

developing a cost-effective vent pipe design using local materials. Effort so placed should be rewarding.

5.4.6 Technical Monitoring and Documentation

The MWP could consolidate the gains it has made in enhancing access by the rural poor to improved water supplies by a major focus during FY 1991 on developing a technical monitoring system based on the concepts discussed in section (4.4.6). The MWP Design Document enumerates numerous items that should be monitored and reported about the use and quality of service at gravity water and borehole access points. Monitoring staff programmed in the Design Document should be hired and trained.

The MWP staff was very accommodating in providing the documentation required by the evaluation team. Much useful information has been produced through their efforts. A system needs to be developed, however, so that the such information could be presented in a clear format as a routine, rather than an extraordinary activity.

5.4.7 Technical Training

The major technical training under the MWP involves the transfer of skills to local water-system-repair teams. This

training, as with the HESP training, is performed in conjunction with the MOWS' own program.

During the evaluation team's visit to one village, Namitsitsi, the local repair team was asked to perform the complete (VLOM) procedure on an Afridev handpump fitted on a 30 meter borehole. The team consisted of two women. (Many of the repair team members in the projects are women.) A repair kit was given to them, and they proceeded without hesitation throughout the whole process, to pull 30 meters of rod, remove the plunger and foot valve. They could show and explain that there was no wear nor need for repairs to the rod hanger and handle bushings, valve bobbins, and the U-ring plunger seal. They then were able to reassemble the system, completing the entire process in less than one hour. Many villagers had gathered around during this demonstration and, needless to say, were quite impressed by what these women were capable of doing with just three days training. It is safe to say that this training had transferred the necessary skills; given the brevity of training and discounting slightly for the fact that it was so recent to have been fresh in the mind, refresher courses should be scheduled, however.

The transfer of skills for the piped water system were not as clearly demonstrated. Problems in the system can be identified and taps repaired, lines can be replaced and cleaned; but more complicated repairs to the system or its structures are referred to either the MWP, the contractor,

or the MOW. One simple repair was not performed because it was not seen as a problem--dripping faucets. Some remedial training is advisable here.

A major oversight in both cases is the failure of MWP staff to ensure that repair equipment (expendables and tools) be transferred to repair teams upon completion of their first training. Further, the teams should be entrusted with responsibility for storing expendable items instead of having to retrieve them from central stores.

Community members talked about what they had learned under the HESP activities: water boiling, rehydration techniques, improved sanitation. But the evaluators were unable to spend sufficient time looking at this facet, in part because the HESP Supervisor was unavailable during the team's visit.

5.5 Institutional Development Progress of the MWP

5.5.1 Background

The MWP operates under the Technical Services Division (TSD) in the field office. Dr. Larry Quist, the Water Development Specialist, was seconded from the RTT to give technical advice and guidance to the development of the program. The engineering design and construction work was contracted out to private firms.

During the first year of the program, the MPP determined sites, collected baseline data, and executed contracts with a design engineering company, a borehole drilling company, and suppliers for the PVC pipes and for 120 Afridev pumps. Project staff was recruited; MWP hired a HESP Supervisor along with the project accountant and office help, but had difficulty in finding a Water Supply Manager and a Water Coordinator, formerly the Groundwater Supervisor position in the 1988 MWP Design Document. Purchase orders for materials and equipment were made; two project vehicles were received as were the materials for the piped water system in Chipoka. It took over a year to obtain the Afridev pumps.

In the first year, the program got off the ground with the design of the Chipoka surface water system, the construction of about 15% of its first phase, the drilling of 18 boreholes, and the rehabilitation of 3 existing boreholes. A Water Project Supervisor (level 1) was seconded from the MOWS and stationed in Chipoka. (A house was built there for that purpose.) Numerous meetings were held with the Government of Malawi (GOM) district officers, MOWS officials, and community members. Dr. Quist's efforts were indispensable to the development of the program during this period, not only in terms of his technical inputs, but also in terms of his oversight to the management of the contracts executed. He needs to be commended for three particular oversight behaviors: he checked to see that things were done as reported; he followed up on actions to be taken; and he maintained excellent contacts with the various parties

involved with the projects. However, the program did suffer because the Water Supply Manager and Water Coordinator were not hired.

In the spring/summer of 1989, World Vision/Malawi went through some major changes: a new Field Office Director was appointed, the Head of the TSD moved over to be the Head of the Operations Division (OD). By July, a new manager for the TSD was hired and subsequently the Water Supply Manager (a geologist), and the Water Coordinator (an engineer fresh from school). With the full complement of the designed staff on board, the program showed reasonable progress in its second year. Chipoka is 80% completed; 49 wet boreholes have been dug in four villages; and the design work for the gravity piped water project in Bale has been completed.

5.5.2 Structure and Documentation

The program is headquartered in Blantyre; the structure is fairly straightforward organizationally. The Water Coordinator and the HESP Supervisor report to the Water Supply Manager, who in turn reports to the TSD Head, who is also designated (at 33% time) as the MWP Manager. The HESP Supervisor and the Health Manager, who is under the Head of the TSD, work closely together. (See Appendix DD for a graphical presentation of the relationships.)

The documentation system consists of monthly, quarterly, and annual progress reports; an annual plan of action is developed in September of each year. Monthly and quarterly reports are based on the annual plan of action; a review of activities is made each month/quarter and a new plan is developed based on those activities for the following month/quarter. The monthly report aggregates inputs from all components--Integrated Borehole Development, Borehole Rehabilitation, Piped Water Gravity, HESP, and Program Management. The reporting format is organized into four sections:

- activities carried out in the month;
- major activities not accomplished;
- major accomplishments; and
- plan of action for the next month.

Each quarterly report, which summarizes a quarter's worth of monthly reports, consists of two major sections:

- a narrative section contains milestones accomplished, milestones not met and the reasons why, and a plan of action for the following quarter;
- a financial section contains a summary of overall financial performance, with explanation for those accounting categories with greater than 10% variance from the budget, as well as an R&D Activity Report that includes the trail balance, the balance sheet, an analysis of aging advances, and the different accounts under the project. (The project follows a grant accounting system specified by USAID; the accountant and original program manager underwent a training workshop in this system. In this system, expenditures are aggregated without separation by program component.)

The documentation system appears, on the surface, to be acceptable. In reality, however, it has two basic flaws:

- the aggregation allows for neither particular activities nor expenditures to be extracted; and
- the reports do not detail the activities involved in each section but are stated in simple, gross terms (e.g., HESP activities took place, without showing where, when, which ones, or how many participants).

The documentation appears to be designed for gross reporting requirements and not for use to assess the program's progress. More detailed information must be included, and the format should be organized into projects and components within projects. The MWP staff would benefit from basic training in project management. For example, the use of a PERT (Project Evaluation and Review Technique) would assist the managers in assessing the program's work and point out where follow-up or special attention is necessary. Lacking available financial data for each project and its components, project activities are not readily tied to their costs and, hence, the value of the activity to the project is hard to determine. Managerial decisions on how to allocate funds are based on easily observed activities, which has generally skewed decisions toward those things that produce better program numbers (more boreholes, extension of the water system). Data organized in a manner that could provide a better assessment of how well the MWP components integrated was not available. Thus the program was unable to provide the data requested by the evaluators. The inability of the program to produce a ready, concise

overview of the program's progress is an indication of the failure of the documentation process--no matter what reporting requirements are fulfilled.

5.5.3 Management

The MWP management is characterized by a "need to catch up" attitude in which quantitative project achievements have priority in decision making, and qualitative aspects and institution-building components, along with the monitoring and evaluation functions, are relegated a secondary status. This may be understandable in light of certain factors: the high ambitions of the design proposal, the diminished budget provided, the lateness in hiring a full staff, the inexperience of the management team, and the lack of proper review by top management. The time it took to hire key staff is of particular concern. World Vision/Malawi (and maybe World Vision in general) should review the criteria it has for hiring personnel to this type of technical project, and make adjustments in favor of technical competence. It was reported that technically competent candidates were identified much earlier in the program, but were rejected--in one case, because the candidate occasionally drank beer. The staff that eventually was hired is young and inexperienced both technically and managerially. They are intelligent, dedicated, and energetic, but need more experience and training to help them reach their full potential.

Logistics has been a major problem for the management of this project. There are regular conflicts over the use of the vehicles and how much time they can spend in the field. As it is, insufficient time is being spent by staff in the communities where the projects are taking place. Too often we heard that too many visits to the community will take away the community's sense that it is their project. (The Malawi staff should visit the MPP in Kenya if they really believe this.) Two to three visits a quarter for less than a day each is not acceptable community development nor sufficient for the supervision of construction projects. Ways must be found to ensure that ample time is spent in these communities. It may behoove the MWP to look at adding to their staff a few community motivators, who live in the areas where there is a concentration of World Vision projects, and who can also help assure that construction is taking place as scheduled. This is especially true in the beginning phases of construction in the large water projects. Maybe this is an enhanced and earlier role for the proposed Monitoring Assistants.

The management of the program has not put sufficient attention and resources into the HESP component of the projects. These activities are critical to achieving the full range of benefits that can accrue to a water-development project. The HESP staff is qualified and motivated; they need to be better supported. Their importance should not be underestimated.

Finally, the coordination between the MWP and the Operations Division (OD) is poor. Visits are not properly coordinated, putting added pressure on the use of vehicles. More importantly, there appears to be a reluctance by the operations staff to get involved with any "technical" aspect of the project--even to report if a public water point has been completed. This situation must be remedied.

5.5.4 Staff Development

Given the inexperience of the MWP staff, insufficient attention has been paid to the issue of staff development. This is understandable from the point of view of the lateness with which the program assembled a full staff and the "pressure" felt to produce accomplishments. But from the view of building an institutional capacity, it seems short-sighted and deleterious in the long run. The staff is in need of development; this is particularly true in the areas of project management and specific technical skills. Currently the Water Supply Manager (a geologist) is undertaking technical training in an exercise in Ghana and Senegal. The Water Coordinator (an engineer) will grow in his job as he gains more experience with the systems under the guidance of the engineering consultant, Wellington Mandowa (Willy and Partners). It needs to be noted that the consultant is an excellent resource for the program, in terms of his engineering expertise, his construction experience, and his community skills. Continuation of his involvement with the program is highly recommended.

The current MWP staff has the potential to do excellent work for the organization and, subsequently, strengthen the role that World Vision/Malawi can play in the GOM's water plans. Staff individuals must be supported, however, with development plans that ensure staff acquire the skills needed to proficiently execute duties.

5.5.5 Networking

The MWP has not been particularly active in establishing networks with other NGOs or local donor organizations. The conditions the staff is working under--underbudgeted, understaffed, logistical problems, and "trying to catch up"--make this understandable. Also, community participation in the Malawian context is hardly true community development. It is an authoritarian society; to get participation, a common procedure is to recruit the local authority structure to request the participation. As the essence of community development becomes a stronger pull in these projects, there may be a greater need to interact with the other NGOs to share insights and problems in this area.

The MWP has established and maintained good relations with the MOW and the GOM, especially at the district level. Time was spent early in the project to ensure that the MWP's plans and designs fit the GOM's needs and standards. The MWP was well-received in each of the district offices we visited.

Little contact, however, has been made between the USAID mission and Malawi. Conversations have been by phone; USAID staff have not visited any of the projects, and the MWP has not had substantive discussions about the program with USAID officials. The MWP could have benefited from some insights that USAID personnel may have offered--particularly around how the project was developing its institutional capacity and documenting its progress. Better contact should be established.

5.5.6 Budget

The AWP's original proposal specified \$1,152.5K over the life of the project to the MWP; the actual budget for the three years has been \$1,133K, broken down as follows:

	WVRD	AID	TOTAL
Project inputs	448	320	768
Institution Building	87	56	143
TA/Contingency	0	24	24
Program management	<u>114</u>	<u>84</u>	<u>198</u>
Total	649	484	1133

However, of this \$1133K, only \$822K were allocated to the project, with \$311K used for project services and field office management services. It is not clear exactly what these services were and why they were such a high percentage (27%) of the budget. Nor is it clear if this \$311K includes the \$90K AID funds for strengthening the "Technical Services." In any case, the MWP was underbudgeted from the expected amounts in each year of its existence. This has had major ramifications. Program decisions have tended to emphasize quantitative aspects of the project over

qualitative ones; funding for the HESP activities, though increased from the 6% specified in the MWP Proposal, has been inadequate. Necessary equipment has not been purchased; the Chipoka project has been developed with borrowed equipment from the MOWS (which will not continue for much longer because of the MOWS' expanding work program). The equipment needs will become even more acute as the MWP spreads its activities geographically with the start of construction in the Bale project. Such simple articles as the repair kits for the local repair teams have not been purchased in total. (What's worse is those that have been purchased have not been immediately distributed.)

The MWP design paper had a basic design flaw in it; it underestimated the amount of staff needed to perform the specified activities and, hence, did not provide the necessary budget for an adequate level of staff. The budgetary shortfalls and the increased cost for the systems installed has meant that the program has attempted more than what could reasonably be accomplished with given funds. Decisions were made to spread the resources over a number of projects rather than concentrate on a few and bring these few to a successful conclusion. With the even further reduced FY 1991 budget, the MWP has been forced to curtail all drilling in order to concentrate its efforts geographically. This may well turn out to be a benefit in disguise, as it might allow the promotional, educational, and sanitation activities to proceed more intensively by comparison.

5.5.8 Sustainability

Three main factors have direct bearing on the sustainability of these projects:

- the MOW's ability to subsume projects a year after completion, something the MWP can do little about;
- the quality of the physical systems installed; and
- the development of the local institutional capacity.

The system in place is basically sound: local water project committees are established in the communities and they know their role and responsibilities, local repair teams for each tap or borehole have been formed and trained to handle the identification of problems and how to perform simple repairs; but the repair kits and maintenance logs have yet to be distributed, even though they are critical to the monitoring and maintenance of systems. This is the major, though easily rectifiable, flaw in the program's sustainability.

The spot-check of a repair team's skill showed that the team is capable of repairing the pump. It behooves the MWP, however, to do recurrent testing of teams' competence.

It is fair to say that the MWP has institutionalized a capacity at the local level for each project. This portends an acceptable level of sustainability to the program.

5.5.8 Summary of MWP Institutional Development Findings

The MWP was found to have developed a budding institutional capacity for carrying out large-scale water development projects. Given all the constraints and impediments the program has had to deal with, it is remarkable that it has been able to accomplish as much as it has--piped-water and borehole systems have been installed in five areas. These achievements must be commended. However, remedial actions for some of these problems are needed and proper guidance and support should be given to help this staff to develop its full capacity for such endeavors.

The findings are summarized as follows:

Overall - The program proposal was too ambitious for the level of staff and budget. The consistent underfunding of the project has had deleterious effects on the program. The budget has to be increased to an appropriate level for meeting program needs, or the expected outcomes of the program need to be revised downward to reflect the existing funding levels.

Management - Program decisions have been made to satisfy quantitative results rather than including qualitative and institution-building ones. HESP activities are undervalued and consistently under-supported.

Insufficient time is spent in the field by staff in supervising technical works and promoting community development.

Logistical problems are a major impediment to development of the program; availability of vehicles is a major concern.

Coordination between TSD and OD is poor; this needs strengthening and guidance.

Local repair teams must be given the repair kits and maintenance logs at the end of training.

Documentation- Monitoring and evaluation systems need to be addressed. The current documentation system is designed for gross reporting requirements; an additional system must be developed, breaking down activities and finances by project and within project.

Staff The MWP staff is young and inexperienced; it
Development - needs training in project management and development of additional technical skills. Staffing levels may need to increase to adequately manage the geographical dispersion of projects, the proper supervision and monitoring of physical installations, and the promotion of complementary benefits to those water projects.

5.6 World Vision/Malawi Field Office

5.6.1 Structure and Operations

World Vision/Malawi is organized into traditional project operations: special projects, technical services, and administration (human relations, finance, and accounting); the Field Office Director oversees the whole organization. There are 31 projects in the WVM portfolio. The staff is housed in two offices about 5 kms apart.

The evaluators met twice with the Field Office Director during the visit, once informally on the first day, and once in mid-visit for a preliminary debriefing. The Director was out of the country for the debriefing at the end of the evaluation. Numerous meetings with the Heads of the TSD and the Operations Division failed to uncover how smoothly the organization is operating, except in reference to the MWP, since so much of the evaluators' limited time was spent in the field and deciphering the MWP's documentation. However, one event about the operation of the office can be mentioned. On the team's arrival in Blantyre, at the end of the first week in-country, the office was in the middle of moving to another building. Office staff had three days to move out before the end of the month. During those three days everyone on the staff carried boxes and furniture across a four-lane divided highway to the new office. This appears to have been a fairly precipitous decision, since the staff that was accompanying us in the field had no

notion that such a move was to take place. As it was, it seems the decision to move was made the day before. This event only added to the problems in locating and deciphering boxed and moved documents. Taken with the institutional awareness of the evaluation schedule, this decision appeared to reflect management problems that the team witnessed in implementation of the MWP.

World Vision/Malawi appears to have some obvious weaknesses in the supervision of the MWP. The most fundamental is the lack of guidance and direction given to the MWP staff in managing the program to best meet its overall goals. As the budget constraints dictated programmatic adjustments, there appears to have been insufficient attention and feedback to these adjustments to ensure that program quality program and institutional development were also being maintained. It appears that detailed reviews of these revisions were never made--at least no substantive documentation was found to this effect. It seems that the decisions of the managers were left to stand as long as quantifiable progress was forthcoming. Insufficient attention has been paid to the equipment needs of the program, which has been getting by in its construction aspect, for the most part, on borrowed equipment. At some point, top management needed to see the coming crisis and act to stave it off: decide to purchase what's necessary or drill fewer boreholes, for example. Instead, the response has been to "ask for it in next year's budget."

The lack of recognition of the MWP's managerial inexperience is also reflected in the minimal training and development this staff received. They appear to have been hired, given their job description and a copy of the program's plans, and told to carry on. The current training exercise the Water Supply Manager is receiving in geohydrology is on the advice and urging of Dr. Quist.

Little has been done by top management to help resolve the problems in coordination between the TSD and the Operations Division. If the lower levels of management are unable to resolve their difficulties, then actions must be taken from above to correct the situation.

Logistics are a problem that everyone complained about; yet five to six vehicles in various states of disrepair sit behind the office in Blantyre. One has sat for over a year with a broken windshield. Why? This vehicle has to be repaired and used. Two vehicles were old at the start of the program, and their use discontinued. Whatever repairs they might need would be worth the money spent in light of the fact that new vehicles are not coming in the near future and the need for more vehicles is great. Even if these vehicles, once repaired, end up not being trustworthy for extended field trips, they could be used by staff in Blantyre and the newer vehicles, now operated by staff, could be used for field trips. This is a situation that only top management can address.

Again, we cannot speak to how effectively other programs in World Vision/Malawi are being run, but it certainly appears that the MWP has not been given sufficient attention from above to help it deal with its impediments.

There is a capacity developing in World Vision/Malawi to manage long-term water projects. But World Vision/Malawi must strengthen this capacity with guidance and support. It can prove to be a worthy player in the GOM's long-term plans for developing water resources in the country.

5.6.2 Summary of Field Office Findings

World Vision/Malawi has paid insufficient attention to the MWP. They have a young, inexperienced staff that needs guidance and direction to ensure that quality projects are accomplished and strong institutional capacity is achieved. With this in mind, substantive reviews of the program's plans were not performed. There is an inadequacy of support to develop this staff, and not enough done to help alleviate the problems of coordination between the Technical Services Division and the Operations Division and the logistical problems.

Chapter 6

REGIONAL TECHNICAL TEAM**6.1 Objectives of the Regional Technical Team (RTT)**

The AWP proposal states that a regionally-based team of technical experts would be employed to provide ongoing assistance to African field offices in areas of project design, human resource development, project management, communications, and other technical specialties. The unit was to be established specifically to support the water-development projects outlined in the proposal. However, it was expected that the team's efforts would lead to positive changes in other field-office and home-office activities beyond those related to water projects.

6.2 Planned Components of the RTT

The following components were to comprise the regional technical unit:

6.2.1 Project Staff

The Project Staff would consist of the following positions:

- Water Project Development/Engineering and Technology Specialist
- Human Resource Development/Training Specialist
- Information and Documentation Specialist

- Environmental Health Specialist
- Program Officer/Donor Mobilization Specialist
- Budgeting, Data Processing, Computer Specialist
- Office Support Staff

6.2.2 Documentation Center

A technical library of specialized documentation on water supply and sanitation technology, hydrology, human resource development and training, institutional development, community participation, environmental health and epidemiology, health education, economics and finance, women-in-development, and technology would be established. WASH's assistance was to be used in jointly determining the composition and size of this library.

6.2.3 Consultant Technical Assistance to Projects

Technical consultant expertise would be required to ensure an optimum quality of project design and implementation. External consultants would be employed as needed in project design activities.

6.3 Development of the RTT

In the summer of 1986, prior to World Vision's AWP grant from USAID, Nathaniel Fields was hired as a consultant to direct the development of World Vision's large-scale projects. With the approval of the AWP, a team of

technicians was assembled; all were expatriates. This was the beginning of the RTT. There were four basic areas of activities in which the RTT worked:

- the development and management of the AWP;
- the development of large-scale projects for World Vision in general;
- country reviews and field assessments in Africa; and
- technical consultancies to African field projects.

Attention was devoted to reorient the ongoing water projects in Ghana and Senegal to fit the AWP guidelines, redefining the Maasai Water Project as the Maasai People's Project, designing the Malawi Water Project, and enlisting World Vision's cooperation and enhancing their understanding of the changes needed in the traditional operations of World Vision to support these development projects. During this period, WASH was used extensively in the planning and redesigning phases for these projects; Dr. Ole Sena from the University of Nairobi was a regular participant in the designing and implementation phases of the MPP. This early work helped establish the concept of a "development" approach to the services World Vision provided and the role that the RTT could play in supporting these efforts.

Because of a severe reduction in the funding levels that World Vision was able to generate in 1987-88, the organization was forced to reduce staff and alter plans. At the start of FY 1988, partly to avoid carrying permanent staff on the books, Associates in Technology & Management

Services (ATMS), a private consulting firm, was retained on a 33-month contract to take over the duties of the RTT, among other things. The contractual organization of roles and responsibilities within WV and between WV and ATMS is reproduced in Appendix HH. The key personnel and staff organization chart are shown in Appendix GG. ATMS basically hired the previous RTT staff to perform the same duties as they had been before. Over the next year and a half, ATMS' activities can be organized into seven areas (see Appendix II for the ATMS scope of work and Appendix JJ for a listing of projects designated for ATMS responsibility):

- developing and managing the AWP, including conferences with WVRD, WVI, WVSOs, USAID, and WASH;
- conducting and participating in workshops and training sessions for World Vision staff that included field project personnel;
- providing technical assistance to field projects;
- performing field assessments of ongoing projects and potential WV projects, and participating in evaluations of ongoing activities;
- promoting development projects within WV/Africa: project design and planning, proposal writing;
- reviewing country management plans; and
- assisting in the recruitment of technical staff.

This work performed by ATMS had important ramifications on the institutionalization of development projects within World Vision. It provided valuable experience of the concept of such projects to the organization; large-scale projects were subsequently initiated in Zambia, Kenya, Tanzania, Nigeria, Uganda, and Zimbabwe. It strengthened

the design and implementation of the water projects in Ghana, Senegal, Kenya, and Malawi. It broadened the range of technical and project implementation skills within these projects and among field office staff in Africa, e.g. water drilling, pilot testing of Mono-pumps, operation and maintenance of pumps, technical performance in small projects, child survival, AIDS awareness, ox plowing, training of trainers, community participation, and project planning. The original expatriate staff had either left ATMS or were hired directly by World Vision for other positions. Most of these positions were filled with qualified Africans.

The work of ATMS had two glaring flaws, however:

- it failed completely to establish a documentation center as called for in the AWP; and
- it failed to establish a strong RTT to serve the needs of development projects in Africa.

Although some early work with WASH was initiated to determine the content of the documentation center, the work was never followed up and nothing resulted. At one point, the center was nascently established in Washington, D.C., this was an abject failure. From that point on, no substantive work was pursued with this matter. The current RTT, as subsequent events show, is a fledgling team suffering under the twin burdens of understaffing and of performing an ambiguous role institutionally in WV/Africa.

During the time of ATMS's involvement, the WVI Vice-President for Africa was an ineffective leader who paid insufficient attention to the new role "development" was playing in WV's operations. Many problems and conflicts arose. Eventually the vice president left WVI and Mr. Fields replaced him. By the spring of 1989, ATMS' direct responsibility for the RTT was terminated, and the beginning of the current RTT was underway. Most of the ATMS staff was hired by World Vision and eventually dispersed to other WV activities in Zimbabwe, Tanzania, Ghana, and Uganda. (See Appendix GG for a disposition of these staff.) A new RTT staff was hired. One constant of the RTT spanning these unsettled times has been the Water Development Specialist, Dr. Larry Quist, who remains in that position in the current RTT. He is the only RTT staff member who has experienced the entire history of the AWP history. Moreover, his performance as a technician and a consultant is laudable. While being seconded to Malawi at the inception of their water program--he has spent the better part of two years working there--he also has continued to perform RTT consultancies to numerous African field offices.

6.4 Current Staffing and Structure of the RTT

The AWP called for six technical positions for the RTT, plus office support. By 1988, the six positions were filled under ATMS, and in 1989 a seventh position--deputy for child survival specialist--was added. With the termination of direct ATMS responsibility for the RTT, the current RTT has

been in existence for a little over a year; five positions have been filled--the director and four technical staff. The current staffing structure proposed by the RTT Director is comprised of 11 technical positions, as follows:

- Director of the RTT (filled)
 - Program Design/Implementation Specialist (open)
 - Urban Advance Specialist (filled)
 - Water Development Specialist (filled)
 - Sponsorship Program Specialist (filled)
 - Sponsorship Relations Specialist (filled)
 - Computer Specialist (open; consultant)
- Training and Evaluations Specialist (open)
- Relief Specialist (open)
- Women in Development Specialist (open)
- Agricultural Specialist (open)

Of the five staffed positions, only one is fundamentally involved with large-scale water projects. The RTT Director and the Sponsorship Program Specialist have occasionally shouldered some duties of program design/implementation and training/evaluation. But full-time attention to these functions is lacking.

The evaluation team believes that the current staffing plan is not entirely appropriate for the long-range development work that World Vision would like to undertake. Most assuredly, **Program Design and Implementation** should be a full-time position, including responsibility for reviewing

country plans of action and overseeing the development of long-term project proposals.

Urban Advance could be a potentially important position as more efforts are made in this area. It is hard to say at the moment where it stands.

The **Water Development** position is filled by Mr. Quist, a hydrologist. And although not enough can be said about the excellent services he has performed, he is not an engineer; and project design considerations will continue to appear that will need the attention of an engineer. In light of the growing number of child-survival projects in WV's portfolio and the continuing need for water in Africa, a **Water/Public Health Engineer** would complement this position well.

Sponsorship is the foundation of World Vision's services. The role RTT can play here is a programmatic and advisory one to the existing sponsorship staffs extant in the field offices, especially in light of the changing financial role that sponsorship will play in development projects.

The **Computer Specialist** may have a more natural role in the WVI/Africa office if it is located in Africa.

The **Training and Evaluation** position is integral to the success and worth of the RTT. Evaluating what is being done in the field and performing staff-development interventions

are as critical as any other activity that RTT can perform. This position must be filled.

The **Relief Specialist** is a questionable position. It is not that World Vision does not have a growing number of relief projects, but that the essence of those projects revolve around issues that have broader implications than just relief--the development of water, food, shelter, and a means to a livelihood, that touch most all of World Vision's development work. Rather than having a specialist in this category, it would behoove World Vision and the RTT to have one of the more basic technical specialists on board to serve both relief projects and other development endeavors.

The **Women in Development** position is a questionable one, not because it is not important, but because the World Vision projects have paid particular attention to the concept and have performed admirably in this regard. There is an awareness in the organization about women-in-development that has been manifesting itself in a positive way. Having a specialist in this position may neither be necessary nor the best use of the organization's limited finances.

The **Agricultural Specialist** is also a debatable position, especially in times of budget constraints. Though there is an undeniable need in a host of projects for agricultural advice and input, it is also true that there are such specialists in each country in which World Vision is working. Each government has an entire department devoted

to developing its country's agriculture. It seems that this is an area where World Vision must emphasize cooperation with host governments to obtain the needed expertise.

What is a growing issue--with much less available expertise in Africa--is the impact the development projects have on the environment. A specialist in **Natural Resources and Environment** may better serve the long-term needs of World Vision and the countries in which WV is working.

6.5 Functions of the RTT and Decentralization

The current RTT no longer acts a focal point for comments and synthesis of country assessments and action plans. These activities appear to have been capably performed under ATMS (the de facto operations headquarters for WV's development projects in Africa when ATMS was under contract). Now the RTT lacks a full complement of technical skills. More importantly, the ambiguity in WVI/Africa as to what role the RTT plays in the organization's activities means that the reviews and assessments by RTT are either not performed or, if they are requested, are given a secondary status. This situation raises a critical issue. The RTT could perform a useful, programmatic service to World Vision--assisting in tailoring country programs to overall WVI/Africa goals, infusing lessons learned from other countries' experiences, and ensuring that proper attention is being given to cross-country issues such as desertification and relief--but in the absence of both a

clear mandate and a full staff, is WVI/Africa missing an important ingredient that could be supplied by the RTT in institutionalizing its development work in Africa?

In addition, since ATMS seemed to have performed the above duties well while based in Africa, does this speak to a need to have the international operations for Africa in Africa? Much can be said to support the idea that locating the WVI/Africa office in Africa would strengthen both the operations in general and the RTT in particular. The impact that RTT has on the African operations is measurably influenced by where the international office is located. While the Partnership has approved the decentralization of WVI/Africa, the fact that the process has not yet been implemented indicates that some questions about the move could remain. If WVI/Africa is indeed decentralized, as the evaluation team recommends, then the RTT could act more effectively as an advisory arm to the ARVP. It could provide technical and programmatic information to WV's long-term development projects in Africa. It could also perform its duties with a smaller basic staff because of the proximity of African headquarters and the complement of skills and services available through WVI/Africa's operations. Moreover, the RTT role could be clarified and strengthened more easily by this proximity. There also should be some cost savings in that common facilities could be used. If WVI/Africa is not decentralized, the RTT will need a larger staff to perform its duties. Its role will still have to be clarified and strengthened, but without the

added reinforcement that comes from the face-to-face contacts inherent in conducting the operation's daily business in Africa.

The RTT has had much success in the secondment of its staff to particular field offices for extended periods of time. These secondments have strengthened the field offices and advanced the services that World Vision provides. This is a practice that should continue whether or not WV is decentralized.

6.6 Budget of the RTT

The budget figures for the RTT/ATMS/RTT have eluded all attempts for understanding and accuracy; with this in mind, the following is presented.

The AWP budget for the RTT specified \$2,273K over the life of the project. Actually, this figure is specified in section 8, Cost Estimates and Financial Plan; the Executive Summary has the RTT budget at \$2,068K. Using the former figure, the breakdown is as follows:

	WVRD	AID	TOTAL
Project staff	1309	0	1309
Documentation Center	0	314	314
Consultants	445	0	445
Travel and Per Diem	<u>205</u>	<u>0</u>	<u>205</u>
Total	1959	314	2273

To be noted here is that the USAID money was to be used only for the development of the documentation center.

The actual budget was:

From the document titled Inception to Date Grant Expenditures, 3/90, on the third page find\$1235K, on the first page after Key Correspondence find.....\$1129K, under ATMS in the same document, find/calculate.....\$1797K, alternately taking out the \$542 in 87 figure, find...\$1255K, or from a two page document, dated 11/14/89, titled Summary of Expenditures 87-89 find \$913K supplemented with handwritten notes projecting '90 expenditures of \$127K for a total of.....\$1040K.

In one sense it makes little difference which figure is chosen; this is a matter for World Vision and the USAID Financial Officer to work out. What is of importance is that in all the above figures, the breakdown includes three categories: institution building, TA/contingency, and Program management. The allocation of funds between USAID and WV to these categories from the original grant breakdown is quite unclear. The lack of clarity and consistency with which the finances for the RTT have been registered and reported in a sense mirrors the ambiguity of the role of the RTT.

6.7 Summary of RTT Findings

The early RTT and, subsequently, ATMS provided an essential function in developing an awareness of and experience in "development" projects for World Vision. The AWP in general

and each country project in particular were materially strengthened by these efforts. A degree of institutionalization took place--long-term development projects were initiated and most of the original RTT and ATMS personnel are employed in a variety of capacities in World Vision. RTT's secondment of staff has strengthened the operations of a number of field offices.

The ATMS sub-contract had positive effects on the organization in regard to the institutionalization of development capacities in World Vision. But it left two glaring failures: no documentation center was established, and the current RTT is only a shell of what it was in the earlier days.

The RTT should be more realistically viewed as if it were operating in the first year of the project. It is understaffed and suffering under an ambiguity of its role in WVI/Africa's operations. Its projected staff structure should be reviewed for its appropriateness to World Vision's long-term development goals.

The financial data for the RTT are especially confusing. Attention should be given to a review and revision so as to enable better understanding by external parties.

Chapter 7

WASH TECHNICAL ASSISTANCE7.1 Objectives

The AWP design focused technical assistance provided by the WASH project on upgrading capabilities of World Vision institutions at the regional, field office, and project levels. Joint discussions between WVRD and WASH led to the specification of the following objectives for the participation of the WASH project:

- increasing staff technical capabilities to design and implement water supply and sanitation (WS&S) projects;
- broadening awareness of complexities of WS&S projects, in particular, the role of technology selection, community participation, health education, and operation and maintenance training, in successful projects;
- improving WVRD's capability to evaluate and implement training programs using its own staff resources; and
- improving WVRD's ability to carry out self-monitoring through formative evaluations.

7.2 Inputs

The direct buy-in from USAID/FVA/PVC through S&T/H to support WASH participation is \$328,000 over the three-year life of the AWP. These funds were to provide for workshops/seminars and dedicated technical assistance in the following areas:

- policy development and program planning;
- technical (e.g., construction, O&M) and management training;
- community participation;
- health education;
- technical documentation;
- project design; and
- project monitoring/appraisal.

WASH was also to provide quarterly financial accounting to WVRD for grant activities and annual reports summarizing the year's activities to FVA/PVC and WVRD.

7.3 Strategy

7.3.1 Identification of Technical Assistance Needs

The AWP provides several means of identifying needs for technical assistance from the WASH project:

- through workshops with diverse participant representation;
- during annual planning meetings between senior WV management and WASH;
- through requests from the RTT or individual field offices; and
- from ad hoc initiatives by WV Monrovia not scheduled during planning meetings.

7.3.2 Mechanism for Providing Technical Assistance

The Cooperative Agreement dated August 31, 1987, specifies the procedure by which WASH services were to be mobilized in support of the AWP (see Appendix KK).

7.4 Implementation Plan

Prior to the AWP start-up date, discussions between World Vision and WASH staff led to the following initial plan of activities utilizing WASH technical assistance:

Table 4. INITIAL PLAN FOR WASH PARTICIPATION

<u>Activity</u>	<u>Delivery Date</u>
Pre-Implementation Workshops	Nov 1986, Jan 1987
Technical Assistance Following Workshop	After first workshop
Project Development & Assistance Workshop	Jun/Jul 1987
Project Evaluation Workshop	FY 1987
Mon. Strategy & Formative Eval. Workshop	Jun/Jul 1988
T.A. in Developing Training Strategy	After first workshop
Misc. Technical Assistance Workshops	No specific dates
Community Participation	
Operations and Maintenance	
Construction	
Well Rehab. & Drilling Rig Selection	

Appendix LL details the rationale and scope of the above initiatives.

Further pre-implementation meetings produced the following additional set of WASH inputs programmed for 1987:

- preparing short synopsis on Global 2000 activity on Dracunculus medinensis (guinea worm) infection;
- providing information on documentation center and assisting with completing joint needs assessment of information system;
- assisting with identifying strategy for development of large scale WS&S projects;
- assisting with FY 1988 planning;
- assisting with assessment of capabilities of WV partnership to do health education;
- assisting both with assessment of capabilities to do community-based maintenance and with design of written strategy;
- conducting rapid assessment of Ghana and Senegal projects and follow-up assistance; and
- designing the Malawi water project.

The final-evaluation team did not have access to similar detailed implementation plans for WASH action in 1988, although such plans were discussed during annual meetings in June/July of 1987. Project-level action plans for 1988 were prepared during the AWP Workshop in October, 1987. WASH input to these plans was not specified. The June, 1988 planning meeting placed top priority on the following activities for implementation with WASH assistance during 1989:

- program management and evaluation workshop;
- development of overall training strategy for the AWP, RTT, and field comprehensive plan;
- setting-up of the AWP documentation center; and
- development of guidelines and procedures for WS&S projects.

Several other activities with lower priority were also listed.

No planning meeting was held in 1989, and no action plan was developed. WASH activities during FY 1990 were identified by ad hoc requests from World Vision and focused primarily on evaluation of the Ghana program.

7.5 Implementation Progress

7.5.1 Allocation of WASH Capabilities

WASH technical assistance between the beginning of FY 1986 (pre-implementation) and May 15, 1990, was distributed according to the following patterns:

Table 5. DISTRIBUTION OF WASH INPUTS

By Fiscal Year:

<u>FY 1987</u>	<u>FY 1988</u>	<u>FY 1989</u>	<u>FY 1990</u>	<u>Unexpended</u>
\$ 84,917	\$ 105,371	\$ 45,385	\$35,538	\$ 56,789
26 %	32 %	14 %	11 %	17 %

By Destination:

<u>General (Monrovia/RTE/FCs)</u>	<u>Ghana</u>	<u>Senegal</u>	<u>Kenya</u>	<u>Malawi</u>
\$ 106,638	\$ 71,276	\$ 46,053	\$ 27,953	\$ 19,292
39 %	26 %	17 %	10 %	7 %

The patterns of distribution by fiscal year and by destination are partially related. Since the projects in Kenya and Malawi commenced later than those in Ghana and Senegal, the Maasai People's Project and the Malawi Water Project have been the most affected by the drop-off in utilization of WASH in the last two years of the AWP.

Technical assistance activities as of May 15, 1990, are summarized in Table 6 below. The breadth of the activities initiated indicates that most of the capabilities of WASH were accessed by the AWP (e.g., design workshops, training, programming and planning, monitoring and evaluation, community participation, engineering, health education, information systems). The degree to which these skills were utilized, however, varied considerably. The AWP employed WASH's workshop model and engineering services frequently, while information systems were nearly neglected. Within that range, one activity each in the areas of training, health education, and community participation was completed, while evaluation services were brought to bear in two cases. Technical assistance in management, policy/strategy-development, and programming was rendered in part through the general "Activity Development/Liaison" category; however, WASH support to the senior AWP management group in Monrovia, a separate task identified early in the grant period, was not specifically addressed. Project-level assistance in technical implementation areas (e.g., workshops on construction, operation and maintenance, drilling rig selection) also was not utilized as planned.

Table 6. SUMMARY OF WASH TECHNICAL ASSISTANCE TO THE AWP

<u>Activity</u>	<u>No.</u>	<u>Activity Approv. Date</u>	<u>Activity Plan Date</u>	<u>Actual Implmt Date</u>	<u>Planned Cost</u>	<u>Actual Cost</u>
<u>Commencing 1986/87:</u>						
Activity Development/Liaison	315	11/86	11/86- 5/87	12/86- 4/88	\$44,000	\$27,437
Kenya Planning Workshop	319	12/86	12/86- 2/87	1/87	\$16,500	\$13,427
Ghana and Senegal Assessment	341	3/87	3/87- 8/87	4/87- 5/87	\$46,500	\$44,053
AWP Workshop - Nairobi	363	7/87	7/87- 11/87	10/87	\$36,500	\$33,525
<u>Commencing 1988:</u>						
Malawi Project Design	426	12/87	12/87- 4/88	1/88	\$26,000	\$19,292
Senegal Community Participation Evaluation	427	1/88	1/88- 4/88	1/88- 2/88	\$17,500	\$12,628
Ghana Community Health Training	436	4/88	4/88- 10/88	5/88- 8/88	\$22,000	\$23,549
Activity Development/Liaison	442	6/88	5/88- 12/88	4/88- 8/89	\$15,000	\$16,377
Development of Information System	447	7/88	8/88- 2/89	Aborted	\$10,000	\$ 227
Development of Strategic Training Plan for AWP	448	7/88	8/88- 1/89	Aborted	\$12,500	\$ 4,072
Organizational Assessment of Kenya Field Office	455	9/88	8/88- 12/88	Fall/88	\$25,000	\$14,526
<u>Commencing 1989:</u>						
Louga Water Program Evaluation	529					\$11,398
Ghana World Vision Evaluation	127					\$25,700
Task Development/Liaison	059					\$25,000
TOTAL COSTS INCURRED						\$271,211

7.5.2 Timing of WASH Inputs

In relation to the intended utilization of WASH services according to the annual implementation plans, the record is mixed. A comparison of each year's plan with the actual accomplishment in Table 6 suggests that expectations were overly ambitious. Considering the inexperience of World Vision in the sector, the pre-implementation period in FY 1986 witnessed an impressive and rapid start-up, but delays were often characteristic of the integration of WASH technical assistance. Such delays, which sometimes appeared to result from a dispersion of perceived authority within the senior management structure of the AWP, often led to what some project documentation termed "crisis planning." Nevertheless, once a final course of action was determined, WASH was expeditiously mobilized to conduct the activity within the immediate planning horizon and almost always under budget. Although each year's plan left at least one major activity formally unaddressed, progress with WV's use of WASH was commendable during the first half of the grant period for an entity new to the sector and not yet organized for the purpose of planning and implementing sustainable water development projects.

7.5.3 Technical Quality of WASH Interventions

The June 1988 assessment and planning meeting between World Vision and WASH--the last such meeting held under the AWP--reviewed the technical quality of WASH assistance to that

date, represented by 11 documents produced in connection with the work. The participants agreed that WASH staff and consultants engaged for the AWP were technically competent, although meaningful critiques of those documents were not possible at that time. Some of these documents were available to the evaluation team, which also was not able to conduct a formal critique, but which nevertheless concurs with the meeting's assessment. Interviews by the evaluators with WV staff of the Kenya and Malawi field offices, the RTT, and the Monrovia offices supported the conclusion that WASH consultants were of high technical caliber. Finally, the WASH Project Director gave a similar critique of the quality of the work of WASH consultants.

7.5.4 Impact and Effectiveness of WASH Interventions

The most important assessment measure of WASH technical assistance to the AWP is its impact and effectiveness toward achieving the four objectives listed in 7.1. Perceptions of this parameter by personnel involved with the WV-WASH liaison covered a relatively broad range. The participants (WV and WASH staff) at the June 1988 meeting rated the WASH input through that time at 3.9 ("good") on a scale of 1 (not effective) to 5 (very effective). The group expressed concerns regarding joint activities, which are enumerated in Appendix MM.

On the other hand, during an interview in July 1990 with the evaluation team in Monrovia, the WVI Africa Regional Vice-

President (ARVP) graded overall WASH effectiveness to the AWP at 85-90%. He also pointed out that WASH was utilized in ways that were not originally anticipated (e.g., the Kenya organizational assessment).

In contrast, the WASH Project Director expressed concern that the impact of WASH assistance was diluted considerably during FY 1989 and FY 1990. This judgment reflects the interruption in the WV-WASH collaboration that resulted from the conflicting perceptions over which entity--World Vision or its RTT-consultant ATMS--was the client of WASH. According to this view, WASH was less effective in assisting with the following agenda:

- senior-level program management workshops;
- overall policy development and planning (e.g., helping to establish guidelines for policies, strategies, and action plans required for water development projects);
- development of a training strategy;
- development of a monitoring and evaluation strategy;
and
- establishment of an information system and documentation center.

The assessment by the evaluation team of WASH's impact on the four stated objectives in section (7.1) follows below. This assessment employs the rating system described in section (9.1).

Recommendations concerning the participation of WASH in the AWP are presented in section (10.5).

Increasing staff technical capabilities to design and implement WS&S projects:

FAIR-GOOD

Maasai People's Project staff, former RTT staff, and senior AWP staff in Monrovia all credited the 1987 Kenya Planning Workshop with having the single largest impact on transforming a uni-sectoral project in concept into a community-based integrated development project with water as a central focus. This transformation--and the process employed by the WASH assistance enabling the transformation--has been regarded by all involved with whom the evaluation team was able to communicate as the key ingredient to planning and designing this successful project. It also appeared to have lasting impact in subsequently stimulating weekly meetings among project staff to conduct detailed design.

RTT and Malawi field office staff reported that the AWP Workshop in October 1987, also held in Kenya, was very useful in communicating the importance of planning to successful projects and in coalescing a "critical-mass" team to design the Malawi Water Project. The consultant to both Kenya workshops questioned, however, whether the learnings from such a single event could be carried through effectively to internal WV planning activities. One RTT participant believed that more follow-up focusing on improved communication between field directors and project

managers was required. Further, the evaluation team notes that the one AWP Workshop participant from Malawi left his post as Water Program Manager in March 1989, effectively tempering on-going impact by project staff of that workshop on the MWP.

The participants at the June 1988 assessment and planning meeting, recognizing the Malawi Water Project Design activity as the first with direct WASH involvement, termed the process as close to ideal, a "good model for project proposal development." The evaluation team agrees that the collaborative process employed in the design was commendable and does provide World Vision with a useful model for similar projects in the future. Further, both this activity and the AWP Workshop discussed above provided together the initiative for a project start-up workshop facilitated by the RTT in August 1988. Although recruitment delays and personnel changes precluded the participation of three of the key technical staff responsible for MWP implementation, the start-up workshop was an important ingredient in coordinating the WV-Government of Malawi collaboration essential to this project. On the other hand, the design document itself--the output of the design activity--did not anticipate the actual staffing and training requirements for achieving the MWP's objectives, even if all staff designated in the document had been on board at the start-up. Neither did the design foresee the

dramatic funding reductions experienced (a minimum of 30% per year since inception). Perhaps a less ambitious implementation plan, in consideration of where WV Malawi was starting from, would have been more appropriate.

Another constraint to an unqualified success in the attainment of the first objective is the fact that almost no planned project-level technical assistance workshops were implemented during the life of the AWP. These activities were to include:

- assessing and recommending appropriate sanitation technologies;
- demonstrating construction techniques for low-cost WS&S technologies;
- establishing reliable costing standards and procedures for the development of fully functioning wells and the selection of drilling rigs; and
- developing operation and maintenance criteria and strategies.

Project staff in both Kenya and Malawi expressed keen interest in having access to WASH experience in these areas. The evaluation team believes that significant benefits could have accrued at the project level with more attention to this type of assistance, and the situation to date must be viewed as a missed opportunity.

Broadening awareness of complexities of WS&S projects:**GOOD-EXCELLENT**

The World Vision Partnership initiated the AWP with little experience in designing and implementing water projects and no experience in combined WS&S projects. The experience that did exist was nascent, and senior staff expertise was limited to one individual. The WASH workshop model and team planning meeting (TPM) approach was instrumental in bringing World Vision staff at all levels together with WS&S professionals mobilized by the WASH Project. The sharing of perspectives and building of consensuses that characterized the workshops promoted appreciation for and learnings about the diverse facets of successful projects. Two important activities--community participation and health education--were rated by some as the most effective of all WASH inputs. A strong case can be made for this judgment, as projects in Ghana and Senegal, which did not originally include strong components in these areas, were accordingly redesigned. More useful activities for the project communities resulted. In Kenya, the Maasai People's Project, which was transformed from the Maasai Water Project, has strongly emphasized these "software" components and as a result reflects a model for the process of development. The Malawi Water Project, the first to be designed entirely under the AWP, incorporated these elements at the very outset. The participatory frameworks of these projects and the concern with community-based indicators of development have directly resulted from the AWP and, in particular, WASH assistance.

Whereas in some cases the community participation and health education components have lagged in implementation in comparison to hardware-oriented activities (e.g., Ghana and Malawi), a greater awareness of the importance of integrating non-hardware inputs and sanitation with water supply is evident at all levels of the Partnership. Large organizations tend to move and change slowly. When one also considers the primarily "relief"-oriented philosophy of World Vision at the start of the AWP, the shift in the last three years has been remarkable. The challenge for the immediate future is to bring this awareness to bear in elevating the importance of these activities in the implementation phase of projects.

Improving WVRD's capability to evaluate and implement training programs using its own staff resources:

POOR

The initial WV-WASH collaboration in December 1986 scheduled the development of a strategic training plan for the first year of the AWP. Each subsequent year, planning sessions also programmed this activity. It was never accomplished, apparently "back-burnered" as a result of AWP management delays or of precedence accorded to unscheduled, ad hoc initiatives. One senior staffperson cited the internal WV debate and indecisiveness over decentralization of WVI/Africa as the cause for inaction on most initiatives aimed at strengthening the senior and middle levels of WV institutions, of which the aforementioned activity was one.

Although planning workshops involved training as an adjunct to other agenda, the only accomplishment focusing particularly on training was the Ghana Community Health Training activity. This intervention occurred at the project level, however, and did not result from an explicit strategy communicated from AWP management. In spite of the fact, therefore, that much learning has taken place throughout the Partnership as a direct result of the AWP, a concrete strategy for training is still not in place. Weaknesses that the evaluation team found in staff development in the field--quite apart from the enthusiasm and basic ability of field staff--are indicative of the lack of success in achieving this objective.

Improving WVRD's ability to carry out self-monitoring through formative evaluations:

FAIR

As with the training strategy above, WV-WASH collaborators included plans during the first and subsequent years of the AWP for a workshop focusing on strategies for project monitoring and evaluation, an activity that was never implemented. During FY 1989 and FY 1990, however, WASH responded to requests from World Vision to assist in internal evaluations of the Senegal and Ghana projects. Joint evaluation teams were mobilized. In the opinion of the final evaluation team, the effectiveness of these project-level tasks was somewhat compromised by the lack of attention to and explication of a corporate strategy, which should have been an antecedent. Nevertheless, these endeavors were instrumental in affirming WV's participatory approach to an evaluation process with stakeholder involvement. The WV evaluation team has benefitted greatly from its interaction with WASH and is now capably staffed to conduct meaningful assessments of other projects. On the other hand, project implementation delays in Kenya and Senegal set back plans for internal evaluations of those projects until the timing for this final evaluation. Unfortunately, a decision was made to forego these assessments, which otherwise would have imparted more depth and perspective to the final evaluation.

More fundamentally, there are sparse indications from AWP documentation that the evaluations performed to date have had a substantive feedback effect on the implementation of individual WS&S projects. In the Ghana exercise, recommendations to curb drilling operations so that communities could become involved in the process appeared to go unheeded in the project for several months. To a lesser degree in Malawi, the Ghana experience appears not to have had much impact on the plan for drilling (in relation to other project components); rather, fiscal constraints have been more instrumental in slowing down the drilling plans for the MWP. Nevertheless, the evaluation team believes that WV management is taking real steps in to effect change as a result of the pointed example that was made about Ghana. The eventual response can only be viewed as commendable, although it will require continued and more concerted oversight of projects in the future.

There is an additional indication that World Vision is moving to use evaluations as management tools. As a result of verbal debriefings by the final-evaluation team while in Monrovia, WVRD restored \$100,000 of previous cuts in each of the FY 1991 budgets of the Maasai People's Project and the Malawi Water Project.

Chapter 8

WORLD VISION HEADQUARTERS**8.1 Structure of the World Vision Partnership**

World Vision has a complex organizational structure; it is a partnership of eight Support Offices, responsible for the raising of funds, and an international office, World Vision International (WVI), responsible for the management of the organization's operations. Central authority rests with a President and a Board of Directors who are responsible for making major corporate decisions. WV operates in three geographical regions, each of which is headed by a Vice President responsible for the operations of the field offices within that region. The eight Support Offices are distributed geographically by the country of donor origin (e.g., WV US, WV Australia, WV Great Britain). In addition, the WV US Support Office has a secular subsidiary, WVRD, created to receive institutional funds for development projects.

Within each of the separate WV entities (partners), there is a more traditional hierarchy to the organization--a director with reporting staff and line functions. The basic role of the partners is organizationally clear--they raise funds and manage operations. But the relationship becomes tangled as one moves to the level of project implementation, where the various parties have different interests in ongoing

activities. Here the channel of communications is multiplied to respond to the variety of inquiries, requests, and/or requirements of the project. Any number of the eight Support Offices may interact directly with a field office in addition to the international office and a variety of donor organizations (e.g., USAID, World Bank, foundations) from which World Vision receives funding. A prevalent corporate value is management by cooperation, reaching agreement among members who have independent activities and authority.

8.2 Management of the Africa Water Program

In the case of the Africa Water Program, USAID funds are directed through WVRD. WVRD is responsible for administrative control of the program, for reporting to USAID, and for providing the link between WV, USAID, WASH, and the field projects. However, the Director of WVRD has no functional relationship to the management of the program; he is under the direct supervision of the head of WV-US, who also has no functional relationship to the management of the program. Cooperation is the key to the performance of these parties. And in this case, the cooperation between those with the authority and those who are responsible has not always been what it should be. Coupled with problems WVI/Africa experienced with its top management staff in the first couple of years of the AWP, the separation of authority and responsibility has created conflicts in the organization and hindrances to the execution of the program. The introduction of projects with a "development" approach,

as compared with the traditional services WV has rendered, has stretched the organizational structure and revealed weaknesses that need correction, including authority and responsibility, life-of-project funding, channels of communication, and corporate policies for "development." To World Vision's credit, they are aware of these weaknesses; to their consternation, their structure and "cooperative" style have made the necessary rectifications frustratingly slow and, at times, created open conflicts.

A major conflict within the organization is where the overall authority for this type of program should rest. It seems logical to the consultants that it be with WVRD, the entity with fiduciary responsibility for the USAID funds. Money directs; and in this case, WVRD must hold the functional management of the program responsible for the progress of its implementation. Even with a year of stability that WVI/Africa has experienced at the top management level, insufficient attention has been paid to a number of critical program components required by the grant. It is apparent that if the overall authority rested with WVRD, it could have called the Vice President for Africa to task on the progress made on a number of program components: the development of the documentation center; the development of the RTT; the development of the monitoring system for these projects; the development of training plans, programs, and manuals.

WVRD has taken steps to ensure that it has control over the execution of similar projects in the future. In its latest proposal to USAID, it has included countries from various regions of the world so that the program does not fall under the domain of one regional vice president and, hence, must come under WVRD. It has been enhancing the capabilities of its Technical Services Unit, positioning it to offer technical and programming assistance and to monitor the progress of the projects. The Evaluation Department within World Vision International has been strengthened. But such structural changes in the organization regarding the combined authority and management of such a program must have the formal approval of the Board of Directors and the concomitant corporate financial support. Working major issues through the Board is a slow process.

8.3 Policy and Planning for the Africa Water Program

From discussions with individuals at World Vision headquarters and with field office directors, it is clear that there is a commitment by World Vision to long-term development projects and to "development" as one of its modes of operations in delivering its services in the future. This commitment is reflected in the establishment of two committees--the Partnership Review Committee and the Sponsorship Action Team, whose findings and recommendations to the Board of Directors highlight the role that development should play in World Vision's activities--and in documents that propose changes and/or the need for more

specific recommendations for changes that World Vision must undergo.

Acting for a unified organization, however, senior management must formulate proper policies regarding development. An Oversight Management Committee was established to maintain program momentum, monitor progress, and coordinate the involvement of key World Vision entities with an eye to making recommendations about policies to the organization. Preliminary findings in this area were presented; however, the committee has met only once in the year since it was established. It is made up of members from the International Office, the Support Offices, and Field Offices. It is easy to see why there are problems with meeting more frequently: the members are spread over the world. More efforts need to be made in this matter whether through this committee or another one, entrusted with moving the policy issues to a fruitful conclusion.

The initial planning for the AWP was predicated on two critical factors: one, that the level of funding projected for the program would be achieved, and two, that the various World Vision entities (i.e., WVRD, WVI/Africa, RTT, field offices, and project staff) would effectively perform their duties as outlined. The funding levels were not achieved, and this reduction in funding had a major effect on the management of the program. The staff reshuffling that ensued to maintain key personnel for the program thwarted the development of the RTT and its role in assisting the

various projects. Although ATMS (as a substitute for the RTT as a World Vision institution) performed admirably during its tenure, the re-absorption of that staff throughout the wider Partnership--without concerted effort directed at recruitment and training during the transition--left the RTT in a weakened state. (See Appendix GG for a tracking of former RTT personnel.) Moreover, not only did the reduction in funding cause delays in the hiring of necessary staff at headquarters and in the PTT (which is still understaffed), it also created inconsistencies in staff at the field level, a condition mentioned by both the Ghana and Senegal evaluations.

Performance by each party has proven erratic. WVI/Africa ineffectively managed this program for nearly its first two years. Necessary steps for the development of proper policies and procedures were not taken during this time. The subsequent settling of appropriate staff there has improved the situation, but oversights and weaknesses still exist. The most noteworthy involve monitoring project and review action plan. The current RTT plays a minor role in the development of this program--with the exception of the secondment of the Water Specialist to the Malawi Water Project. For the most part, those field offices visited by the evaluation team are performing adequately. In Kenya, both the field office and the MPP have performed excellently. Malawi's performance has been weak. Furthermore, because of conflicting roles and responsibilities between WVRD and WVI/Africa, inadequate

attention has been paid to the development of systems-- monitoring, evaluation, documentation, and training/staff development.

The program has achieved quantitative goals throughout the projects, but with the exception of the MPP in Kenya, less attention has been placed on building institutional capacity and implementing "software" components, such as health education and community participation. Both Ghana and Senegal have instituted these components in their projects, but the previous evaluations point out the need for greater policy emphasis on these goals and the need to make sure that more resources are directed toward their achievement.

World Vision International has placed more emphasis on the evaluation function during the life of the AWP than existed prior to the AWP. The department has grown in both staffing and workload; it has conducted (in conjunction with WASH assistance) the evaluation of the Ghana and the Senegal projects and has performed a number of other, non-AWP project evaluations. However, the evaluations carry no functional authority with them; recommendations made to the implementing project parties may or may not be followed; no central authority enforces compliance. The same problem haunts the learning from the evaluations: there is not an effective mechanism to ensure that lessons learned are applied to similar projects elsewhere. This is left to the discretion of the field office or local project staff. A case was found where a recommendation made in the Ghana and

Senegal evaluations--a recommendation to make timely distribution of the repair kits to the community maintenance teams--was passed to the Malawi field office but was ignored in the Malawi Water Project, and the same mistake was made there.

Cooperation and consensus have real value and are admirable as a style in running an organization. The criticisms made here are not recommendations to change that style but to point out the added importance of clean and consistent communications that must come with it, the fact that it takes longer to implement activities under this style, and that there is a hard edge of compliance that must not be forgotten.

8.4 Financial Aspects of the Management of the AWP

The reduced funding levels have had a major impact on the development of the program. The AWP proposal projected a World Vision contribution of \$21.9 million to the program. The actual expenditures (through March 1990) have been \$8.4 million. USAID has contributed \$1.96 million, with an additional \$0.377 million total for the WASH buy-in and the final evaluation.

In addition to the problems created by this reduced funding level, there are structural problems with World Vision's funding of long-term development projects. The major problem arises from the lack of a life-of-project funding

mechanism. World Vision's traditional fund-raising procedures are tied to an annual budget for specific project outcomes (e.g., child sponsorships or well-digging in village X), which have reflected neither the true costs of the project nor the amount of time necessary to implement them. Each year fund-raising starts anew. World Vision headquarters is aware of the need for long-term funding commitments.

In addition to the work done by the Partnership Review Committee and the Sponsorship Action Team, which also touches on this matter, a Ministry Finance Committee has been established. This committee has strongly stated the actions that World Vision must take to rectify the funding situation. Actions taken or recommended to be taken by support offices include:

- agree to life-of-project commitments (in whatever ways might be necessary to maintain these commitments);
- experiment with ways to use child-sponsorship funds in generating life-of-project financing;
- shift emphasis of fund-raising to focus more on undesignated and loosely designated funds;
- plan for continuation of funding after a grant ends;
- enlist donors to pay full costs of the program; and
- take greater care in making long-term commitments to new programs.

Donor education is a corollary requirement to this commitment. World Vision is attempting to institute actions to this end, including educating fund-raisers to the development concept and its impact on funds. Meetings on

this subject have been held with vice presidents of various support offices, and efforts to develop an education program are underway. For their part, donors must understand development in context, the time and costs involved with this approach, and the added benefits which can accrue to such projects.

Such activities move World Vision toward the goal of ensuring its institutional capacity for developing long-term, sustainable projects. It is still too early to ascertain the effect of donor education, but World Vision should be commended for such efforts and encouraged toward its goal.

8.5 Implementation Progress of World Vision Headquarters

Given all that has been said about the disruptions and problems caused by the lower funding levels, the progress made in implementing the projects is noteworthy. There certainly have been technical accomplishments (i.e., "hardware"-based outputs and training to maintain installations) in each project, and in some measure a building of institutional capacity. Although the progress does not meet the levels projected for the program, the reasons for the delays are understandable. Moreover, the persistence shown by management in keeping the program moving and basically on track is laudable. More attention must be paid to enhancing the institutional capacity at the

field level, particularly in the areas of complementary benefits and "software" technologies and techniques.

Inputs to the AWP have not been timely--delays have hurt the effective development and management of individual country-level projects, even though progress is evident according to a revised schedule. The usefulness of program inputs--from technical assistance to managerial changes--is not questioned. Rather, the inputs have not been applied broadly enough to fulfill the complete needs of the individual projects and the AWP. Relevant systems for monitoring and evaluation must be in place so that appropriate technical assistance to projects can be identified and provided. Staff development programs and training packages must be established at the corporate level. Such programs will help manifest the organization's capacity to sustain the long-term projects it is undertaking.

Also integral to this capacity-building is the establishment of a technical resource and documentation center; the relevance of this entity to development work in Africa cannot be overstated. Indeed, a major failure of the AWP is the lack of progress on the center.

8.6 World Vision Headquarters Findings

World Vision undertook the development of the AWP with a major purpose of developing its institutional capacity to manage long-term water development projects. WV has made progress towards that end. Field projects have been designed or redesigned for a better integrated package of benefits and community development, staff have been placed and functioning in all levels of the program, and the individual projects have been making progress toward their stated goals. However, the institution-building capacity has not shown the level of progress called for in the AWP. Many impediments to progress in this regard have been encountered, the largest being the reduced level of funding available since the inception of the program. Other obstacles result from the structure of the organization; the systems for management, monitoring, and evaluation in place; the inconsistency and ineffectiveness of top management in the International Office/Africa for a large portion of the program; and the inherent developmental problems of implementing projects in an African context (e.g., shortages of qualified staff, logistical problems, material shortages). The following issues highlight the areas of concern regarding institution-building that are raised in the evaluation of the AWP.

- The functional authority for the program is placed in an area that does not have fiduciary responsibility to USAID and, conversely, the fiduciary responsibility rests in a place with no functional authority for implementation. Within the World Vision Partnership, this structure has increased the importance of cooperation, which has not always been forthcoming.
- The Partnership has made commitments to incorporate "development" in its mode of operations. However, it needs to establish policies and procedures that ensure that development projects are properly supervised and supported, efficiently managed, and have a high probability of success in meeting objectives. The committee designated to work with this situation must be more active, or a more active one must be established.
- A major problem area surrounds the uncertainty of annual project budgets, the reduced appropriations actually received, and, implicitly, the lack of a life-of-project funding mechanism. World Vision has taken and is taking steps to resolve these issues. The institutional capacity for large development projects hinges on the successful resolution of this problem area. Efforts to date indicate that World Vision is moving in the right direction. A variety of changes to fund-raising are either proposed or in the works. Support Office staff-education and donor-education schemes are being developed. In concert with long-term funding, it is important that World Vision assess its overall capacity to carry out long-term development projects before embarking on new ones, and to insist that funds from donor grants include a portion for institution-building activities.
- Headquarters program management for the AWP has experienced tumultuous times but is now stabilizing with a greater continuity in WVI/Africa's top staff. Numerous issues still need management attention. Review of project plans appear to be neglecting overall institutional goals and qualitative aspects. World Vision still has a tendency to be technology-led in its efforts, though great strides have been made under the AWP to increase the "software" and community aspects in their projects, particularly in Ghana, Senegal, and Kenya. The monitoring of the individual AWP projects is inadequate. Top management does not undertake periodic field visits to the projects, and project progress reports inadequately describe activities, costs, problems, and accomplishments. Because of the lack of a system for review and adjustment, too many components of the program receive insufficient attention.

- The need for programmatic assistance has not been consistently identified--the Malawi project the most noteworthy. Hence, responses to needs of project staff for management skills, technical skills, plans of action for training, institution building, monitoring, and evaluation have been forthcoming neither in a timely manner nor in sufficient measure. Hiring delays and the lack of continuity in staff have created problems, the most noteworthy being the evolution of the RTT. Plans for staff development are inadequate to ensure the effective and efficient management of projects. More attention (and financial support) by top management must be paid to staff development for World Vision to meet its institutional-capacity goal.
- The lack of progress in the development of the RTT, though understandable given the circumstances, is a failure of the larger institutional goals set for the program. There has been time available since the "stability" in World Vision's staffing to have developed a much stronger RTT than presently exists.
- Project documentation is driven by external reporting requirements and not by the development of useful project management information. Simple, gross aggregations are not sufficient data for effective project management. The system should be revised and improved.
- The failure to develop the Information Resource and Documentation Center is inexcusable.
- The evaluation function, though given greater importance by World Vision during the life of the AWP, should be better supported, both structurally and financially, to ensure its usefulness to the organization. Compliance with recommendations and the incorporation of "lessons learned" into other similar projects, for example, would demonstrate real acceptance of the evaluation function. The management of the program must use its authority to make these things happen.
- The evaluators believe the dropping of the fifth country from the AWP is a minor issue in the development of the program. The reasons for not including Mali are acceptable; communications with USAID to this effect were made. However, the USAID response regarding Mali and the list of possible substitutes appears to have taken over a year. By that time, only a few months remained under the AWP grant, and no substitution was effected. In the end, this was a beneficial occurrence, as the additional financial strain of a fifth country would have taxed the already diminished funding base that World Vision was able to generate for the AWP.

Chapter 9

CONCLUSIONS: ASSESSMENT OF PERFORMANCE9.1 Rationale

This chapter develops conclusions by evaluating the performance of World Vision under the Africa Water Program, grant on three sets of project elements:

- the AWP objectives;
- the priority activities enumerated by World Vision in its proposal to USAID; and
- the sustainability of the individual water supply and sanitation projects executed under the AWP.

The evaluators have employed a seven-position rating scale (plus a zero position) for each item considered under the three elements above. The scale is employed verbally in the text, but in order to make explicit the relative position of the terms, the following numerical equivalence is presented:

EXCELLENT	7
GOOD-EXCELLENT	6
GOOD	5
FAIR-GOOD	4
FAIR	3
POOR-FAIR	2
POOR	1
FAILURE	0

The ratings are not intended to be averaged within each category of the assessment in order to generate an overall ranking; such a procedure would be meaningless. Neither are weights assigned to each factor within the categories. Rather, the purpose of the exercise is to present the evaluation team's view of the relative degree of accomplishment among the items for each of the three project elements.

9.2 Assessment of Performance According to Specified Objectives

As noted in (1.3.2), several sets of objectives have been advanced in different documents relating to the AWP. The evaluation team has chosen to consider the objectives stated in the scope of work for the final evaluation (Appendix B). An evaluation of the attainment of those six objectives follows.

9.2.1 Secure experienced staff to manage activities and provide management oversight for large water development projects.

FAIR

The management staff currently in place in World Vision/Monrovia is experienced, qualified, and now provides most of the critical management required. This has not always been the case. WVI/Africa has finally settled with a

competent and committed staff, though there is still insufficient attention paid to key components of the program. WVRD is professionally directed and managed with an able staff. The full-time Water Specialist is professional, experienced, and committed to the program. Because of the structure of the organization for this program, these components of headquarters management have not been able to fully mesh their talents and efforts to give the AWP the degree of management and oversight that the program has needed.

9.2.2 Establish a regionally-based technical information and documentation center.

FAILURE

Efforts were made early in the program to get the center underway; preliminary work on the type and quality of information resources and documentation began. A decision was made, however, to locate the center in Washington, D.C. This action met with heavy criticism, and the plan was abandoned. Since that time, all work on it has been curtailed. The lack of having anything resembling a documentation center in Africa is quite unfortunate.

9.2.3 Institute a comprehensive program of technology transfer, training, and technical assistance for field staff.

FAIR

The strongest projects in this regard are in Ghana and Senegal, where the most time, money, and efforts have been expended. The Kenya program is strong here--except for water development skills training--but due less to the "comprehensive" nature of a program communicated from above as due to insight of individuals associated with the project to ensure that these facets were being addressed through locally available resources. The strength in the Malawi project has been in the quality of technical assistance, in particular from the RTT Water Specialist and the contracted private engineer. But it has fallen far short in terms of training and staff development. All of the projects have had degrees of success in transferring their technologies to the communities involved. But the development of a comprehensive program by World Vision headquarters to achieve these facets of development--particularly training packages and staff development--is weak.

9.2.4 Strengthen the existing regional technical team's capability to provide on-going technical assistance for field staffs.

POOR-FAIR

The RTT has had an up-and-down evolution during the time of the AWP. Its greatest strength was reached during the ATMS contract period when it performed the range of tasks originally designed for it. The subsequent departure of ATMS and the absorption of its staff into World Vision has left the current RTT in a weakened position. Its current strength lies in some of its personnel and the fact that they are all African. Its weakness lies in the complement of skills on staff and the ambiguous role it works under in World Vision's African activities. This weakness contradicts the high position of importance that the RTT was proposed to hold for building the institutional capacity of World Vision.

9.2.5 Establish small technical resource units within five field offices.

FAIR

Discounting the fact that only four countries were ultimately included in the AWP, the progress on this objective has been adequate. The field offices' technical staffs have their major strengths in health and child survival. The resource unit personnel in both Kenya and Malawi require additional training. Only in Ghana and

Senegal, with their strong emphasis on engineering achievements, are there fully trained technical water staff. The community development skills on these staffs, for the most part, is adequate. In addition to personnel, the concept of technical resource units should also encompass project-level information and documentation. Staff are starved for appropriate reference material. Field office and project personnel should be made aware that an entity known as the "technical resource unit" exists.

9.2.6 Procure materials, equipment, and technical services for the implementation of selected water projects.

GOOD

Of the external technical assistance provided, World Vision gets high marks for the consultants used and the work performed--the rapid assessment teams in Ghana and Senegal not achieving as high marks as the other endeavors. However, the fact that additional requirements for such assistance went unperceived or unsupported detracts from the overall performance in this area. Much equipment and materials have been procured through the program, but some projects (e.g., Malawi) have been experiencing procurement problems, which have been understandable in the macro-economic environment.

9.3 Assessment of Performance According to Priority Activities Specified in the AWP Proposal

The evaluation team also considered those activities whose successful performance, according to World Vision, was necessary to achieve the overall goals of the program. The team's assessment of those 12 activities follow.

9.3.1 Developing a comprehensive corporate water development program strategy.

FAIR

The growth that World Vision has undergone in developing these projects, particularly the inclusion of the community development aspects to the projects, and the understanding by World Vision of the need for a holistic approach merit high acclaim for the development of the strategy.

Significant problems, however, were encountered in the execution of the strategy--the execution being part of the strategy.

9.3.2 Establish coherent program linkages between headquarters, regional, and country field programs.

FAIR

The best linkage is between the field offices and headquarters, particularly the field offices "buying into" the development projects. Given the state of development of

the RTT, its linkage is poor. Within headquarters, the linkage between the entities involved is only fair.

9.3.3 Recruiting experienced project managers to lead project implementation.

GOOD-EXCELLENT

The level of current staff at headquarters (given the organizational problems with this program) is high; and with the exception of the inexperienced and insufficient staff in Malawi, the project level is also high. The overall performance here is good.

9.3.4 Use of experienced technical consultants in the design and redesign of projects.

EXCELLENT

This has been a real strength to the program and is the basis from which the program has been able to withstand the buffeting it has received.

9.3.5 Hiring and directing experienced technical staff for project implementation.

FAIR-GOOD

Two out of four countries' staff are properly experienced and competent; Kenya lacks engineering planning and low-cost technology skills, but the technicians are clever and would be very absorptive of technical training. Malawi's

staff is inexperienced but with potential; the use of the RTT Water Specialist and engineering consultants in the development of this project has helped mitigate the problem.

9.3.6 Developing and administering specialized training programs for regional, field office, and project staff.

POOR-FAIR

The community-participation training for Ghana and Senegal are the most noteworthy. The training packages utilized by the MPP (developed for the most part by other organizations) is good. Malawi accesses training programs developed and administered by the government. The fact that World Vision has not developed a range of training materials/packages nor in other ways adequately addressed training needs at the field office or project level weighs heavily against the good ones above.

9.3.7 Devise program strategies for the rehabilitation of non-functioning projects and the consistent upkeep of effectively functioning equipment.

GOOD

This activity seems specifically designed for the work in Ghana and Senegal. Looking at just these two projects, therefore, the redesign that put greater emphasis on community participation and the improvements made in training community maintenance teams have been effective. For the most part, the equipment has also been operating

efficiently. In Malawi, more attention should be directed toward the construction and installation of physical works in order to avoid premature maintenance and repair requirements.

9.3.8 Devising and overseeing a financial management and project reporting system.

POOR

The overall documentation for this program is confusing to the outsider, inadequate for use as a management tool, and insufficient in supplying critical information about projects and project components. It has met the bare necessities of reporting requirements to USAID only. The exception is the MPP, where adequate documentation exists to describe the project in detail and to call forth the relevant financial data to make an intelligent financial analysis.

9.3.9 Devising community mobilization strategies.

GOOD-EXCELLENT

The strongest project strategy is in Kenya; the weakest is in Malawi. Through the support of the AWP, the status of the programs in Ghana and Senegal has been improved considerably.

9.3.10 Developing a fund-raising and resource mobilization strategy.

FAIR-GOOD

Given World Vision's success in acquiring large-donor support for development projects in the last couple of years, and given the efforts made to change its internal funding structure to support long-term projects, the performance here is adequate. The requirement for solid life-of-project funding is so great yet still not completely in place, however.

9.3.11 Institute a monitoring and evaluation system that ensures early and consistent feedback to correct mistakes and adjust to new information.

POOR-FAIR

The monitoring system is barely adequate to understand and modify the existing projects. Adjustments are prompted by budget cuts, while adequate functional reviews of the adjusted plans are sometimes not conducted. The exception here is the MPP in Kenya, where the project has manifested good oversight of its activities. Evaluation has performed to standard in its execution but suffers from organizational deficiencies that detract from its feedback effectiveness.

9.3.12 Establish library of technical materials and information resources.

POOR-FAIR

Headquarters--WVRD in particular--has developed an adequate library. In the Africa region, however, the existence of such a library is lacking. Field offices and project offices have only a minimal collection of such materials; what resources exist do not appear to have resulted from the implementation of a corporate strategy.

9.4 Sustainability

The following analytic framework for discussing sustainability is based on "The Effectiveness of Private Voluntary Organizations," a report of the Advisory Committee on Voluntary Foreign Aid to A.I.D., 1988. The Advisory Committee described ten factors (Appendix NN) that influence the degree to which a program generates sustainable benefits.

The evaluation team has rated the overall performance of World Vision under the AWP on each of these ten factors according to the same eight-position scale employed above. Nine of the ten elements are ranked fair-to-good or higher. The lowest rating attaches to an item (financial support) with strong dependence upon higher levels of the organization

The basic conclusion is that World Vision scores higher on sustainability of field projects than on the achievement of the institution-strengthening objectives of the AWP. The evaluators believe that the primary reason for this disparity relates to the relative autonomy with which the individual projects are administered by local staffs sensitive to the process of development.

9.4.1 Local institutional capacity

GOOD

In all of the AWP countries, World Vision has strengthened local institutions that mobilize human and physical resources for development. In Ghana, WV began supporting committees in child sponsorship communities before the inception of the AWP. Unfortunately, this positive experience has not been carried through under the AWP in non-sponsorship communities, which remained institutionally weak as of the November 1989 evaluation. This weakness has affected proper maintenance and repair, key elements to sustainability. In Senegal, the AWP appears to have been more successful in helping to establish the network of bush technicians. The MPP in Kenya has placed a primary emphasis on developing and strengthening community institutions. Through sectoral committees (e.g., water, health, school, agriculture), all project initiatives are conceived, planned, and implemented. Relatively low requirements for maintenance and repair have been experienced to date as a result of the early stage of development of physical works,

but recurrent cost issues have nevertheless been raised. While taking a less direct and involved approach than the MPP to the growth of local institutions, the Malawi Water Project has supported local structures with technical training for community members. The MWP facilitates training through short-courses developed by the Ministry of Works and Supplies for tap and pump maintenance and repair. Although the training program is at too early a stage to evaluate realistically its long-term impact, an unannounced spot check at one of the project borehole-Afridev sites indicated that village-level operation and maintenance (VLOM) can be an effective strategy in the MWP. The local tap and pump committees are also addressing recurrent costs, although IGAs have not yet proliferated. Local committees have also been quite effective in organizing unskilled labor for system installation.

9.4.2 Local participation

GOOD

The Senegal Interim Evaluation notes strong local participation in the drilling of boreholes. The Ghana Evaluation commends community involvement not only in drilling, but also in planning, oversight, and maintenance of boreholes in child sponsorship communities. This involvement did not exist at the beginning of the AWP and still appears insufficient in the non-sponsorship communities. In Kenya, the MPP reflects excellent local participation in every phase of the project, particularly

and seminally in the pre-design assessment of needs. The Malawi projects exhibit an adequate level of community involvement in siting water points and providing labor for installation of systems, but the WV field office project and operations staffs should provide much more encouragement in order to enhance the potential of local committees to take a stronger role in operation, maintenance, monitoring, and evaluation activities.

9.4.3 **Compatibility with social and cultural patterns**

GOOD-EXCELLENT

Both the Senegal and Ghana Evaluations commend the non-prescriptive approach taken by program staff toward the organization and mode of local components of the projects. Similarly, WV staff in Kenya and Malawi reflect profound sensitivity and appreciation for local social patterns. Moreover, community motivation staff in Kenya exhibit a rare capability to facilitate the process of local social development without becoming involved in the shaping of that process.

9.4.4 **Local partnerships**

FAIR-GOOD

The Senegal and Ghana Evaluations cite problems in establishing partnerships with local organizations so as to enhance the capability of such organizations to take more initiative in implementing projects. These problems appear

to result from lack of attention by higher authorities, both World Vision and the relevant government ministries; for example, the Ghana project has shown positive response in communities in which WV has expended efforts toward developing strong linkages. In Kenya, the MPP has been quite effective in stimulating the growth of new institutions in Maasai communities (e.g., water committees, school committees) that link with the project in taking an active role in planning, financing, and implementing development. The MPP has promoted a high degree of self-sufficiency of these local institutions, as a result of both development philosophy and remoteness of higher-level government institutions. The Malawi Water Project has not yet reached the stage at which local institutions can operate without support from entities above. As in Ghana and Senegal, this condition does not appear to result primarily from a weakness in those institutions--appropriate training notwithstanding; rather, except for the very short initial technical training, the MWP has spent insufficient time in encouraging greater community efforts and in transferring to the communities both the physical and administrative tools necessary to make those efforts possible.

9.4.5 Economic realities

GOOD

The Senegal Interim Evaluation does not address prevailing market forces in relation to the Louga water projects. The

Ghana evaluation points out that questionable community willingness to pay the full costs of maintenance, the importation of spare parts for pumps, and the high cost of the primary sanitation technology (KVIP latrines) promoted through the project are three factors that can impact the sustainability of the project. Both in Kenya and Malawi, the willingness-to-pay issue remains to be determined; particular attention should be addressed toward the water projects in Malawi, as recent government studies have unearthed this question from a review of long-standing projects. In Kenya, water supply technologies have been selected and designed in most cases without explicit analysis of cost-effectiveness in comparison with other alternatives. Nevertheless, both programs in Kenya and Malawi are keenly aware of the necessity to integrate project activities with prevailing economic realities and are taking steps to address the issue. For example, local procurement of materials and contracting services at prevailing market rates is practiced to the extent possible. Particular and effective attention has been given to cost control in Malawi, which suffers from import-dominated markets and low quality of locally produced goods. Both programs have also strongly encouraged and supported the development of project components for income-generating activities (IGAs), portions of the profits from which would be used to fund recurrent project costs. These activities are further advanced in the Kenya MPP, which also promotes training program for local, small-scale entrepreneurship.

9.4.6 Environmental constraints

GOOD

The Senegal and Ghana Evaluations state that low capacities of AWP-installed Mark II hand pumps cannot be expected to affect aquifer levels. In Ghana, high mineral contents in groundwater (iron and salinity) have caused siting and acceptability problems, both of which increase costs. No excess pressure on grazing lands was identified as a result of AWP water development in Ghana. Poor drainage conditions around pumps, however, were cited for creating mosquito habitats and for potentially enabling backflow of polluted water to the aquifer. In Malawi, drainage is being addressed with mixed results. More attention is warranted. Also, high iron contents may characterize certain groundwaters in the MWP. More attention should be directed toward determining borehole water quality prior to well development. Both Malawi and Kenya have relied on low-impact water and sanitation technologies, and minimum adverse impact on groundwater or flora and fauna is expected at the current activity pace. The Malawi Water Project has adhered well to environmental criteria for surface water development. Water pans for rainwater catchment in Kenya are sited with acute concern for and local expertise about runoff regimes. Land reclamation benefits may be expected to accrue. In the long term, the MPP must address the issue of carrying capacity, as animal numbers could well increase on "demarcated" (parcelized) lands. Quality of impounded surface water in the MPP also merits specific attention.

9.4.7 Long-term implications

FAIR-GOOD

Neither the Senegal nor the Ghana evaluations address this factor. In Kenya, potentially unfavorable long-term implications relate to two issues noted in (9.3.6): carrying capacity and drinking water quality. On the other hand, long-term soil and water resource quality will be enhanced by the project's approach to water pan siting and construction. The MPP also provides for long-term social development through strong emphases both on health education and on primary education in providing appropriate educational facilities that incorporate improved water supply and sanitation. In Malawi, projected demand for improved water supplies, as a result both of natural population growth and of demonstration to areas contiguous to the project, influences the design of all projects; extensions to piped surface schemes are rationally phased, and integrated (i.e., concentrated) borehole development allows for growth while enabling discounts on contracts.

9.4.8 Policy environment

GOOD-EXCELLENT

In Senegal, the water project has met with both flexibility and difficulty in reconciling development activities with the policies of different government agencies. In Ghana, government policy toward responsibility for pump maintenance appears to be undergoing transformation beneficial to that

project. In Kenya, the MPP met with significant political resistance at the outset. Ironically, the slowdown that resulted in "hardware" components of the project being delayed proved beneficial to enhancing the motivational component, a factor that has proven important to its success. Further, local political authorities now enthusiastically support the work of the MPP. The Malawi Water Project carefully follows government regulations for all phases of water project development. World Vision's experience with government throughout the AWP could--and should--be viewed as a development process in itself; in many cases, prior policies were enunciated when notions regarding the nature of the relationship between government as "manager" and communities as "clients" differed from more progressive attitudes of today that emphasize partnership, local responsibility, and local ownership. It is altogether appropriate that constraining policies undergo evolution toward policies that support and promote "development." The evaluation team views the work of World Vision through the AWP as a sensitive and thoughtful catalyst to this process.

9.4.9 Information networks

FAIR-GOOD

The Senegal Interim Evaluation particularly notes information sharing and cooperative action at the project level among non-governmental organizations (NGOs). The Ghana project appears to have developed more diverse and functional relationships with government agencies, as well

as with other NGOs. In both Kenya and Malawi, relations with government have been solidified by the projects, both of which incorporate government participation, either through secondment of personnel, direct training, or provision of standard engineering designs. The MPP has interacted extensively with other NGOs in developing and implementing training staff training programs, the principles of which are carried over to community work. Information appears to be freely shared by the MPP with other NGOs working on water development in the region, although more effort could be directed toward actively seeking out others' experience with low-cost water supply and sanitation technologies. At the level of the management of the AWP, however, information sharing and networking has been much less successful than at the project level. Moreover, the failure to develop the AWP documentation center has negatively affected those very projects. An apparent recalcitrance by World Vision to disseminate reports has also deprived the wider development community of important learnings from WV's accomplishments and vice versa.

9.4.10 Financial support

POOR-FAIR

Both the Senegal and Ghana evaluations remark about the negative impact on sustainability that the lack of life-of-project funding has caused. In Ghana, the project with the highest financial endowment, mid-year budget cuts were also

cited as problematical. In Kenya and Malawi, the water projects have directed effort toward cost-sharing arrangements with beneficiary communities in order to enhance sustainability. For construction of physical works, these arrangements provide for cash and in-kind (labor and materials) contributions in Kenya and for in-kind shares in Malawi. While usually not in excess of 10% of total construction costs, the establishment of the principle of community financial participation is critical to long-term financial feasibility. An even greater step is the promotion of the sharing of recurrent costs. In this area also, both projects have made important strides in supporting IGAs as project components, from which a percentage of profits will be allocated to system operation and maintenance. On the other hand, both projects have been hurt by WV's year-to-year funding policy. Recent evidence suggests that life-of-project funding is close at hand due to the lessons learned from the AWP. World Vision should also attend more closely to setting country project budget levels that represent firm commitments. Cuts that have been experienced by the Malawi Water Project, for example (a minimum of 30% annually since start-up), without concomitant assistance to the project in readjusting implementation plans can only undermine sustainability through poor quality control or uneven implementation of complementary project components.

9.5 Summary of World Vision Performance

A final comment about the performance of World Vision is in order. An assessment of the organization based upon the objectives and activities stated in the proposal could only yield a rating of fair-to-poor performance. They have done some things well, but too many areas of poor performance remain. Yet, after spending six weeks with the organization and several more reviewing and cogitating about the work, it seems that World Vision's performance is better than the ratings indicate. The organization has come a long way in moving from a "relief" mode of operations to include also a "development" mode. They have accomplished good things in the field--not necessarily "holistic" achievements--but nevertheless worthwhile to the communities in which they are working. The WV Partnership has shown an ability and commitment to develop worthwhile and sustainable projects. Further, judgments about World Vision's performance must be tempered by the fact that while its own organizational structure has been a hindrance, senior management are aware of and attempting to resolve this problem. It may behoove WV to have an external consultant assist them in looking at changes that need to take place. And it certainly would be prudent for the Partnership to obtain assistance in developing a monitoring system, comprehensive programs for training and staff development, and the establishment of the documentation center. There is a definite role for World Vision to play in the development community, and it should be encouraged to continue its growth in development work.

Chapter 10

RECOMMENDATIONS**10.1 World Vision/Monrovia****10.1.1 Organization**

10.1.1.1 World Vision should clarify the role that "development" has in the plans of the organization and ensure that all members of the partnership buy into that role. This role should emphasize the different structural needs that "development" imposes on the organization: financial commitments, staffing and staff development, documentation of projects, management procedures to ensure adequate monitoring and evaluation, and the appropriateness of project-plan adjustments to overall World Vision and project goals.

10.1.1.2 It is recommended that World Vision establish an active policy-making body that meets regularly (quarterly as a minimum) and is responsible for the development of policies and procedures regarding long-term projects. Its immediate objectives should include:

- establishing the proper lines of authority for project management so that the WV entity responsible to a donor organization can enforce compliance with project goals and objectives by those implementing the project;

- developing proper communication and coordination among WVRD, WVI, and WV Support Offices, with committed representation from each;
- addressing and resolving basic differences in philosophy and perception of roles between long-term development and sponsorship programs (at all levels in the organization);
- assessing the overall ability of the organization to undertake any long-term project and ensuring that staffing levels, staff capacities and funding are equal to the task;
- negotiating effectively with donor agencies, during this transition to an entity implementing development, to allocate a portion of long-term project budgets for training of required WV technical staff that is backed by adequate support staff.

10.1.1.3 Commitments to decentralization of the office of the ARVP should be operationalized by an agreement of the partnership on an implementation strategy backed by a minimum of a three-year financial plan and appropriation.

10.1.2 Finance

10.1.2.1 It is recommended that World Vision develops a budgeting mechanism that reflects the needs of long-term development projects. Specifically, strategies for life-of-project funding now under discussion should be operationalized as soon as possible.

- 10.1.2.2 It is further recommended that World Vision develop donor education strategies to ensure the availability of long-term funding for such projects. Such strategies should begin with education of Support Office fund-raising staff.
- 10.1.2.3 Care should be taken that funding commitments stated in proposals for existing donor-supported projects such as the Africa Water Program--even though not strictly and contractually binding in the final agreement--are honored if World Vision seeks to be perceived among institutional donors as an organization seriously committed to development.
- 10.1.2.4 Likewise, staffing commitments associated with existing projects should be honored in a timely fashion. Recruitment activities for open positions throughout the organization require more serious attention.

10.1.3 **Management**

- 10.1.3.1 It is recommended that World Vision develop procedures for ensuring that the planning, programming, and budgetary processes are in line, and that necessary adjustments are coordinated and directed to priorities that ensure progress is made on all objectives of the project.

10.1.3.2 It is recommended that World Vision develop documentation procedures that allow project information to be utilized better as a management tool: in particular, that project-specific activities and finances are detailed and kept together and that project plans and time-lines are referenced in progress reports.

10.1.3.3 It is recommended that World Vision develop a plan for enhancing its institutional capacity for long-term development projects, including a plan for staff development that ensures:

- the timeliness of recruitment;
- a consistency of staff in the project; and
- the delivery of timely on-the-job training for project staff in the areas of relevant technical and project management techniques.

10.1.3.4 It is recommended that World Vision develop both a policy and procedures to ensure that lessons learned from evaluation exercises are reflected in adjustments to plans/budgets for that project and for similar projects undertaken.

REGARDING THE AWP SPECIFICALLY:

10.1.3.5 It is recommended that World Vision establish in the time remaining to the project a documentation center in Africa which houses the relevant information about the AWP projects undertaken and sufficient other technical and managerial/financial material to be used as a reference center for the enhancement and expansion of these projects and the development of new ones.

10.1.3.6 Technical reference materials also should be disseminated to the level of individual water project offices. Terms of reference for technical assistance to projects from higher levels of World Vision should include the provision of appropriate technical documentation during the assignment.

10.2 Regional Technical Team

- 10.2.1 It is recommended that World Vision clarify the role to be played by the Regional Technical Team (RTT) in support of long-term development work in Africa. Specifically, the RTT should be an essential component of a decentralized organizational structure of the office of the ARVP based in Africa. The goals and objectives for a functional RTT as described in the Africa Water Program proposal are appropriate and should be reinforced.
- 10.2.2 The RTT should follow up on country assessments and action plans to facilitate ongoing program development and to help a decentralized ARVP office to set large-scale project priorities region-wide.
- 10.2.3 It is recommended that World Vision supports the clarified role of the RTT through both adequate funding for the activities involved and full staffing to carry out those activities. The most essential unmet staffing requirements for the RTT are:
- a **Program Design and Implementation Specialist** to oversee the development of long-term projects and proposals, to review country plans of action, and to ensure that regional strategies are being addressed;
 - a **Human Resources Development and Evaluation** staff member to strengthen the training component of large-scale development projects and to allow for lessons learned during project implementation to be fed back into the planning process;

- a **Public Health Engineer** to strengthen water supply and sanitation planning and technology selection and to relate these choices to health education/child survival and long-term sustainability; and

- a **Natural Resources and Environmental Specialist** to develop alternative strategies for combined animal husbandry/agriculture and resource management, as well as to minimize negative impacts associated with water development in semi-arid climates.

10.2.4 The RTT should be geographically-based in the African office of the ARVP, where the documentation center should be housed. Staff will continue to be most effective if dispatched on temporary secondment to individual country field offices for planning, implementation, training, and evaluation activities.

10.3 Maasai Peoples's Project and Kenya Field Office

10.3.1 Planning

- 10.3.1.1 The budget process employed for the Maasai People's Project (M.P.P.)--and World Vision development projects in general--should allow for rollover of unspent annual appropriations.
- 10.3.1.2 A more detailed sanitary survey should be incorporated in the baseline questionnaire conducted at the inception of cluster work.
- 10.3.1.3 Following a project initiation phase during which community problems, needs, and resources are identified through participatory learning processes, all feasible technology options for safe water supplies should be evaluated for cost-effectiveness, environmental compatibility, and social appropriateness. Such options may include groundwater development.
- 10.3.1.4 The M.P.P. should investigate the groundwater potential in selected locales of the existing project area (e.g., Ongata Naado and Nturumeti) and in the new project area extension (Mosiro). Assistance should be requested from the Narok District Water Office for both personnel and

equipment, with the M.P.P. furnishing transport and per diems.

- 10.3.1.5 Negotiations between the M.P.P. and project communities for cost-sharing of local development projects should clearly explicate the need for an increasing share to be borne by the community over the life of the project. Both capital and recurrent expenditures should be addressed. A primary financial mechanism could be the tapping of income-generating activities (IGAs) developed with M.P.P. assistance.
- 10.3.1.6 One method of accessing profits from IGAs merits consideration: The M.P.P. and the community could be regarded as a proportional partnership. The costs of a particular IGA are thus evaluated jointly by the partners and the share of the total costs, including in-kind costs, are negotiated. The share of the profit (or loss) from the IGA is subsequently divided in conformance with the cost-share proportion. According to consensual agreement, however, the M.P.P. profit is banked in a community-based (or committee-based) fund to be used only for specified purposes (such as maintenance activities, for example). In any case, the project should continue the dialogue about local financing commitments by developing with the communities more details about the kinds

of activities that will be required as the project matures.

10.3.2 Design

- 10.3.2.1 Ventilated Improved Pit (VIP) latrine technology should be adopted for all sanitation improvements, especially those of a demonstration nature. In this regard, the SIDA Environmental Health Project--which collaborated with the M.P.P.--has installed appropriate models at a school in the project area (Nturumeti).
- 10.3.2.2 All VIP latrines should be fitted with vent pipe screening and fly trap hole covers made of locally available materials (design provided in report).
- 10.3.2.3 Design of water pans should provide for physical separation of extraction points for domestic and livestock uses. Segregation may be accomplished by installing screened intake pipes at appropriate protected locations in the water pans. The intake pipes would direct flow for domestic use to shallow, protected, dug wells fitted with handpumps or windlass-and-bucket systems.

10.3.2.4 Design of roof rainwater catchment (RWC) systems should be based on historical rainfall records, total available collection area, estimated consumption rate, and cost. Large ferrocement or clay storage jars could likely provide equivalent storage volume at less cost than the 40 cubic meter reinforced concrete tank design currently employed.

10.3.3 Construction

10.3.3.1 The Project Water Engineer should supervise local builders in the construction of VIP latrines that conform to standard design guidelines.

10.3.4 Operation

10.3.4.1 Local water committees should be encouraged to enforce strictly the segregation of livestock from water pans designed and constructed for direct human access.

10.3.5 Maintenance

10.3.5.1 M.P.P. staff should ensure that RWC tanks are scrubbed with a hypochlorite solution annually prior to the onset of the heavy (summer) rains. The first rainfall of the season should be used to

cleanse the roof collection surface and should not be diverted to storage.

- 10.3.5.2 Rehabilitation of existing hand-dug water pans in project communities should include (manual) control of bank vegetation.

10.3.6 **Monitoring and Documentation**

- 10.3.6.1 World Vision should document the program development process used by the M.P.P. and its resulting achievements. World Vision should use this documentation in its fund-raising/donor-education strategies and disseminate it to other development organizations. Video documentation may be especially appropriate.
- 10.3.6.2 Storage levels of newly constructed water pans, most of which have no dry-season performance record, should be closely monitored from the winter of 1990 onward. Depths should be recorded at a convenient point and correlated to reservoir volume. Monitoring should be conducted weekly during the dry season and monthly at other times. Records should be maintained in project files and with the local water committee.

10.3.6.3 Quality of impounded surface water should be monitored on a monthly basis. Standard chemical analysis should accompany testing for fecal coliforms. The M.P.P. should request assistance from the Narok District Water Office of the Ministry of Water Development. Results should be tabulated and maintained in project files, as well as with the local water committee.

10.3.6.4 Technical reference materials should be compiled at the project-level office and thereafter supplemented and updated by all consultants that visit the project.

10.3.7 **Training and Staff Development**

10.3.7.1 M.P.P. health education activities should include primary-school-based instruction on the proper use of the VIP latrine and drop hole cover.

10.3.7.2 Project staff would benefit from community-based workshops focusing on engineering project planning and design/construction of low-cost technologies for water supply and sanitation (e.g., ferrocement construction, home water storage techniques, dug well construction, VIP latrine construction).

- 10.3.7.3 M.P.P. community health education and primary health care (PHC) activities focusing on women and children through intermediary Women's Development Motivators (WDMs) should be continued and strengthened.
- 10.3.7.4 WDMs should receive additional training in PHC theory and techniques.
- 10.3.7.5 WDM staffing should be doubled at minimum (four new positions) within the next twelve months, in order to enable teams of two WDMs to visit each project community, including those in the expanded area, on a bi-weekly basis. Long-term WDM staff development should provide for the ability to make weekly visits to project communities.
- 10.3.7.6 In the form of a technical paper, the methodology of the training program synthesized by the M.P.P. for staff and communities should be documented and disseminated as a model for other community-based projects. In the context of building program sustainability, collaboration with local institutions and programs should be emphasized (e.g., AMREF, Church Missionary Fellowship, Church of the Province of Kenya, Kenya Catholic Secretariat, KENCO, VADA).

10.3.8 Management and Supervision

- 10.3.8.1 It is recommended that World Vision Kenya (and World Vision in general) evaluate the appropriateness to long-term development projects of the local project committee structure used in sponsorship projects, in light of the success the M.P.P. has had (in part) because of the absence of this structure.
- 10.3.8.2 Autonomy of project-level management should be maintained in order to enable continued flexibility for timely response to field needs. Authority for project-level budgeting and expenditure should continue to rest with the Project Manager only.
- 10.3.8.3 It is recommended that World Vision Kenya redesign its organization chart to reflect accurately the lines of both authority and reporting of the M.P.P.

10.4 Malawi Water Project and Malawi Field Office

10.4.1 Planning

- 10.4.1.1 Annual implementation plans and outputs of the Malawi Water Program (M.W.P.) should undergo a thorough review after the final appropriation for the following fiscal year is determined. M.W.P. country staff should be provided assistance from higher levels in the WV partnership in matching available financing to realistic objectives.
- 10.4.1.2 Proposed adjustments to implementation plans and outputs resulting from the process in (10.4.1.1) should be presented to and discussed with external donors for mutual concurrence.
- 10.4.1.3 The wise decision to curtail borehole drilling during FY91 as a result of the most severe budget cuts in the M.W.P. since its inception should be viewed as an opportunity to consolidate the gains to date.
- 10.4.1.4 HESP activities should be strengthened substantially in FY91.

10.4.1.5 It is recommended that World Vision Malawi make an explicit review of Field Office and M.W.P. logistical requirements in light of transport difficulties that have arisen within the past year due to: (a) lack of coordination between the M.W.P. and the Operations Division; (b) different--and sometimes competing--requirements of the M.W.P. and the Operations Division; (c) lack of coordination within the M.W.P. itself (e.g., between HESP and engineering activities); and (d) inefficient allocation of vehicles among the Field Office divisions in general. Assistance should be provided for this review by higher levels of the WV partnership.

10.4.1.6 The proposed review in (10.4.1.5) may consider several options to resolve its logistical problems in attending to its field projects. These options may include:

- consolidating the geographical areas in which WV Malawi operates projects;
- increasing its available fleet of vehicles through either new acquisitions or the repair of at least three of six existing inoperative ones; and/or
- reallocating existing vehicles to reflect the real needs of projects, rather than status.

10.4.2 Design

- 10.4.2.1 Water consumption design criteria developed by the Ministry of Works and Supplies and employed by the M.W.P. (27 liters per capita-day for borehole supplies and 36 liters per capita-day for surface water) should be revised downward to reflect actual rural water consumption rates from public taps in Malawi, which are most likely no more than half these figures. Realistic assessment of consumption rates increases the feasibility of sources that might otherwise be rejected.
- 10.4.2.2 All longitudinal section drawings of piped water schemes should be checked to ensure specification of pipe diameters, design flows, and residual head.
- 10.4.2.3 Standpipe connections in gravity piped schemes should be provided with gate valves set in chambers.
- 10.4.2.4 Rectangular sedimentation tank designs should be evaluated for their cost-effectiveness in comparison to the circular design currently employed by the M.W.P.

- 10.4.2.5 In consideration of the frequent occurrence of expansive, montmorillonitic clays in project areas, the M.W.P. Water Unit should reevaluate soakaway design for public standposts and boreholes. Soakage trenches may provide greater infiltration area than the standard seepage pit currently in use (2 meter diameter, 2 meter depth ---> 12.5 square meter infiltration area ---> approximately 125 liters per day effluent infiltration capacity). A ten-meter long trench with sidewall infiltration depth of 60 centimeters would provide about the same capacity. A combined trench-evapotranspiration bed design would enable cultivation of a cover crop.
- 10.4.2.6 The M.W.P. should investigate low-cost vent pipe design alternatives (150 mm diameter) for VIP latrines, using locally available materials. Although bamboo and adobe have reportedly been tested without success, such local building techniques should be reevaluated. Fabrication from tin sheeting and other innovative alternatives should also be researched. VIP technology offers a significant odor control benefit in comparison to non-VIP latrines. The marginal cost of an appropriate vent pipe alternative added to that of the "Sanplat" squatting slabs being provided under the HESP component should not prove prohibitively expensive.

10.4.3 Construction

10.4.3.1 The M.W.P. needs to ensure more quality control over the work of contractors hired to install drainage aprons and washing slabs at water points.

10.4.3.2 Installation of pipe using community self-help labor should follow proper procedures for trenching, joining and laying of pipes, thrust blocking, anchoring, and backfilling. Stricter attention to these details will help to minimize operation and maintenance problems in the system, and therefore recurrent costs.

10.4.3.3 All pipelines should be pressure-tested with joints exposed prior to completing the backfill operation.

10.4.4 Operation

10.4.4.1 Local water committees should be encouraged to maintain vigilant oversight of the system operation and report any irregularities to the water operator and the Traditional Authority.

10.4.5 Maintenance

- 10.4.5.1 Given the recent MOWS realization of much higher maintenance costs associated with existing gravity piped systems than previously believed, the M.W.P. should pay closer attention to the community link in system maintenance and willingness-to-pay issues.
- 10.4.5.2 The M.W.P. should recognize the potential for a diversion of scarce MOWS resources due to the initiation of a seven-year USAID-financed piped water project. In this regard, the M.W.P. should plan for major maintenance responsibilities to continue to be fulfilled by the M.W.P. beyond the one year specified in the Design Document before turnover to the MOWS.
- 10.4.5.3 Water Program staff should provide more encouragement to maintain properly the drainage works at public standposts and boreholes. Local tap/pump committees require more motivation in preventing the occurrence of standing drainage water.
- 10.4.5.4 Local tap/pump repair and maintenance teams should be entrusted with expendable parts/supplies and tools, rather than having to rely on central stores.

10.4.6 Monitoring and Documentation

- 10.4.6.1 It is recommended that World Vision Malawi develop documentation practices that illuminate activities and expenditures according to project components, in addition to any other form of reporting requirements.
- 10.4.6.2 The M.W.P. should act immediately to set up a technical monitoring system for the groundwater, surface water, and HESP components of the project, using as a starting point the plan described in the May, 1988 Design Document.
- 10.4.6.3 Monitoring Assistant positions designated in the Design Document should be filled as soon as practicable.
- 10.4.6.4 Monitoring data should be recorded in a systematic manner using standard reporting formats and maintained in easily retrievable project files.
- 10.4.6.5 Control over specifications and criteria for bacteriological and chemical water quality monitoring should be maintained by the M.W.P.

10.4.6.6 Technical reference materials should be compiled at the project-level office and thereafter supplemented and updated by all consultants that visit the project.

10.4.7 Training and Staff Development

10.4.7.1 It is recommended that World Vision Malawi undertake within this next year a program of staff development in the area of project management for all relevant managers; this program should focus on accepted management practices/techniques, particularly monitoring aspects and emphasizing follow-up procedures.

10.4.7.2 Qualifications critical to the secular component of World Vision projects supported by U.S. Government funds should be the prime determinant for filling open staff positions.

10.4.7.3 If the most technically qualified and available individuals are not hired into open positions, then World Vision should program both adequate training for those individuals and adequate measures for meeting project implementation goals while such individuals are being trained.

10.4.7.4 Staffing levels of the M.W.P. must be increased to enable the full-time assignment of the project engineer on site with a vehicle during the construction phase of water projects.

10.4.7.5 Large-scale development projects such as the M.W.P. require much more intensive involvement of Project Coordinators (PCs). Several options may be considered in this regard, listed in decreasing order of estimated time required for implementation:

- small-scale sponsorship projects could be phased out or re-programmed to reduce the geographical dispersion that currently limits PC contacts to little more than superficial visits;
- PC staffing could be increased several-fold to reduce the current portfolio of approximately seven sponsorship projects per PC. Staff increases should be combined with decentralized posting of PCs to the District or Area(s) where their projects are located; or
- the Water Program could add community motivation and liaison staff positions (approximately two per district where the M.W.P. operates) for its large-scale projects. They should be based in the appropriate District and would complement the wider responsibilities of the PC in M.W.P. communities. These positions may most appropriately be attached to the HESP component of the M.W.P.

10.4.7.6 Technical training should be expanded beyond initial short courses provided by the MOWS to include: Project Coordinators, repair crews, tap committees, water operators, and storekeepers (who could put idle time to good use in outreach and inspection).

10.4.7.7 Repair kits should be distributed to local maintenance crews immediately upon the completion of their first formal training program. Repair teams require more commendation, encouragement, and support from Water Program staff.

10.4.7.8 WV Malawi should strive to provide greater job continuity of staff, especially among mid-level management and within the Operations Unit at the Project Coordinator level.

10.4.8 **Management and Supervision**

10.4.8.1 It is recommended that World Vision Malawi (Water Unit staff and Operations staff) spend more time in the field engaged in community participation activities. There is a need for much more dialogue between communities and World Vision staff.

- 10.4.8.2 The Water Unit engineering staff requires much more time in the field--80%, or four days per week--for project supervision (some of which should be allocated to community liaison work).
- 10.4.8.3 It is recommended that World Vision Malawi clarify the role of the Water Unit staff and the Operations staff in the development of these water projects and strengthen the coordination of these units with appropriate supervision. The staff of different divisions should recognize that they are all working together as a World Vision team.
- 10.4.8.4 The Water Supply Manager and the Water Coordinator should share office space together to enable closer coordination and mutual training/learning.
- 10.4.8.5 Resources allocated to the Water Project should be reserved for the exclusive use of the project-- e.g., vehicles--and made accessible for other uses only on an "as available" basis.

10.4.9 Procurement and Subcontracting

- 10.4.9.1 Based on the analysis in (10.4.1.5) and (10.4.1.6), any new or refurbished vehicles that may be required by the M.W.P. should be procured within the next fiscal year.

10.4.9.2 The M.W.P. should review and revise the non-expendable equipment list specified in the May, 1988 Design Document for both piped water and groundwater schemes, based on project experience to date and an analysis of current and future requirements. The revised list should be procured within the next fiscal year.

10.4.9.3 Drilling contracts should contain clauses explicitly requiring the contractor to perform the following tasks:

- produce a clear drilling report, including a borehole location map, measured distances to landmarks, and results of yield measurement by baling test or pump test (minimum 2 hr), according to the recommendations of the project hydrologist;
- produce a log showing borehole design to scale, whether open or cased, depth to aquifer horizons/water-bearing layers, type of formation, and static level;
- produce water quality test results, which should be subject to M.W.P. staff review, before installation of the pump; and
- all borehole sites and drilling reports must be inspected and certified before payment to contractor. In order to record M.W.P. staff observations during this procedure, compliance forms should be developed and maintained in project files.

10.5 Water and Sanitation for Health (WASH) Project

Recommendations pertaining to the participation of WASH in the AWP concern the possibilities for dispensation of the funds remaining from the USAID/EVA/PVC buy-in (\$56,789 as of May 15, 1990). These recommendations reflect the following facts:

- little to no individual project level technical training was done (the Ghana Community Health Training activity appears to be the only one; no low-cost technology workshops were implemented);
- country-level activities were not evenly distributed; Ghana and Senegal received at least twice the attention that Kenya and Malawi did; and
- project staff in Kenya and Malawi expressed a great interest in receiving practical technical training.

The following recommendations all involve project-level training and are ranked in order of priority according to the evaluation team's assessment.

10.5.1 Project management workshop in Malawi for the MWP.

This workshop should include not only MWP staff, but also the key Field Office management, as well as relevant Ministry staff. It should address issues such as scheduling, logistics, supervision, coordination and allocation of resources, functional evaluation (that feeds back into the design process), reporting, and file management.

10.5.2 Construction workshop at MPP sites in Kenya.

This workshop should focus on cost-effective RWC methods, coupled with an emphasis on maintenance of water quality. MPP and government staff should both attend. Examples include:

- pond intakes that lead to settling and perhaps filtration for domestic water supply;
- engineered roof RWC to maximize capture and storage; also looking at smaller household-level systems, with storage elements based on ferrocement construction;
- evaluation of household storage systems; and
- VIP latrine construction from appropriate local materials.

10.5.3 Project engineering workshop in Malawi at MPP sites.

This workshop should emphasize technical monitoring systems, technical documentation, mapping, and producing schematics. On the design and construction side, it should also address the development of a cost-effective vent pipe for VIP latrines, using local materials. The workshop should include MWP technical staff, community development motivators, consultants to the project, and relevant government personnel.

10.5.4 Water supply engineering planning workshop in Kenya.

This workshop should focus on source evaluation, selection, and development from a planning perspective. Government staff should participate along with MWP technicians.

10.5.5 The RTT should play an active role in all of these activities. Terms of reference for external consultants should specify a component for identifying and providing technical resource materials for project-level documentation centers.

10.5.6 WVI had expressed another priority to the evaluation team. The suggestion involved a review and analysis of the current status of WV drilling equipment throughout Africa, with the goal of recommending a disposition for it. The team believes that this may be a desirable exercise, but WVI may be able to find a drilling consultant elsewhere than through WASH. The team believes that WASH's particular expertise in conducting front-line, technical workshops and in participatory training methods could be utilized to greater effect with the remaining funds. Further, such a project-level emphasis would be both a well-earned reward for dedicated and motivated project staff and a morale-booster.

10.6 USAID

10.6.1 Within PVC, more attention and care should be directed toward monitoring the progress of a grant such as the AWP. Problems encountered in making progress on the goals and objectives need frank discussions with resulting acceptable adjustments and practical remedies, including plans for action.

10.6.2 Appropriate staff from USAID field missions should make visits to selected project sites at least once per year and have face-to-face meetings with project personnel to discuss progress, problems, and projected plans of action.

10.6.3 Cooperative Agreements should specify financial reporting requirements that yield information for more than just accounting objectives. The USAID system makes it extremely difficult for project management to assess the technical progress and coordination of a multi-component program. Expenditures should also be reported in terms of technical activities, rather than lumping categories (such as staffing) across activities.

10.6.4 PVC should recognize the importance of evaluation as an intrinsic component of a project, and place the emphasis on it that will enable evaluation to be useful. When designed properly, evaluations provide some of the most cost-effective investment that a donor can make. When adequate resources are committed to evaluation, lessons learned can be applied to redesign of an existing project or the design of a new project. For the final evaluation of the AWP, a mere 2% of the total USAID contribution was committed. This sum equaled the WASH input on "Rapid Assessments" in only two of the four project countries at the beginning of the AWP. Such project priorities should be reassessed at the design stage.

10.6.5 USAID should continue to support World Vision's Africa Water Program.

**FINAL EVALUATION
OF THE
WORLD VISION RELIEF
AND DEVELOPMENT
AFRICA WATER PROGRAM
** APPENDICES ****

Conducted By:

**Frank P. Carrol
Paul W. Jankura**

**Under Contract No. OTR-0250-00-C-7237-00
Automation Research Systems, Limited**

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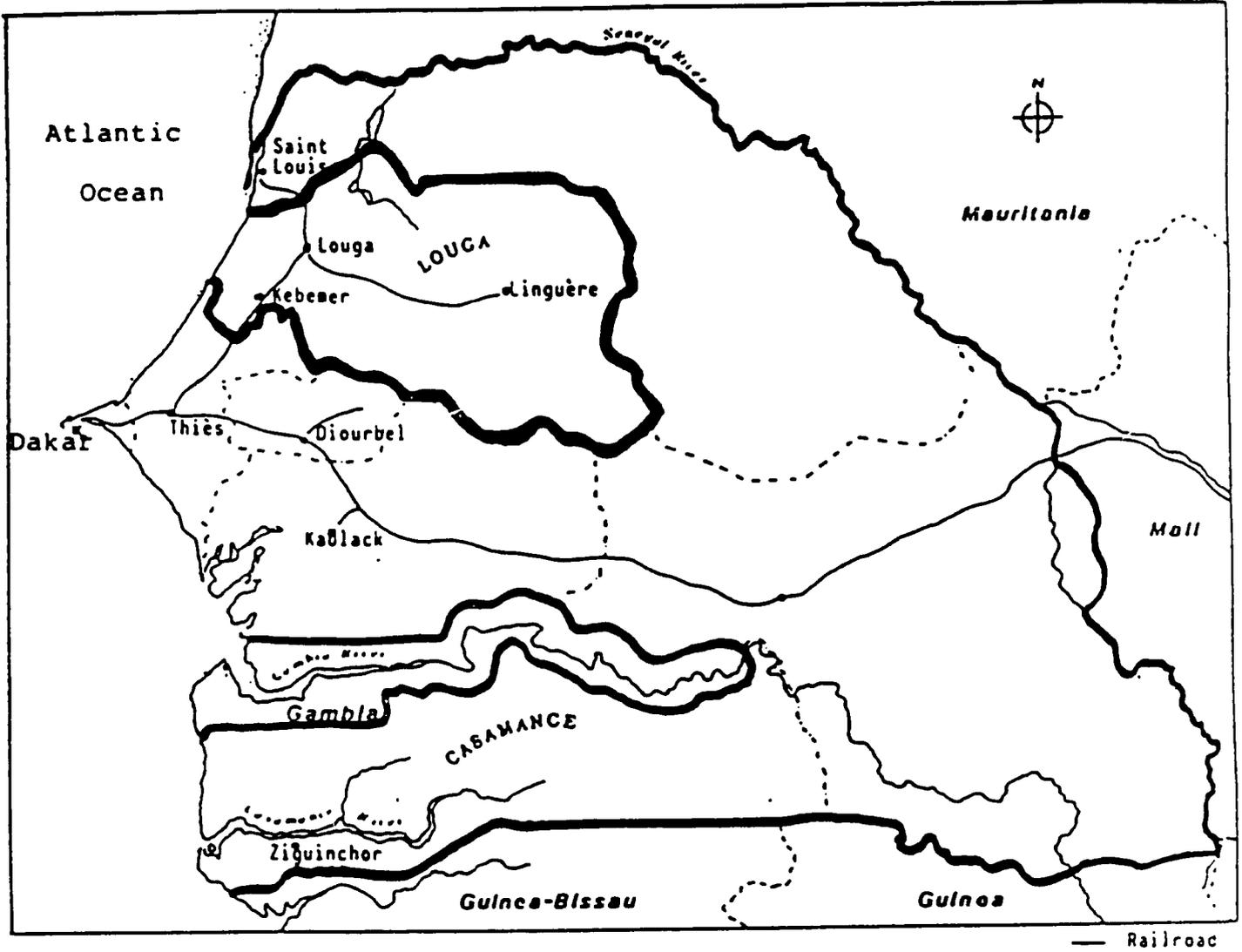
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Figure 1

MAP OF LOUGA REGION IN SENEGAL

LOUGA REGION IN SENEGAL

Senegal



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Figure 2

MAP OF LOUGA WATER PROGRAM AREAS, SENEGAL

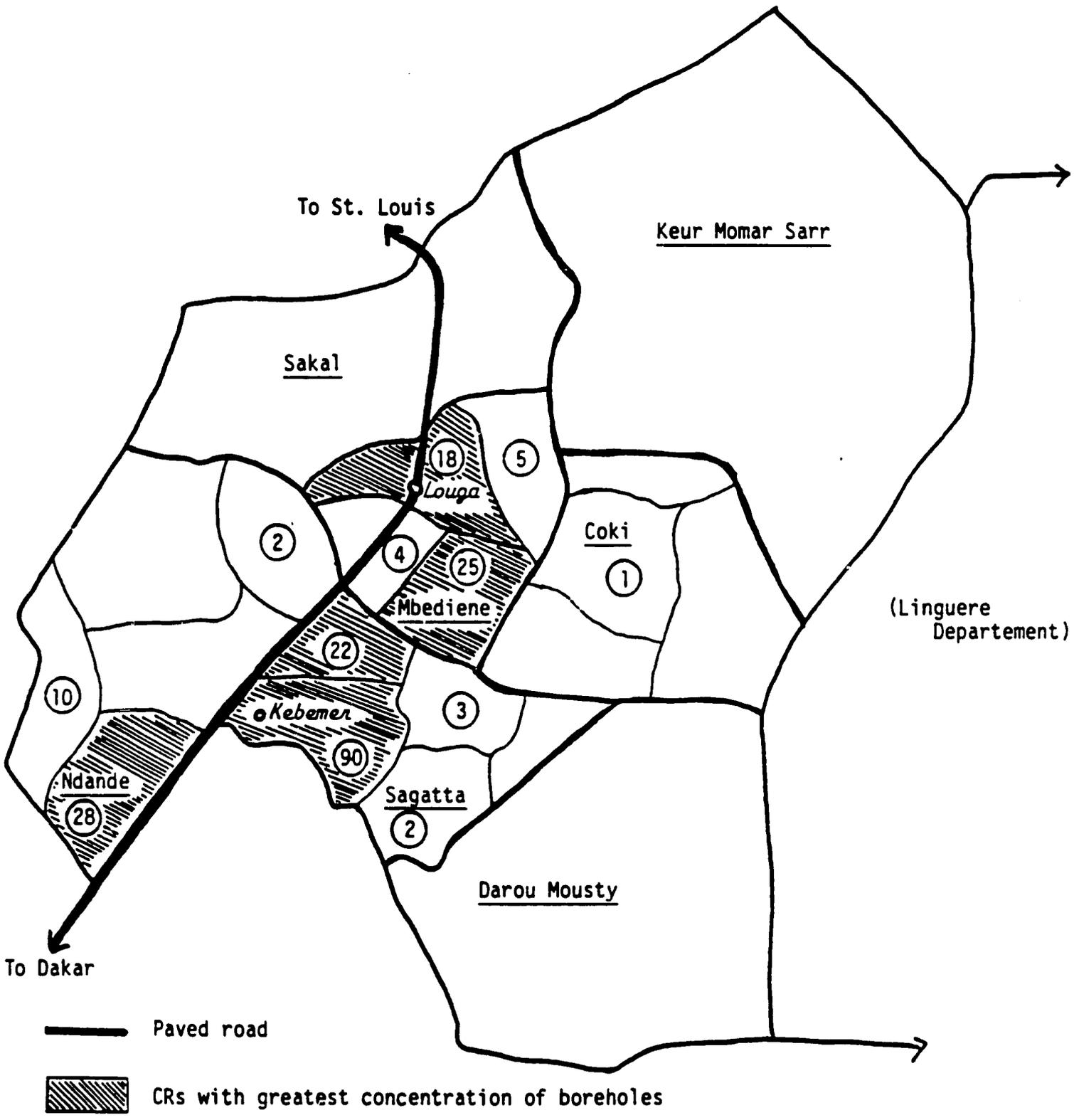


Figure 3

MAP OF GHANA PROGRAM AREAS

LOCATIONS OF BOREHOLES DRILLED

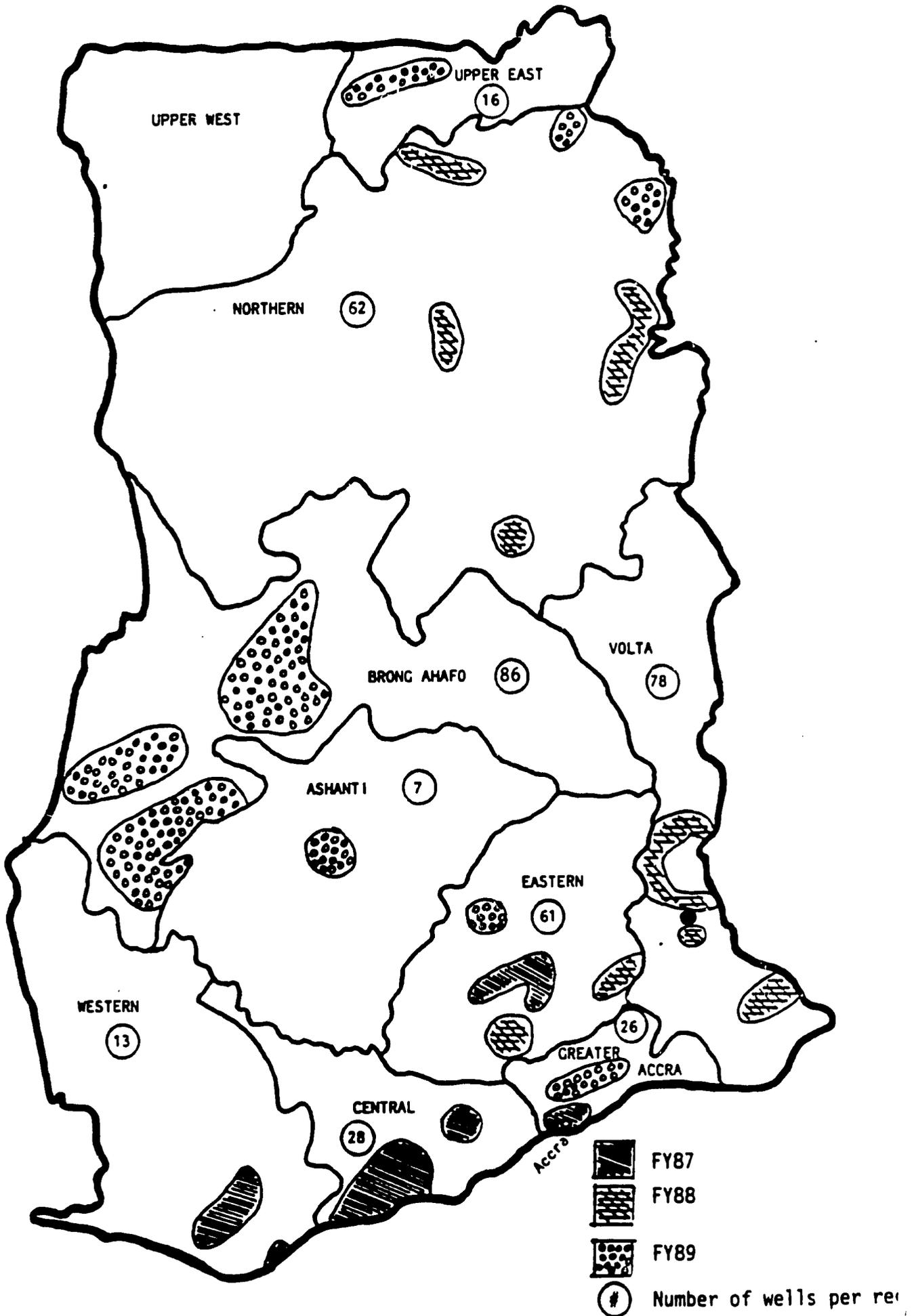


Figure 4

MAP OF KENYA AND MPP DISTRICTS

MAASAI PEOPLES' PROJECT - PROJECT DISTRICTS

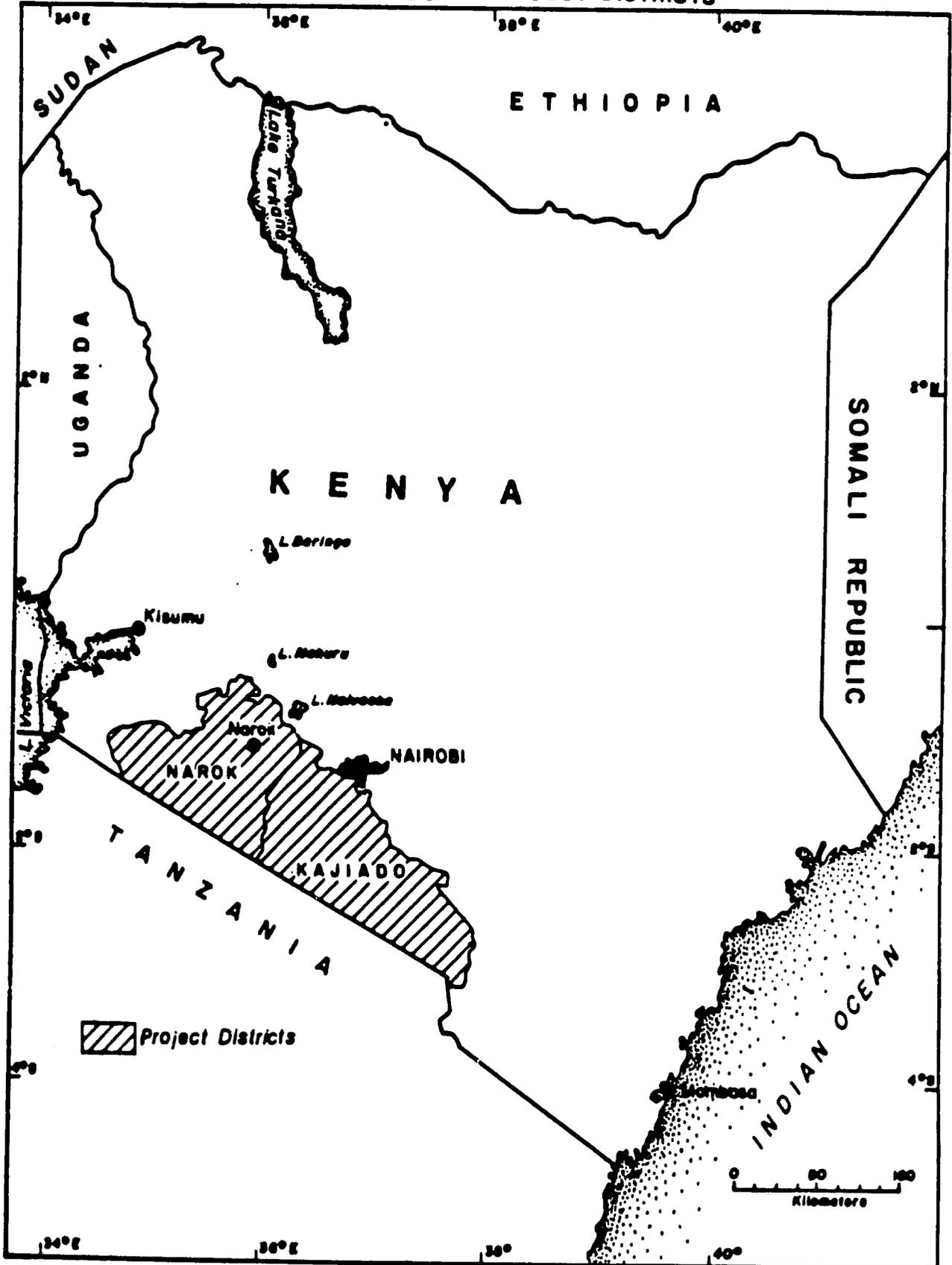
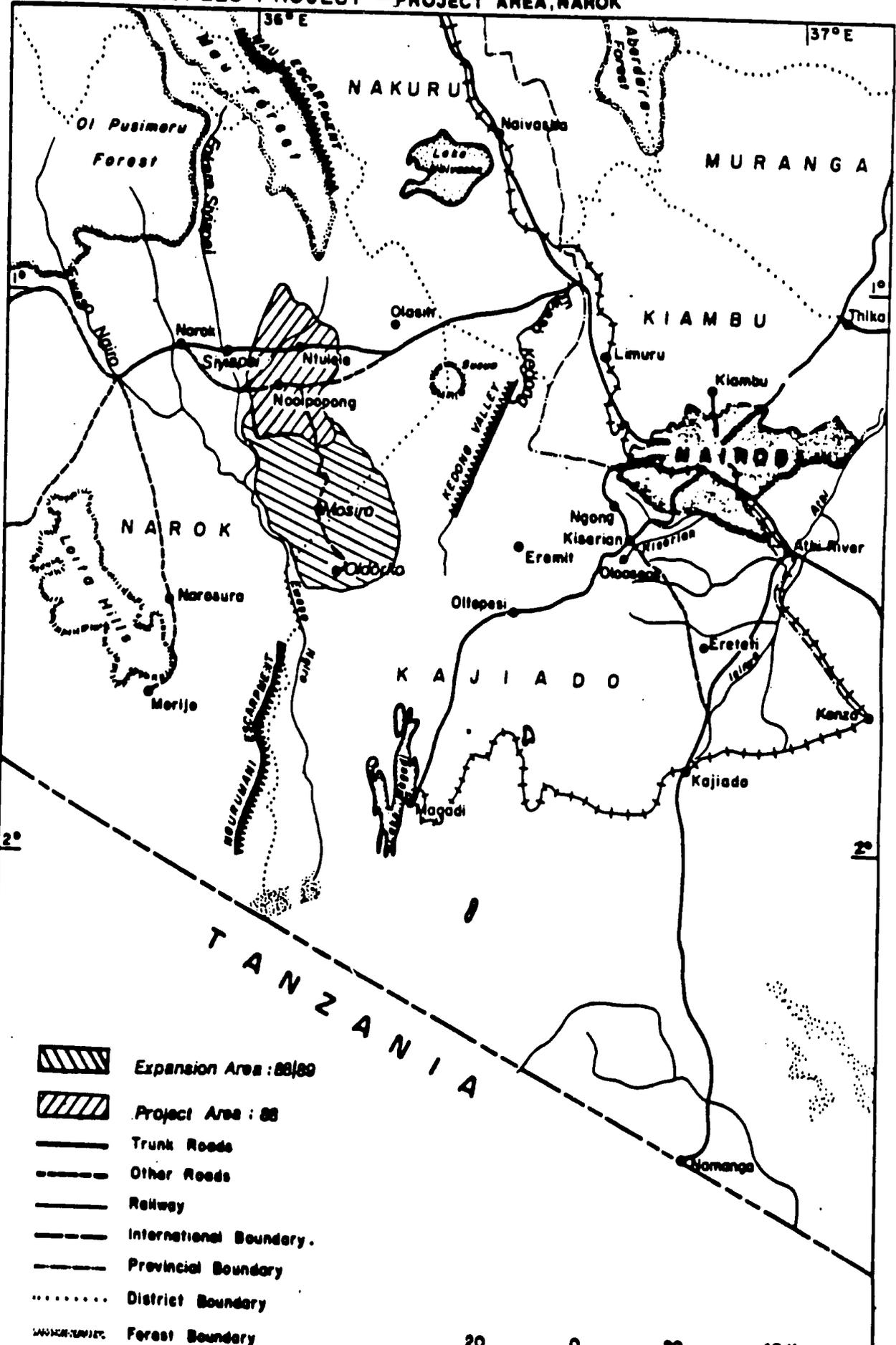
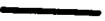


Figure 5

MAP OF MPP PROJECT AREA

MAASAI PEOPLES' PROJECT - PROJECT AREA, NAROK



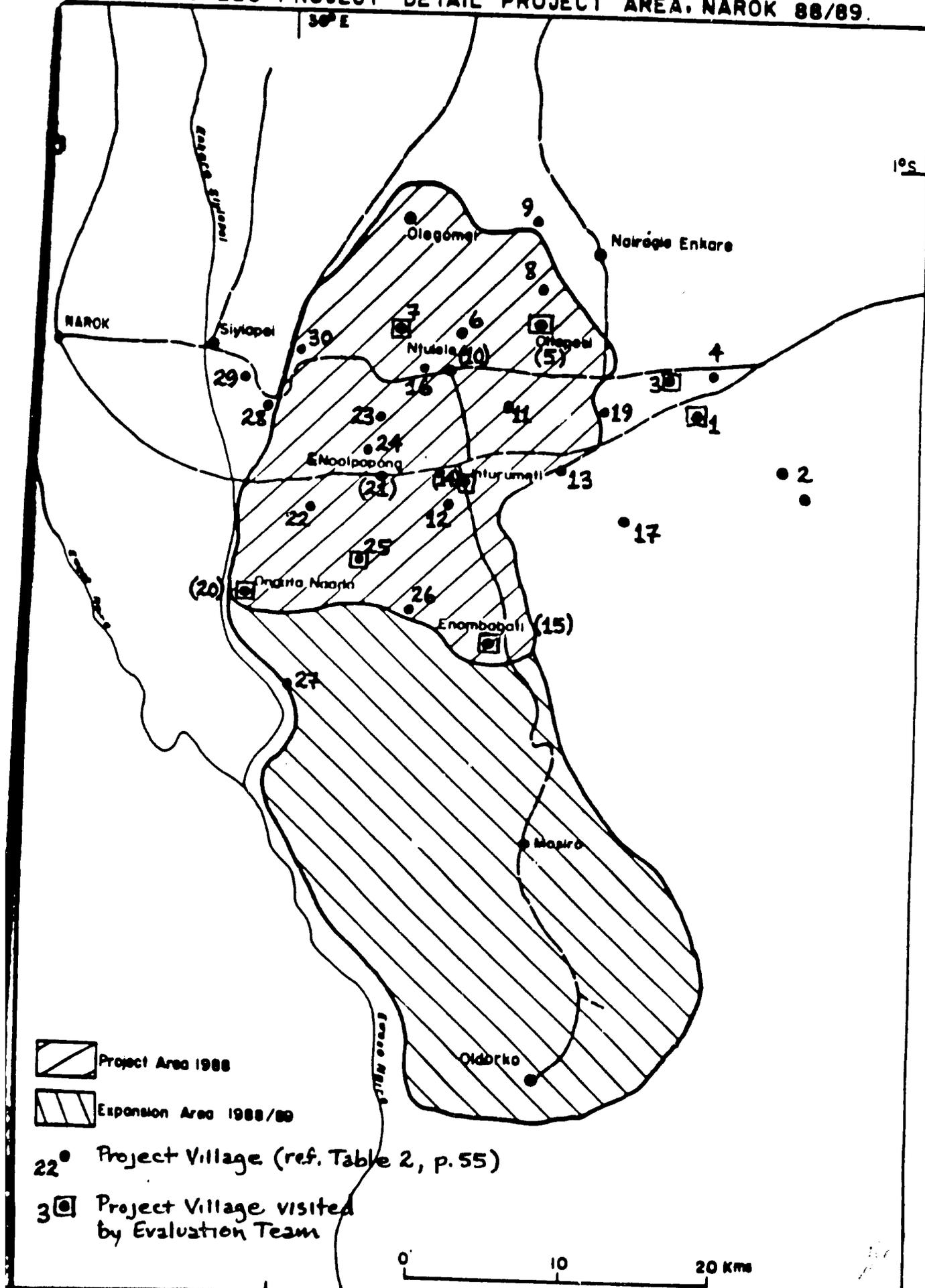
-  Expansion Area : 88/89
-  Project Area : 88
-  Trunk Roads
-  Other Roads
-  Railway
-  International Boundary.
-  Provincial Boundary
-  District Boundary
-  Forest Boundary

UN

Figure 6

DETAILED MAP OF MPP COMMUNITY SITES

MASAI PEOPLES' PROJECT - DETAIL PROJECT AREA, NAROK 88/89.



-  Project Area 1988
-  Expansion Area 1988/89

22 ● Project Village (ref. Table 2, p. 55)

3 ◻ Project Village visited by Evaluation Team

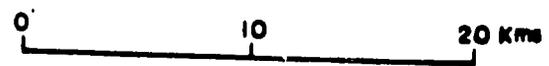
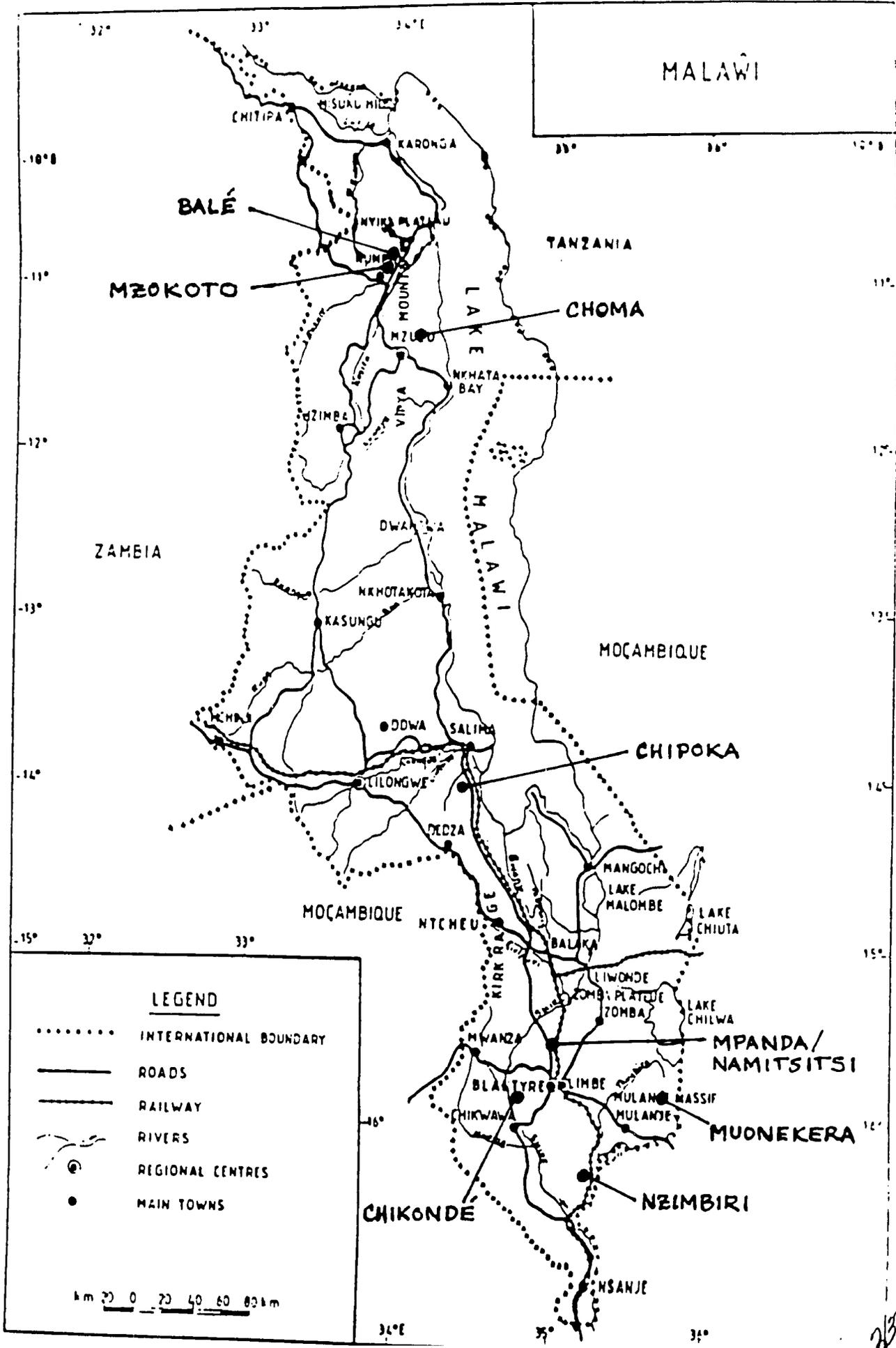


Figure 7

MAP OF MALAWI AND MWP SITES



LEGEND

- INTERNATIONAL BOUNDARY
- ROADS
- RAILWAY
- ~~~~~ RIVERS
- ⊙ REGIONAL CENTRES
- MAIN TOWNS

km 0 20 40 60 80

MALAWI

TANZANIA

ZAMBIA

MOZAMBIQUE

CHIPOKA

MOZAMBIQUE

MPANDA/
NAMITSITSI

MUONEKERA

CHIKONDE

NZIMBIRI

MSANJE

BALÉ

MZOKOTO

CHOMA

DWA

MKHOTAKOTA

KASUNGU

DDWA

SALIMA

LILONGWE

DIEDZA

NTCHEU

BALAKA

LIWONDE

ZOMBA PLATOU

ZOMBA

MWANZA

BLANTYRE

SHIMBE

CHIKWAWA

MULANJE MASSIF

MULANJE

MANGOCHI

LAKE MALOMBE

LAKE CHIUTA

LAKE CHILWA

KIRIKIRI RANGE

SHIMBIRI RANGE

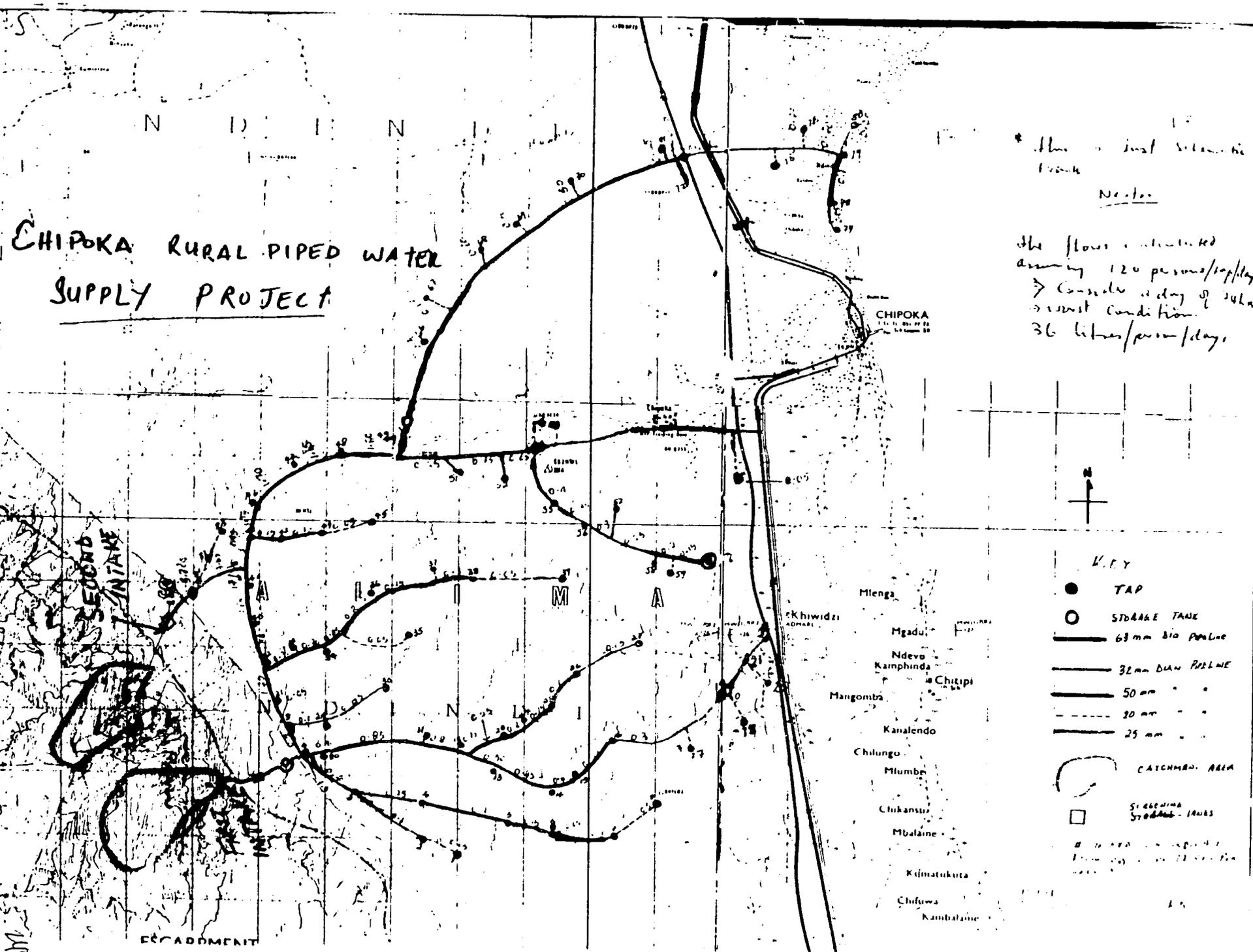
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Figure 8

SCHEMATIC OF CHIPOKA PROJECT SITE, MWP

CHIPOKA RURAL PIPED WATER SUPPLY PROJECT

SECOND SINTANE



* This is just schematic
 sketch
 Notes

The flow estimated
 assuming 120 persons/supply
 > Considered a day of 24hrs
 worst condition
 36 litres/person/day



- KEY**
- TAP
 - STORAGE TANK
 - 63mm DIA PIPELINE
 - 32mm DIA PIPELINE
 - 50mm " "
 - - - 20mm " "
 - 25mm " "
 - CATCHMENT AREA
 - STORAGE TANK

Appendix A

LIST OF CONTACTS

Appendix A LIST OF CONTACTS

Kenya

World Vision Regional Technical Team (RTT)

Isaac Riak	Director, WV Regional Technical Team
Larry Quist	Water Program Specialist
Mulugetta Abebe	Sponsorship Program Specialist
Masibu	Computer Specialist
Robin Nicoll	Former Project Design, Systems, Evaluation staff

World Vision Field Office/Nairobi

Rebecca Cherono	Director, WV Field Office
James Ngusi	Special Assistant to the Director

Maasai People's Project (MPP)/Narok

Daniel Ole Shani	Project Manager
Solomon Munke	Training Coordinator
George Gitau	Implementation Coordinator
Joseph Timkoi	Water Engineer
Catherine Koyati	Women's Development Motivator
Phoebe Kishoyian	Women's Development Motivator
Rose Magiroi	Women's Development Motivator
Margaret Sankale	Women's Development Motivator
Julius Kedoki	Community Motivator
Moses Kerepei	Community Motivator
John Kintalel	Community Motivator
Ben Koisaba	Community Motivator
William Koonyo	Community Motivator
Eliud Neilliang	Community Motivator
Simon Pareyio	Community Motivator
Johnson Sipitiek	Community Motivator
John Letoluo	Soil & Water Conservation Consultant
Harry Clark	Former Project Manager

Childcare International

Benjamin Kaviti	Child Sponsorship Co-ordinator, Nairobi
Jonah Kasura	Field Administrator, Narok

Government of Kenya/Narok District

P.H.O. Lisege	District Development Officer (DDO)
Erick Omuwa	Deputy DDO
S.W. Wangombe	Geologist, Ministry of Water Development

USAID/Nairobi

William James	Deputy Director, PVO Liaison Office
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Malawi

World Vision Field Office-MWP/Blantyre

Silas Kenala	Director, WV Field Office
Mike Mtika	Deputy Field Director; Head, Operations
Amos Kalawe	Water Program Manager; Head, Technical Services
Chimwemwe Chikusa	Water Supply Manager
Newton Kambala	Water Co-ordinator
Rose Namarika	Health Manager
Betty Mataya	HESP Supervisor
Robert Mponela	Central Region Manager, Operations
Hesmoth Chilizani	Project Co-ordinator, Chipoka
Ginaya Monjeza	Project Co-ordinator, Mpanda-Namitsitsi
Vincent Moyo	Project Co-ordinator, Chikonde
John Manderu	Project Co-ordinator, Kamchocho

Malawi Water Project Contractors

Wellington Mandowa	Willy & Partner Engineering Services
Hans Andersen	Managing Director, Scandmill Ltd. Drilling Engineer
V.E. Livingston	General Manager, Pipe Extruders Ltd.
Moses Kafanikhale	Sales Manager, Pipe Extruders Ltd.

Government of Malawi

Newton Chaya	Head, Rural Piped Water, Min. Works/Supplies (MOWS)
Jack Farmer	Senior Civil Engr., Rural Piped Water, MOWS
Rob Kafundu	Head, Groundwater Section, MOWS
Linda Mauluka	Training Supervisor, Borehole-Pump Maint., MOWS
Mr. Kamvabingu	Exec. Officer, District Commissioner Office, Salima
Mr. Banda	Acting Community Development Officer, Salima
Francis Devisoni	District Groundwater Officer, MOWS, Zomba
Mr. Majakuta	District Health Inspector, Min. of Health, Blantyre

USAID/Lilongwe

Mexon Ngrongo PVO Liaison Office

World Vision/Monrovia

Nate Fields	Africa Regional Vice-Pres (ARVP), WV Int'l (WVI)
Al Johnson	Exec. Asst. to ARVP & AWP Program Manager
Paul Thompson	Exec. Director, WV Relief & Development (WVRD)
Julian Pitchford	Director, International Development Programs, WVRD
Bryant Myers	Vice-President, Research & Development, WVI
Frank Cookingham	Director of Evaluation, WVI
Samuel Voorhies	Associate Director of Evaluation, WVI
Larry Johnson	Director of Finance, WVRD
Mark Publou	Director of Corporate Affairs, WVRD
Jana Phifer	Grant Compliance Officer, WVRD
Joe Muwonge	Asst. to ARVP, WV Uganda
Craig Hammon	Vice-President World Vision U.S.

Water & Sanitation for Health (WASH) Project

Craig Hafner	Project Director
Phil Roark	Operation & Maintenance and Evaluation Specialist
Fred Rosenzweig	Assoc. Dir. for Instit'l & Human Resources Dev'mnt
Dan Campbell	Librarian and Information Specialist
Bob Gearheart	Engineering Consultant

USAID/Washington

Harry Wing	FVA/PVC
Chuck Fields	FVA/PVC
Dennis Long	S&T/Health
Claudia Liebler	TPM Facilitator (Consultant)
Ronald Parloto	Engineer (Consultant)
Ada Jo Mann	ARS, Ltd. (Consultant)

Appendix B

SCOPE OF WORK

WORLD VISION COOPERATIVE AGREEMENT EVALUATION

SCOPE OF WORK

I. OBJECTIVE

AID/FVA/PVC and World Vision Relief and Development, Inc. (WVRD) require that an evaluation be undertaken of their Matching Grant cooperative agreement, known as the Africa Water Project (AWP). This evaluation is intended to provide both organizations with: (1) an assessment of compliance with the terms of the Agreement, particularly as it relates to WVRD's strengthened capacity to plan, implement, manage and evaluate water projects in Africa; and (2) lessons learned as a result of the Project's implementation. This evaluation is a follow-up to the Performance Assessment: World Vision Africa Water Project conducted by Ron Parlato and reported on November 20, 1989.

II. Background

In 1987 World Vision Relief and Development (WVRD) was awarded a matching grant by the Office of Private and Voluntary Cooperation (PVC) to help establish an ongoing institutional capability within WVRD and its Africa field program management structure to plan, implement and manage effective water development programs. The effective period of the grant is from January 1, 1987 to June 30, 1990. The major objectives, as stated in the Cooperative Agreement, are:

1. secure experienced staff to manage activities and provide management oversight for large-scale water development projects;
2. establish a regionally-based technical information and documentation center to manage and implement these projects;
3. institute a comprehensive program of technology transfer, training and technical assistance for field staff;
4. strengthen the existing regional technical team's capability to provide ongoing technical assistance and training to field staffs;
5. establish small technical resource units within five

field offices; and

6. procure materials, equipment and technical services for the implementation of selected water projects.

The implementation of project activities which would upgrade the capability of the WVRD regional technical unit and field office and project management staff was to be tied to "technology transfer" as provided by the Water and Sanitation for Health Project (WASH). WASH was specifically mentioned as the source of a broad range of planning, training, technical documentation, and design and appraisal services. WASH and WVRD identified a series of appropriate technical interventions on the part of WASH.

Some activities of this matching grant were assessed with a report submitted on November 20, 1989 by Ron Parlato entitled Performance Assessment: World Vision Africa Water Project.

III. Evaluation Principles

The detailed evaluation protocol to be developed by the evaluators and significant clients during the Team Planning Meeting should be governed by the following principles:

1. This evaluation is organized by PVC (who retains the right to guide and direct the effort). However, it is seen as a collaborative venture aimed at providing useful information to all parties involved about the success of meeting the aims of the Cooperative Agreement. In this case, three main parties are involved: PVC, WVRD and WASH. Both the activities of WVRD and WASH are to be evaluated. Because WASH was specifically involved from the conceptualization of the Africa Water Project, their activities as a technical assistance organization must be included in the protocol.
2. On several levels, the African Water Project is an institutional development project. It is intended to improve WVRD's institutional capability at headquarters, within a field-based regional technical team, and within the individual country offices of WVRD. It is also intended to "institutionalize" change in the lives of beneficiaries. In all cases, inputs which are external human resources are seen as "enablers" which permit targeted individuals and groups to identify problems and learn the necessary skills to implement solutions. These necessary changes require processes which lead to increased capacity outcomes. The evaluation protocol must be structured in ways which reflect an interest in both outcomes, as represented by quantitative data, and processes, as represented by qualitative data.

IV. Evaluation Structure

The Evaluation Team will consist of three members: an engineer familiar with water projects; an institutional/financial/management specialist; and a representative of WVRD. Together they will review elements of the Project's design and implementation according to the evaluation activities listed below.

The following five activities will form the basis of data collection for the evaluation and report.

Activity One: a review of the mid-term assessment report conducted by Ron Parlato.

The assessment of the Africa Water Project focussed largely on the issues of institutional organization, management, and finance affecting the Africa Water Project in its entirety. It reviewed the way WVRD built an institutional structure to support the activities of the Africa Water Project; the way WVRD recruited new or deployed existing personnel as staff for project activities; and the way WVRD established a management system through which technical assistance could be provided to country field offices. The mid-term assessment analyzed major issues such as policy change, institutional reorganization and financial allocation. This assessment also dealt with the lack of program activities in Mali, which was intended to be one of the original five countries.

The assessment was not able to assess the interventions of the RTT staff in Nairobi to ascertain their timeliness, usefulness or relevance to the needs of country staff. It was not able to assess the training and technical assistance activities of WASH to determine their level of benefit to WVRD professionals or project activities. Also, the mid-term assessment did not assess the quality or quantity of activities in the field undertaken during the grant.

Activity Two: a review of evaluation reports completed on WVRD's water projects in Ghana and Senegal.

The evaluation reports to be reviewed represent a view of grant activities in Senegal and Ghana which will not receive field evaluations by the team. Two in-house evaluations of the Senegal project have been undertaken. A program review for Ghana, with WASH participation, was planned for December 1989. These two activities should be completed by the team members prior to the Team Planning Meeting.

Activity Three: a visit to World Vision's headquarters.

Issues of interest during the headquarters visit should include:

- o coordination of all project inputs to complete project outputs; and coordination of outputs to reach the project purpose. Is World Vision providing the policy, planning, management and technical support required to support a multi-country water program? Have interventions (technical, policy, planning, management, recruitment and hiring) been timely, useful and relevant?
- o production and distribution of technical information and other useful documentation. Have technical manuals, policy manuals and strategy information been published? Are they useful and relevant?

Activity Four: interviews with World Vision's regional RTT staff in Nairobi.

Issues of interest during the RTT interviews should include:

- o support to field operations to assist in the completion of project outputs and project purpose and communication with WVRD's headquarters and WASH to facilitate planning, efficient implementation, and objective evaluation of the individual country water projects. Does the RTT function as a necessary resource to both field operations as well as headquarters? Have interventions been timely, useful and relevant?

Activity Five: a field evaluation of World Vision's water projects in Kenya and Malawi.

Issues of interest during the field visits should include:

- o Impact: Do projects implemented by WVRD have a positive effect on community water supplies? Have planning, management, community organization, supervision and educational activities had a positive effect on community water supplies?
- o Process: Have community activities been organized in such a way as to increase organizational development, the transfer of technical and managerial skills, and the organization of financial resources so that communities will continue to participate in water supply projects?
- o Outcomes: Have inputs been combined in significant levels and at the appropriate times to produce the desired outcomes?

Activity Six: **interviews with WASH headquarter's staff.**

Issues of interest during the WASH headquarters visit should include:

- o Coordination of WASH technical inputs with other project inputs. Have they been requested and utilized in ways which have the most positive interaction with other inputs to reach project outputs and purpose? Have interventions been timely, useful and relevant?

During the TPM, team members will be responsible for developing a protocol which includes both the necessary means of field data collection as well as the appropriate indicators to measure achievement of project outputs and purpose.

The final evaluation report, to be written by the team leader (in collaboration with the other evaluators), will synthesize information from all six sources. It will be the responsibility of the team leader to provide the report in draft to the three major parties, solicit their comments, and incorporate comments into the final report.

Appendix C

BUDGET PROJECTIONS: AWP PROPOSAL

**LEVEL B: SUMMARY OF OPTIMUM FUNCTIONAL BUDGET
AT AID \$730K/Year**

African Water Project - Functional Budget FY87-FY89
Total Program Costs - \$000

	COUNTRIES					TOTAL PROGRAM	OF WHICH AID MC
	KENYA	SENEGAL	GHANA	MALI	MALAWI		
L. Direct Program Costs							
A. Program Management, Strategy Development, Headquarters Water Specialist							
1. Staff Personnel						\$ 1,047.9	\$ 783.6
2. Travel & Per Diem						242.4	0.0
Total - Section A	\$ 0.0	\$ 1,290.3	\$ 783.6				
B. Regional Technical Resource Support							
1. Project Development Staff						\$ 1,309.0	\$ 0.0
2. Technical Information and Documentation Services						314.1	314.1
3. Consultants: Technical Assistance to Projects						443.1	0.0
4. Travel and Per Diem						293.6	0.0
Total - Section B	\$ 0.0	\$ 2,273.8	\$ 314.1				
C. WASH Technical Assistance and Technology Transfer							
1. Strategic Program Planning: Pre- Implementation						\$ 94.0	\$ 94.0
2. Project Development and Monitoring Workshop						85.0	85.0
3. Specialized Strategy Development: Training; Community Partnership; Operating and Maintenance; Evaluations						165.0	165.0
Total - Section C	\$ 0.0	\$ 344.0	\$ 344.0				
D. Project Management and Implementation							
1. Field Office Technical Resources Unit	\$ 90.0	\$ 90.0	\$ 90.0	\$ 90.0	\$ 90.0	\$ 450.0	\$ 450.0
2. Material and Equipment	2,040.0	2,490.0	2,622.0	1,590.0	637.5	9,379.5	215.1
3. Project Operations	1,360.0	1,640.0	1,748.0	960.0	425.0	6,153.0	143.4
Total - Section D	\$ 3,490.0	\$ 4,220.0	\$ 4,460.0	\$ 2,640.0	\$ 1,152.5	\$15,982.5	\$ 808.5
E. Evaluation						\$ 40.0	0.0
Total - Section E	\$ 0.0	\$ 40.0	\$ 0.0				
F. Indirect Program Costs @ 9%						\$ 1,793.7	\$ 0.0
Total - Section F	\$ 0.0	\$ 1,793.7	\$ 0.0				
TOTAL PROGRAM EXPENDITURE	\$ 3,490.0	\$ 4,220.0	\$ 4,460.0	\$ 2,640.0	\$ 1,152.5	\$21,724.4	\$2,250.2

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**LEVEL II: SUMMARY OF OPTIMUM FUNCTIONAL BUDGET
AT AID \$750K/Year**

African Water Project Summary Budget By Expense Category and Year \$000	FY87	FY88	FY89	TOTAL PROGRAM	OF WHICH AID MG
A. Corporate Headquarters Senior Water Specialist	\$ 78.0	\$ 80.3	\$ 82.8	\$ 241.1	\$ 241.1
	<u>18.0</u>	<u>19.0</u>	<u>20.0</u>	<u>57.0</u>	
Total - Section A	\$ 96.0	\$ 99.3	\$ 102.8	\$ 298.1	\$ 241.1
B. Program Management, Strategy Development, Grant Coordination					
1. Director, Program Management, Strategy Development	\$ 97.3	\$ 100.4	\$ 103.4	\$ 301.4	\$ 301.4
2. Deputy Director, Grant Coordinator and Strategy Development	78.0	80.3	82.8	241.1	241.1
3. Program Officer/Executive Assistance	88.0	89.0	90.9	148.4	
4. Secretary/Office Manager	37.3	38.6	39.8	115.9	
5. Travel (10 round trips)	32.0	33.0	33.9	98.9	
6. Per Diem (10 Trips)	<u>28.0</u>	<u>28.8</u>	<u>29.7</u>	<u>86.5</u>	
Total - Section B	\$ 321.0	\$ 330.6	\$ 340.5	\$ 992.2	\$ 542.5
C. Regional Technical Resources Unit					
1. Deputy, Project Development, Engineering, Technology	\$ 78.0	\$ 80.3	\$ 82.3	\$ 241.1	\$
2. A.D. Human Resource Development	65.0	67.0	69.0	200.9	
3. A.D. Information Services	65.0	67.0	69.0	200.9	
4. A.D. Executive Communications and Donor Mobilization	65.0	67.0	69.0	200.9	
5. A.D. Environmental Health	65.0	67.0	69.0	200.9	
6. Microcomputer, Budgeting, Data Processing, Specialist	48.0	49.4	50.9	148.4	
7. Administrative Assistant/Secretary	37.3	38.6	39.8	115.9	
8. External Technical Consultants	144.0	148.3	152.8	445.1	
9. Travel: 10 Round Trips (London-Africa) 5 Round Trips (Cal-UK-Cal) Per Diem (15 RTs)	35.0	36.1	37.1	108.2	
10.	31.3	32.4	33.4	97.4	
11. Technical Information & Documentation Center	<u>100.0</u>	<u>104.1</u>	<u>110.0</u>	<u>314.1</u>	<u>314.0</u>
Total - Section C	\$ 734.0	\$ 757.1	\$ 782.6	\$ 2,273.7	\$ 314.1
D. WASH Technical Assistance					
1. Pre-Implementation Workshop & Tech. Assistance Follow up	\$ 94.0	\$	\$	\$ 94.0	\$ 94.0
2. Project Development & Assistance Workshop	39.0			39.0	39.0
3. Monitoring Strategy & Formative Evaluation Workshop	46.0			46.0	46.0
4. Training Strategy Assistance		17.0		17.0	17.0
5. Technical Assistance Workshops		<u>74.0</u>	<u>74.0</u>	<u>148.0</u>	<u>148.0</u>
Total - Section D	\$ 179.0	\$ 91.0	\$ 74.0	\$ 344.0	\$ 344.0
E. Summary Project Management & Implementation					
1. Field Office Technical Resource Units	\$ 150.0	\$ 150.0	\$ 150.0	\$ 450.0	\$ 450.0
2. KENYA - Maasai	525.0	1,000.0	1,000.0	2,525.0	
- Kara Pokot	375.0	230.0	230.0	875.0	
3. SENEGAL - Louga Potable Water	915.0	800.0	800.0	2,515.0	
- Pilot Preventive Health	340.0	400.0	400.0	1,140.0	
- Tree & Garden Cultivation	125.0	185.0	185.0	495.0	
4. GHANA - Rural Water	930.0	1,760.0	1,660.0	4,370.0	
5. MALI - Anderanboukane	180.0	400.0	750.0	1,330.0	
- Menaka	220.0	400.0	600.0	1,220.0	
6. MALAWI - Northern Region	30.0	62.5	100.0	212.5	50.0
- Southern Region	<u>0.0</u>	<u>350.0</u>	<u>500.0</u>	<u>850.0</u>	<u>308.5</u>
Total - Section E	\$ 3,830.0	\$ 3,757.0	\$ 6,395.0	\$13,982.0	\$ 808.5
F. Evaluation		\$ 20.0	\$ 20.0	\$ 40.0	
G. Indirect Program Costs @ 9%	\$ 464.0	\$ 634.9	\$ 694.3	\$ 1,793.2	
TOTAL AFRICAN WATER PROJECT BUDGET (000)	<u>\$ 5,624.0</u>	<u>\$ 7,689.9</u>	<u>\$ 8,409.2</u>	<u>\$21,723.2</u>	<u>\$ 2,250.2</u>

Appendix D

APPROVED BUDGET: COOPERATIVE AGREEMENT

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523

JUN 6 1989

Mr. Paul B. Thompson
Executive Director
World Vision Relief & Development, Inc.
919 West Huntington Drive
Monrovia, CA 91016

SUBJECT: Cooperative Agreement No. OTR-0293-A-00-7143-00
Amendment No. 04

Dear Mr. Thompson:

Pursuant to the authority contained in the Foreign Assistance Act of 1961, as amended, the Agency for International Development, hereinafter referred to as "A.I.D." or "Grantor", hereby amends the subject Grant. The purpose of this amendment is to add incremental funding in the amount of \$750,000, to revise the budget accordingly, and to replace several standard provisions.

The specific changes are as follows:

A. SCHEDULE

1. Section B.2., Period of Cooperative Agreement, delete in its entirety and substitute the following in lieu thereof:

"Funds obligated hereunder are available for program expenditures for the estimated period of January 1, 1987 to June 30, 1990.

2. Section C.2., Amount of Cooperative Agreement and Budget, delete the obligated amount of "\$1,166,000" and substitute "\$1,916,000" in lieu thereof.

3. Section G., Cooperative Agreement Budget, delete the budget in its entirety and substitute the revised budget as shown at Enclosure 1.

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<u>Cost Element</u>	<u>FR: 1/1/87 To: 6/31/89</u>	<u>FR: 7/1/89 To: 6/31/90</u>	<u>Total Amount FR: 1/1/87 To: 6/31/90</u>	<u>Total Matching Arrangement A.I.D. /Recipient</u>	
Program Costs	\$ 2,106,564	\$ 836,000	\$ 2,942,564	\$ 934,000	\$ 2,008,564
Inst. Building	425,063	238,000	690,063	267,000	396,063
T.A. Contingency	86,000	44,000	130,000	130,000	-0-
Program Management	589,279	331,000	920,279	422,000	498,279
Evaluation	-0-	50,000	50,000	50,000	-0-
Indirect Cost	96,000	66,000	162,000	162,000	-0-
Sub-Total	3,302,906	1,565,000	4,867,906	1,965,000	2,902,906
T. A. (WASH)	283,000	51,000	334,000	334,000	-0-
TOTAL	3,585,906	1,616,000	5,201,906	2,299,000	2,902,906

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Appendix E

INCEPTION-TO-DATE GRANT EXPENDITURES

World Vision Relief and Development, Inc.
 D. Funded AFRICA WATER MATCHING GRANT
 Grant # OIR-8293-A-00-7143-00
 January 1, 1987 to September 30, 1990

Printed: 21-Dec-90

	Grant Budget			Actual Expenditures			Remaining Budget (Excess Expenditures Over Budget)		
	A.I.B.	WVWD	TOTAL	A.I.B.	WVWD	TOTAL	A.I.B.	WVWD	TOTAL
Baseline Analysis:									
Program Costs	934,000	1,077,000	2,011,000	936,482	7,295,795	8,232,397	(2,602)	(6,218,795)	(6,221,397)
Institution Building	267,000	453,000	720,000	282,551	583,381	865,932	(15,551)	(130,381)	(145,932)
T.A. Contingency	130,000	0	130,000	126,850	89,326	216,176	3,150	(89,326)	(86,176)
Program Management	422,000	570,000	992,000	407,997	331,017	739,014	14,003	238,983	252,986
Evaluation	1,000	0	1,000	0	0	0	1,000	0	1,000
Indirect Costs	162,000	0	162,000	162,000	1,420,720	1,582,720	0	(1,420,720)	(1,420,720)
TOTAL	1,916,000	2,100,000	4,016,000	1,916,000	9,720,240	11,636,239	0	(7,620,240)	(7,620,239)

Note: The total matching budget was \$1,965,000. Only \$1,916,000 of this was added to our letter of credit. At the end of the grant period, A.I.B. decided to use the remaining funds of \$49,000 to pay for the final evaluation costs of the program.

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World Vision Relief and Development, Inc.
 A.I.D. Funded AFRICA WATER MATCHING GRANT
 Grant # 018-8293-A-08-7143-00
 January 1, 1987 to September 30, 1990

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DETAIL	1987			1988			1989			1990			TOTAL		
	AID	UNWB	TOTAL	AID	UNWB	TOTAL	AID	UNWB	TOTAL	AID	UNWB	TOTAL	AID	UNWB	TOTAL
Pipeline Analysis to Grant Line Item Format															
Program Costs:															
Senegal	0	548,971	548,971	65,000	765,733	830,733	129,626	955,746	1,085,372	65,000	697,181	762,181	259,626	2,967,551	3,227,177
Chaos	0	645,011	645,011	89,889	882,043	971,932	114,993	1,834,934	1,949,927	80,088	746,385	826,473	276,993	3,308,353	3,585,346
Kenya	0	0	0	68,000	140,359	208,359	75,463	301,535	377,018	60,880	312,788	373,668	195,463	754,782	950,245
Relief (except Prof. Services)	0	0	0	98,512	41,254	139,766	57,796	129,190	186,986	58,714	94,743	153,457	286,528	265,189	551,717
	0	1,193,982	1,193,982	311,401	1,829,389	2,140,791	377,376	2,421,425	2,799,801	255,714	1,850,999	2,106,713	936,602	7,295,795	8,232,397
Institution Building:															
WI Headquarters Costs	0	133,688	133,688	0	91,056	91,056	3,488	3,487	6,975	56,798	68,288	125,086	60,188	288,431	348,619
ATMS - RTI Costs (inc. supp. staff)	0	0	0	43,444	78,512	121,956	35,458	81,820	117,278	0	0	0	78,894	168,312	247,206
ATMS - Travel (58%)	0	0	0	43,188	18,777	61,965	15,815	34,903	50,718	0	0	0	58,924	47,680	106,604
Relief - Prof. Services (58%)	0	0	0	15,244	0	15,244	38,587	24,254	62,841	38,714	62,701	101,415	84,543	86,958	171,501
	0	133,688	133,688	101,796	188,345	282,142	85,340	146,446	231,787	95,414	122,989	218,403	282,551	583,381	865,932
T.A. Contingency:															
ATMS - Short Term Consultants	0	0	0	26,519	4,130	30,649	43,407	35,515	78,922	0	0	0	67,926	41,645	109,571
ATMS - Travel (58%)	0	0	0	43,188	18,777	61,965	15,815	34,903	50,718	0	0	0	58,924	47,680	106,604
	0	0	0	69,707	22,907	92,614	59,222	70,418	129,640	0	0	0	126,850	89,325	216,175
Program Management:															
ATMS - Program Management Costs	0	0	0	85,623	41,185	126,808	48,547	41,499	90,046	0	0	0	133,578	82,684	216,262
ATMS - Other Direct Costs	0	0	0	94,953	31,093	126,046	49,534	78,065	127,599	0	0	0	144,487	109,158	253,645
ATMS - Support Staff	0	0	0	19,917	4,988	24,905	25,477	47,317	72,794	0	0	0	45,394	52,297	97,691
Relief - Prof. Services (58%)	0	0	0	15,244	0	15,244	38,588	24,257	62,845	38,714	62,782	101,416	84,544	86,958	171,502
	0	0	0	215,137	77,178	292,315	154,146	191,138	345,283	38,714	62,782	101,616	407,997	331,017	739,014
Evaluation:															
	0	0	0	61,927	0	61,927	60,848	0	60,848	39,225	1,420,720	1,459,945	162,080	1,420,728	1,582,728
Indirect Costs:															
	0	0	0	61,927	0	61,927	60,848	0	60,848	39,225	1,420,720	1,459,945	162,080	1,420,728	1,582,728
GRAND TOTAL	0	1,327,582	1,327,582	758,800	2,183,820	2,942,620	736,933	2,831,427	3,568,360	429,867	3,457,410	3,887,277	1,916,880	9,720,248	11,637,128

World Vision Relief and Development, Inc.
 A.I.D. Funded AFRICA WATER MATCHING GRANT
 Grant # OTR-8293-A-00-7143-00
 January 1, 1987 to September 30, 1990

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	FY87			FY88			FY89			FY90			TOTAL		
	AID	UNWD	TOTAL	AID	UNWD	TOTAL	AID	UNWD	TOTAL	AID	UNWD	TOTAL	AID	UNWD	TOTAL
SENIGAL - WATER															
800 Salaries & Ben.		237,679	237,679	35,000	151,908	186,908	98,493	72,382	168,875	35,000	160,626	195,626	166,495	622,595	789,088
810 Training			0		0	0	1,500	423	1,923		0	0	1,500	423	1,923
820 Travel		104,888	104,888		46,197	46,197		76,677	76,677		57,167	57,167		282,999	282,999
830 Supplies		131,288	131,288		196,451	196,451		443,642	443,642		334,378	334,378		1,185,669	1,185,669
840 Rent/Util.		12,199	12,199		9,644	9,644		9,555	9,555		18,130	18,130		41,328	41,328
850 Repairs		0	0		13,508	13,508		311	311		1,236	1,236		15,867	15,867
860 Communications		15,787	15,787		17,492	17,492		19,991	19,991		16,919	16,919		79,189	79,189
870 Prof. Services		0	0		6,365	6,365		38,607	38,607		31,532	31,532		76,504	76,504
880 Capital Expen.		47,208	47,208		264,545	264,545		222,349	222,349		2,811	2,811		536,913	536,913
Sub-total Senegal Water		548,971	548,971	35,000	706,182	739,182	97,993	881,937	979,938	35,000	616,797	649,797	167,993	2,748,807	2,917,800
SENIGAL - MEY															
800 Salaries & Ben.				25,500	21,724	47,224	27,133	15,982	43,115	27,000	33,338	60,338	79,633	71,044	150,677
810 Training				4,500	9,870	14,370	4,500	13,886	17,586	3,000	7,777	10,777	12,000	30,733	42,733
820 Travel					8,046	8,046		12,436	12,436		20,878	20,878		41,360	41,360
830 Supplies					0	0		6,813	6,813		13,791	13,791		19,884	19,884
840 Rent/Util.					0	0		0	0		0	0		0	0
850 Repairs					0	0		0	0		0	0		0	0
860 Communications					7,003	7,003		4,859	4,859		6,360	6,360		18,222	18,222
870 Prof. Services					0	0		3,963	3,963		160	160		4,123	4,123
880 Capital Expen.					14,988	14,988		17,478	17,478		0	0		32,438	32,438
Sub-total Senegal MEY				30,000	61,631	91,631	31,633	73,889	105,442	30,000	82,304	112,304	91,633	217,764	309,377
Sub-total Senegal MEY & Water		548,971	548,971	65,000	765,733	830,733	129,626	955,746	1,085,372	65,000	697,101	762,101	299,626	2,967,551	3,227,177
GHANA WATER															
805 Salary		181,378	181,378	60,000	97,629	157,629	111,993	67,763	179,756	78,500	98,771	177,271	259,493	365,561	616,034
810 Training		1,194	1,194	20,000	69,781	69,781	3,000	7,472	10,472	1,500	3,172	4,672	26,500	61,619	88,119
820 Travel		63,739	63,739		146,802	146,802		114,814	114,814		95,104	95,104		429,459	429,459
830 Supplies		265,188	265,188		226,546	226,546		364,202	364,202		169,638	169,638		1,085,486	1,085,486
840 Rent/Util./Insur.		47,440	47,440		15,913	15,913		15,954	15,954		22,044	22,044		181,371	181,371
850 Repairs & Main.		5,787	5,787		114,591	114,591		164,422	164,422		132,817	132,817		414,817	414,817
860 Communications		850	850		478	478		626	626		965	965		2,911	2,911
870 Professional Ser.		1,050	1,050		7,729	7,729		263	263		1,886	1,886		10,828	10,828
880 Capital Expen.		160,445	160,445		222,582	222,582		299,438	299,438		242,856	242,856		929,321	929,321
Sub-total Ghana Water		645,811	645,811	80,000	882,843	962,843	114,993	1,034,936	1,149,927	80,000	766,365	826,365	274,993	3,308,353	3,583,346
KENYA - MASAI PEOPLE'S PROJECT															
805 Salary				38,000	14,328	52,328	65,463	66,078	131,491	52,000	51,115	103,115	155,463	131,471	286,934
810 Training				2,000	4,928	6,928	2,000	5,086	5,086	2,000	2,566	4,566	6,000	8,580	14,580
820 Travel				10,000	16,347	26,347	6,000	22,882	28,882	6,000	22,553	28,553	22,000	68,986	82,986
830 Supplies					39,840	39,840		174,112	174,112		224,598	224,598		438,542	438,542
840 Rent/Util./Insur.					1,423	1,423		7,136	7,136		5,653	5,653		14,212	14,212
850 Repairs & Main.					1,553	1,553		1,492	1,492		1,929	1,929		4,974	4,974
860 Communications					884	884		3,573	3,573		1,282	1,282		5,739	5,739
870 Professional Ser.				10,000	6,748	16,748	2,800	3,102	5,182		1,478	1,478	12,000	11,328	23,328
880 Capital Expen.					56,308	56,308		20,964	20,964		1,620	1,620		78,872	78,872
Sub-total Masai People's Project				60,000	148,359	208,359	75,463	301,555	377,818	60,000	312,788	372,788	195,463	754,782	958,165

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World Vision Relief and Development, Inc.
 A.I.D. Funded AFRICA WATER MATCHING GRANT
 Grant # OIR-0295-A-00-7143-00
 January 1, 1987 to September 30, 1990

	FY87			FY88			FY89			FY90			TOTAL			
	AID	UNWB	TOTAL	AID	UNWB	TOTAL	AID	UNWB	TOTAL	AID	UNWB	TOTAL	AID	UNWB	TOTAL	
WVI Consultants and Staff																
Julian Pitchford																
a. Salary		47,700	47,700		75,600	75,600		3,480	3,487	6,975			3,480	126,883	130,371	
b. Air Travel		2,500	2,500		75,360	75,360							0	17,860	17,860	
c. Hotel Expenses		1,900	1,900										0	1,900	1,900	
Rete Fields (Consultant)		45,000	45,000										0	45,000	45,000	
Barry Harper (Consultant)		36,500	36,500										0	36,500	36,500	
Larry Gust									22,000	5,500	27,500		22,000	5,500	27,500	
Joe Siverson									4,000	3,500	7,500		4,000	3,500	7,500	
Joe Runge									5,460	1,520	6,980		5,460	1,520	6,980	
									0	0	0		0	0	0	
ATRS-USA Consulting 10/89-12/89									20,240	34,760	55,000		5,000	15,000	20,000	
ATRS-Intl Consulting 10/89-12/89									5,000	75,000	80,000		5,000	15,000	20,000	
Subtotal - WVI		133,600	133,600		91,056	91,056		3,480	3,487	6,975		56,700	60,288	116,988	60,188	
Subtotal - ATRS & WVI		133,600	133,600		354,073	276,431	628,504		237,534	361,489	599,023		56,700	60,288	116,988	
TOTAL DIRECT COSTS		0	1,327,582	1,327,582	688,073	2,183,820	2,791,893	676,085	2,831,427	3,507,512	389,842	2,036,600	2,426,532	1,754,000	8,299,519	10,853,519
Indirect costs					61,927	61,927		60,848	60,848		39,225	1,420,720	1,459,945	162,000	1,420,720	1,582,720
GRAND TOTAL		1,327,582	1,327,582	750,000	2,105,820	2,853,820	736,933	2,831,427	3,568,360	429,067	3,457,410	3,886,477	1,916,000	9,720,260	11,636,279	

SUMMARY:

Program Costs:															
Senegal	0	543,971	543,971	45,000	765,733	830,733	129,626	955,746	1,085,372	45,000	697,101	762,101	259,626	2,967,551	3,227,177
Ghana	0	645,011	645,011	80,000	882,043	962,043	114,995	1,824,934	1,149,927	88,000	746,363	826,363	274,995	3,388,353	3,583,348
Kenya	0	0	0	48,000	148,359	288,359	75,443	381,555	377,078	60,000	312,788	372,788	195,463	754,702	950,165
Norway	0	0	0	129,008	41,254	170,254	118,469	177,703	296,172	128,142	220,148	348,290	375,611	439,105	814,716
Total Program	0	1,193,982	1,193,982	334,008	1,829,389	2,163,389	438,551	2,440,938	2,908,649	333,142	1,976,482	2,309,544	1,105,695	7,446,711	8,575,406
ATRS and Headquarters Costs:															
ATRS	0	0	0	354,073	183,375	537,448	234,046	358,002	592,048	0	0	0	588,119	541,377	1,129,496
WVI	0	133,600	133,600	0	91,056	91,056	3,480	3,487	6,975	56,700	60,288	116,988	60,188	288,431	348,619
Total ATRS & Hdqrs	0	133,600	133,600	354,073	276,431	628,504	237,534	361,489	599,023	56,700	60,288	116,988	648,387	829,808	1,478,115
Total Direct Costs	0	1,327,582	1,327,582	688,073	2,183,820	2,791,893	676,085	2,831,427	3,507,512	389,842	2,036,600	2,426,532	1,754,000	8,299,519	10,853,519
Indirect Costs	0	0	0	61,927	0	61,927	60,848	0	60,848	39,225	1,420,720	1,459,945	162,000	1,420,720	1,582,720
GRAND TOTAL	0	1,327,582	1,327,582	750,000	2,183,820	2,853,820	736,933	2,831,427	3,568,360	429,067	3,457,410	3,886,477	1,916,000	9,720,260	11,636,279

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World Vision Relief and Development, Inc.
 A.I.D. Funded AFRICA WATER MATCHING GRANT
 Grant # OTR-0293-A-00-7163-00
 January 1, 1987 to September 30, 1990

P. 7/7
 FIN 1 SERV

CALCULATION OF INDIRECT COSTS FOR EACH YEAR:

	FY87			FY88			FY89			FY90			TOTAL		
	AID	WVRO	TOTAL	AID	WVRO	TOTAL	AID	WVRO	TOTAL	AID	WVRO	TOTAL	AID	WVRO	TOTAL
Total Direct Costs:	0	1,327,582	1,327,582	688,073	2,183,828	2,791,893	676,085	2,831,427	3,507,512	389,842	2,836,498	2,426,532	1,754,868	8,299,519	10,853,519
Less Capital Expenses:															
Sewage Meter	0	47,208	47,208	0	264,545	264,545	0	222,349	222,349	0	2,811	2,811	0	536,913	536,913
Sewage M/T	0	0	0	0	14,988	14,988	0	17,470	17,470	0	0	0	0	32,458	32,458
Chairs	0	160,445	160,445	0	222,582	222,582	0	299,438	299,438	0	242,856	242,856	0	925,321	925,321
Kevex	0	0	0	0	58,308	58,308	0	20,944	20,944	0	1,428	1,428	0	78,872	78,872
Misc	0	0	0	0	35,528	35,528	0	82,309	82,309	0	550	550	0	118,379	118,379
Total Capital & Equipment:	0	207,653	207,653	0	595,943	595,943	0	642,518	642,518	0	247,837	247,837	0	1,691,943	1,691,943
Direct Costs Less Capital & Equipment	0	1,119,929	1,119,929	688,073	1,589,877	2,197,950	676,085	2,188,917	2,865,002	389,842	1,788,653	2,178,695	1,754,868	6,607,576	8,361,576
Indirect Cost Rate for Each Year	12.00%	12.00%		28.88%	28.88%		28.88%	28.88%		28.88%	28.88%				
Total Indirect Costs:	0	134,391	134,391	137,815	301,975	439,590	135,217	437,783	573,800	77,968	357,771	435,739	358,888	1,231,928	1,582,728
Reallocate A.I.D. Indirect From AID Chargeable to Matching for amounts over budget	0	(134,391)	(134,391)	(75,688)	(381,975)	(377,663)	(74,369)	(437,783)	(512,152)	(38,783)	(1,062,949)	(1,026,286)	(188,888)	188,888	(68)
MATCHING COSTS PER PIPELINE ANALYSIS	0	0	0	61,927	0	61,927	68,848	0	68,848	39,225	1,428,728	1,459,945	162,080	1,428,728	1,582,728

WVFC MATCHING

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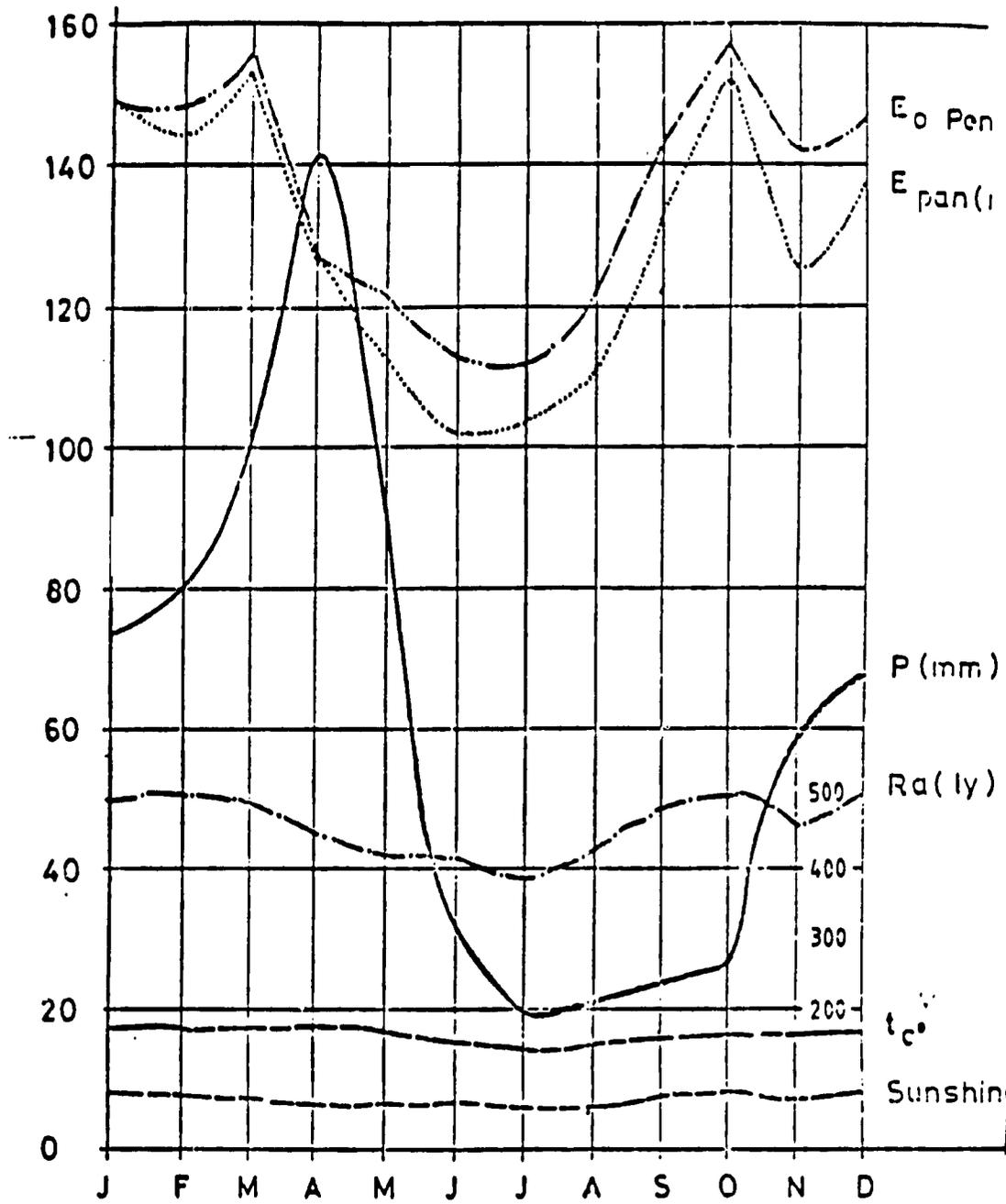
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Appendix F

CLIMATOLOGICAL PARAMETERS, NAROK, KENYA

Parameter	Air Temp. °C			Rainfall (mm) (69 yrs)	Evaporation		Daily Sunshine Hours (1969-70)	Wind Speed (knots) (1939-70)		Mean Daily Radiation (Langley's G.B)	Relative Humidity (%)	
	(51 yrs)				Transpiration (mm)	Pen (mm)					0300	1200
	Max.	Mean	Min.		(1939-62, 64-66)	(1959-70)		0600	1200		(AM)	(PM)
January	26.5	17.2	7.8	74.3	149	150	8.5	3	9	497	91	40
February	26.9	17.4	7.9	79.8	148	144	8.3	3	10	508	90	38
March	26.3	17.5	8.7	101.6	156	153	7.6	3	10	495	91	43
April	24.4	17.7	10.9	141.1	127	128	7.0	4	11	454	94	53
May	22.6	17.0	11.3	90.2	122	113	6.7	5	10	420	95	60
June	21.8	15.4	9.0	31.3	113	102	7.2	4	9	414	94	56
July	21.6	14.7	7.9	19.8	112	104	6.2	5	9	386	92	53
August	22.4	15.1	7.7	21.0	122	110	6.4	5	9	421	91	50
September	24.6	15.9	7.2	23.4	143	133	7.7	6	10	483	92	43
October	25.9	16.7	7.6	26.5	157	152	8.3	7	11	504	92	39
November	25.4	16.6	7.9	59.6	142	125	7.2	5	10	462	93	45
December	25.6	16.7	7.9	67.5	147	137	8.2	3	9	503	93	45
Annual	24.5	16.5	8.5	731.5	1,638	1,553	7.4	4	10	462	92	47

CLIMATOLOGICAL VARIABLES : Marok met. station



LEGEND		MEAN ANNUAL
—————	RAINFALL (P mm)	731.5
— · — · — ·	PENMAN EVAPORATION (E _o mm)	16.38
··········	PAN EVAPORATION (E _p mm)	15.53
— — — — —	TEMPERATURE (t _c °)	15.5
— — — — —	SUNSHINE hours	7.4

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Appendix G

FIELD OBSERVATIONS, NAROK WATER RESOURCES SURVEY, 1984

V.

FIELD OBSERVATION SUMMARIES

V.1 Introduction

Extensive field surveys were undertaken by the Consultants in order to prepare the necessary water resources inventory for the project area. In the early stages of the study three reconnaissance trips were made, covering roughly the Mau Highlands, the Loita Plains and the Loita Hills respectively. The purposes of these initial trips were to:

- (i) identify as far as possible potential water supply sources;
- (ii) identify sites for storm water storage and dam construction;
- (iii) select areas for planned detailed study by subsequent site visits and by aerial photograph interpretation.

Subsequently, over the period December 1982 to August 1983, a number of trips were made to specific areas for more intensive field investigations. A total of 91 water samples were taken as indicated in Figure IV-1, with the detailed results presented in Tables IV-3 and IV-4. At one or two sites (e.g. Noolpopong Dam) two samples were taken at different times. On-the-spot temperature and electrical conductivity (E.C.) readings were also taken by the Consultants.

For purposes of presenting field observations, it is considered desirable to divide the project area into eleven zones which are each reasonably homogeneous in terms of terrain, climate and land use. These zones, given in an anti-clockwise order, are the following:-

- lower East Mau;
- upper East Mau;
- upper Central and West Mau;
- lower Central Mau (Seyabei area);
- lower western highlands (south of forest);
- Lemek/Ngorongore area;
- Aitong area;

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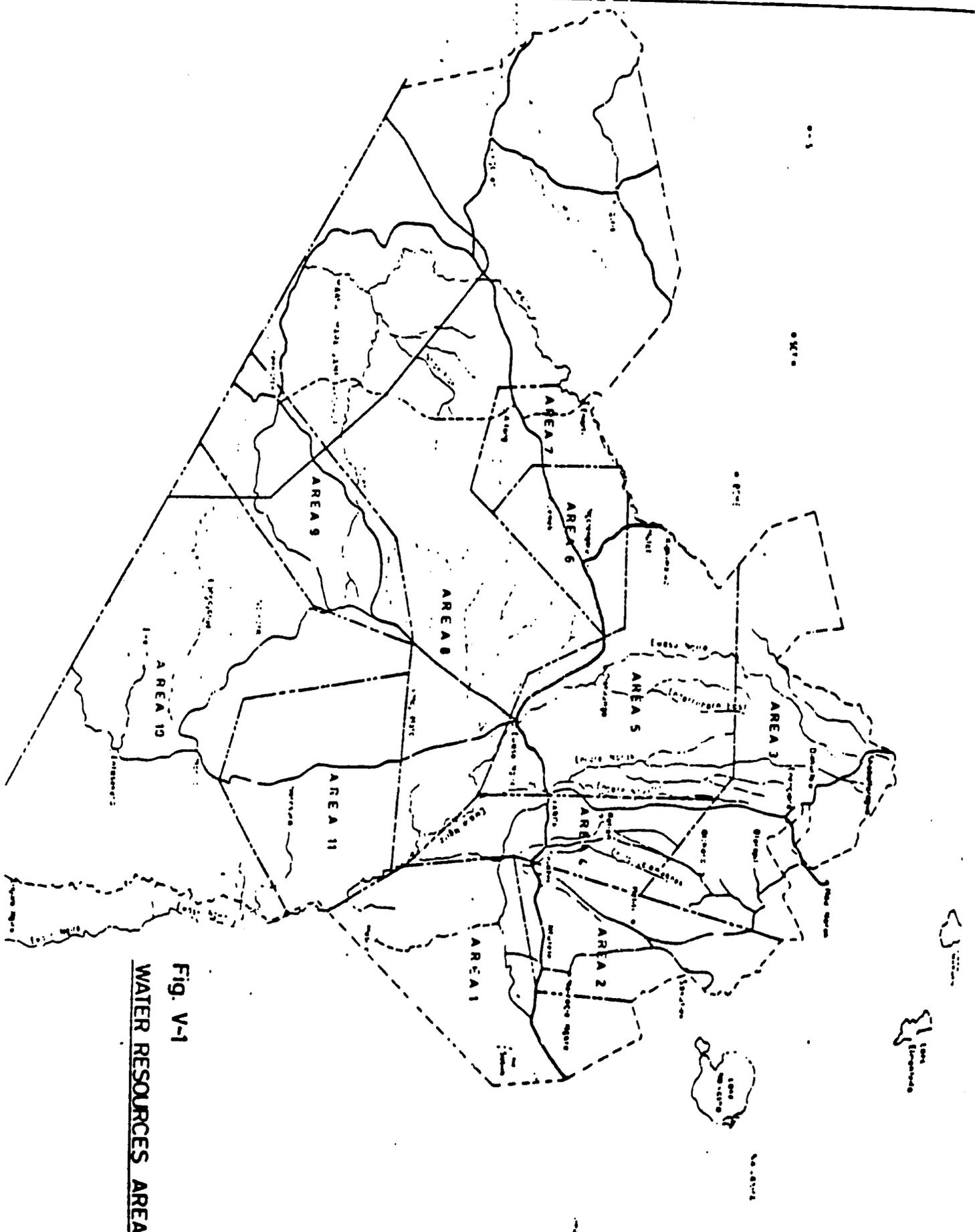


Fig. V-1
WATER RESOURCES AREAS

- Loita Plains (westward as far as Olorukoti Plains);
- Keekorok area (Tanzania border to Bakitapu);
- Loita Hills;
- Narosura area.

Observations on the water resources of each of these eleven areas, including development to date and potential development for the future, are now presented in turn. Approximate boundaries for all eleven areas are shown in Figure V-1, and Figures V-2 to V-12 show water resources in each area in turn.

V.2 Lower East Mau

The Suswa Plains west of Mount Suswa, and the lower parts of the Mau highlands east of the Seyapei River and south of the Nairobi-Narok road, are mostly very dry terrain.

Mount Suswa is surrounded by three concentric ridges of lava formed in three different volcanic periods. The area between the first and second ridges is an open plain well populated by Maasai herdsmen and their livestock and by wild animals. This area has a serious water shortage, as do the dry adjacent plains within Suswa Kitet Group Ranch.

The inhabitants have dug a number of small water holes with storage capacities of up to 200 cubic metres (m^3) to store surface storm run-off. However, these holes are crudely designed and poorly sited with regard to their catchment areas. It will be desirable to design and construct earth dams and water holes along the natural drainage ways.

The storm run-off draining the western ranges of the Rift Valley, south of Nairagi Ngare and overlooking Mount Suswa, all collects in Mbariki valley. Steep canyons have been cut through the volcanic ash and tuffs. The valley broadens out towards the lower end and forms a long shoe-string aquifer, where the eroded sediments have been deposited to depths estimated to be from 10m to 50m or more. The storm water runoff percolates in the sandy aquifer, and there should be a large volume of stored clean water to be tapped through the sinking of boreholes or wells. It is recommended that exploratory drilling should be undertaken to determine the depth and thickness of the aquifer.

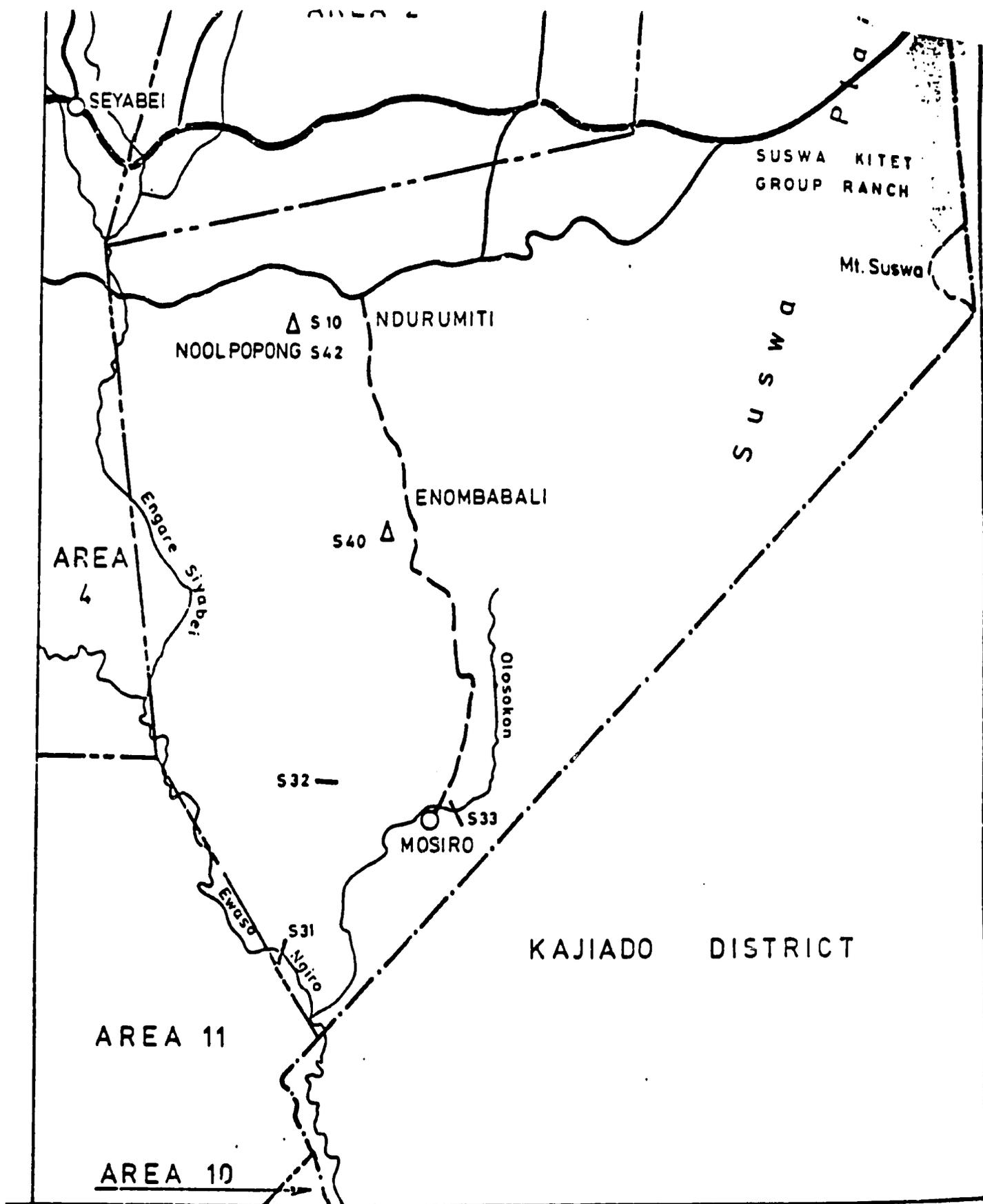


Fig. V-2

DETAILED WATER RESOURCES INVENTORY - AREA 1

Legend: As for Fig. IV-1

Scale 1:250,000

The Shirarii area extending from the Mosiro road eastwards to the range overlooking Suswa Valley is another very dry zone with scattered manyattas. There are a number of small water holes with capacity around 100m^3 , which represent a form of storm water harvesting used by the Maasai for many years. The water holes are often poorly located in relation to run-off catchment area. Partly this has occurred in order to avoid heavy sedimentation, but this aim has not been successful because soil erosion still occurs when large herds of livestock overgraze around the water holes and create cattle tracks there. Intensive soil loss by gully and sheet erosion is evident at all these water holes.

It was noted that the Maasai maintain these traditional water holes by going in, once they dry up, to scoop out silt or cow dung brought in while the water hole has been in use. The main problem is that they do not have enough capacity to provide for domestic and livestock requirements through dry spells up to the next rains. It is proposed that larger run-off storage dams, with capacities of up to $10,000\text{m}^3$ should be constructed to assist the people of the area.

In the Ndurumiti area on the Mosiro road, there are also a number of water holes of about 100m^3 storage capacity. At the time of the visit one of these had been completely filled by a rainstorm and water was spilling out. Again it is proposed that well maintained water holes of up to $10,000\text{m}^3$ capacity should be constructed.

Nolpopong is another very dry area. The poorly sited old water hole is now completely silted up. A new dam with much larger capacity has now been constructed with missionary aid. The dam has a sand filter, but the draw-off pipes were not functional, and people, livestock and wild animals were all drinking directly from the dam. Electrical conductivity was measured to be 100 micromhos/cm at a temperature of 29°C , and the water was seen to be reddish in colour.

Two water samples were taken for chemical analysis, S 10 in December 1983 and S 42 in February 1984. The first was found to be slightly acidic, with a very high iron content and requiring treatment; the second, however, had a much more normal iron content.

Local leaders informed the field team that, since the construction of the Noolpopong Dam, cattle have been brought long distances to drink there; they estimated the number now using the dam as being up to 60,000. This has resulted in overgrazing and in early drying out of the water hole, to the extent that local residents have threatened to destroy the dam so as stop cattle being brought long distances from other places. This is the sort of situation which underlines the need for balanced development of watering facilities in the dry areas. However, other similar dams could be constructed in the Noolpopong area.

At Enombabali on the road to Mosiro there is a good example of small dam development. This dam, with a capacity of about 100m^3 , is equipped with a delivery channel from the catchment, a filter hand pump, a side dam hole for domestic use after natural filtration, barbed wire fencing and additional protection. Water sample S 40 was taken for chemical analysis, and E.C. was measured to be 120 micromhos/cm at a temperature of 29°C .

Continuing south to Mosiro, the dry country with thorn bushes and stony ridges eventually gives way to gently sloping plains draining into the Ewaso Ngiro River. The plains are formed by huge sediment deposits eroded from the ridges and should form ground water aquifers. There is one borehole near Mosiro village, drilled in 1970. It has a good tested yield of 7m^3 per hour, but has recently been out of operation for long periods because the pump has been out of order or because of lack of fuel.

It is proposed that three boreholes should be sunk in the area to provide domestic water. These could perhaps be operated by wind or solar pumps, since diesel pumps are prone to breakdown. One borehole is proposed for the Kolong Valley north-west of Mosiro centre, where there is a lot of water in the subsurface, which the people have recovered by excavating to a depth of six metres. Water sample S 52 was taken for chemical analysis. E.C. was measured to be 710 micromhos/cm at a temperature of 31°C , and the water was seen to be turbid and salty.

Another water sample, S 51, was taken for chemical analysis from Ewaso Ngiro River some nine kilometers south-west of Mosiro centre. E.C.

was measured to be 340 micromhos/cm at a temperature of 27°C. The water looked rather turbid at a flow rate of 2 to 4 cubic metres per second (cumecs). There is said to be a waterfall at an altitude of 1400 m which could mean that water flow by gravity to Mosiro is possible. Irrigation possibilities should also be considered in this area.

The present source of water when the borehole is not operational is the Olosokon stream which flows just north of Mosiro centre. The people obtain water by excavating holes in the river bed. We propose that five subsurface dams be developed, each with a storage capacity of about 700 cubic metres of water. Hand pumps can be installed to recover the water stored in the sand.

Water sample S 33 was taken from the river bed at a site opposite the existing borehole. E.C. was measured to be 750 micromhos/cm at a temperature of 26°C. Chemical analysis of the sample showed the water to be slightly alkaline, but turbid and with high iron and fluoride content.

V.3 Upper East Mau

The principal centre in this area is that at Nairagie Ngare, divisional headquarters for East Mau. The area is covered by deep, porous volcanic soils with high contents of fluoride, underlain by tuffs and phonolites. There is a bi-modal rainfall pattern with long rains from February to June, April and May being the wettest months, and short rains from September to November. Annual rainfall in Nairagie Ngare location varies between 700 mm and 1,000 mm, averaging 893 mm (nine-year mean) at the trading centre.

Presently the trading centre has an inadequate water supply constructed by UNICEF in 1953, tapping the Nasampolai stream about seven kilometers north of the centre. It is owned and operated by Narok County Council. The first sand and silt trap weir with drop structures constructed in 1953 is now completely levelled by siltation, and a new intake weir is now in use.

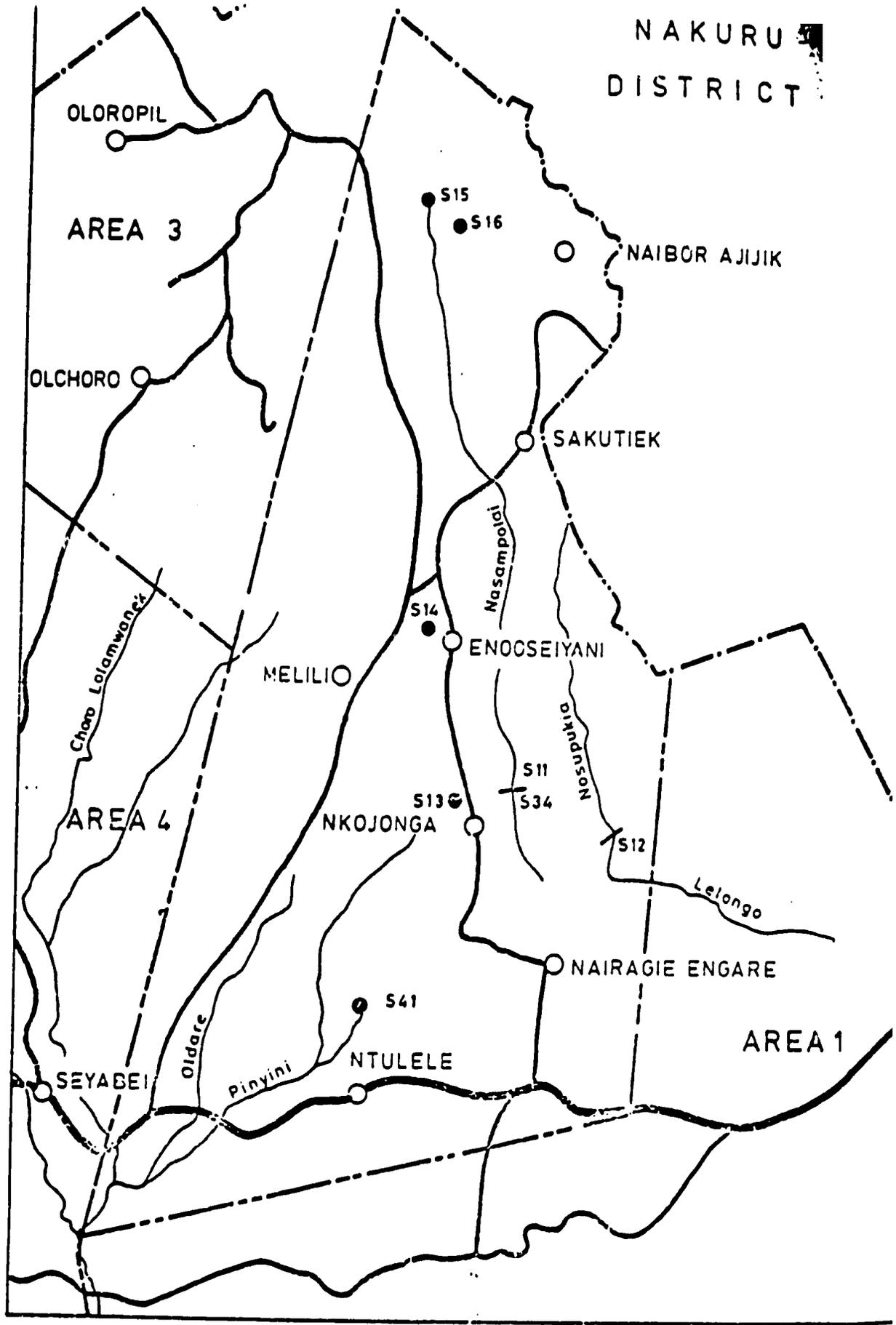


Fig. V-3

DETAILED WATER RESOURCES INVENTORY - AREA 2

Legend: As for Fig. IV-1

Scale 1 : 250,000

The water supply source was visited in January 1983, on a day when pipeline water was not reaching the trading centre, only one tap having a trickle of water. However, the estimated flow over the intake weir was 50 litres per second. All this water disappears through a tectonic fissure some 1.5 km downstream of the intake, and could clearly be stored and regulated for sustained domestic use.

The two nearby springs supply water throughout the year even when the Nasampolai stream dries up. The delivery pipe to Nairagie Ngare centre is of 2-inch (5-cm) diameter. The weir continues to be poorly maintained, and was filled with silt at the time of the visit.

Two water samples were taken for chemical analysis, S 11 in January 1983 and S 34 in February 1983, with the second indicating a very high iron content and the first a moderately high fluoride content.

A number of proposals and studies have been made before the present study for improved water supply to Nairagie Ngare. Borehole drilling to a depth of 300 m in 1977/78 yielded no water. A rain water harvesting scheme was proposed in 1979/80 but dropped on account of lack of suitable technical knowledge. In 1980/81 a proposal made by the Ministry of Water Development (MWD) to effect improved offtake from Nasampolai stream at a cost of KShs 23 million was dropped because of the water's high fluoride content and because of inadequate water yield from the stream. Then a proposal to connect Nairagie Ngare to the Lake Naivasha - Suswa water pipeline was found too expensive; however, it is understood that a second study is now being undertaken by a Japanese team. Finally, a proposal to pipe water from Siyapei 25 km to the west was found not feasible on grounds of distance and of high fluoride content in the water.

The Consultants believe that the best medium - term solution for Nairagie Ngare lies in improving the present Nasampolai Stream supply while at the same time developing rain water harvesting in the trading centre. In the long term it may be feasible to connect Nairagie Ngare to the Naivasha - Suswa pipeline.

In order to improve the Nasampolai supply source, a concrete weir drop structure should be constructed. This should be designed so as to ensure delivery of at least 10 litres per second (l/s) throughout the year. The delivery pipe should be replaced with one of 4-inch (10-cm) diameter. Sand and silt traps, together with silt wash-outs, should be constructed so as to control reservoir siltation.

A supplementary source of supply for the area could be the seasonal Nosupukia stream, which runs also in a southerly direction to the east of Nasampolai stream before turning west and emptying into the Suswa Plains. Water sample S 12 was taken for chemical analysis at a point 7 km from Nairagie Ngare and revealed moderately high fluoride and iron content and the need for treatment. E.C. was measured to be 300 micromhos/cm at a temperature of 25°C. The flow rate in January 1983 was estimated at 10 l/s. One good site was located for an earth dam which could provide water for livestock.

In order to harvest rain water, it is proposed that households in Nairagie Ngare be provided with a galvanised iron sheet tank of 9m³ storage capacity. The water collected would be free from fluoride problems. One tank would cost about KShs. 3,000/=, and could possibly be sold to the household at a subsidised rate.

It is also proposed that up to four water holes, lined with butyl rubber sheeting and having storage capacity of 10,000m³, be constructed near Nairagie Ngare. Ten smaller water holes, each of 5,000 m³ capacity, could also be constructed south of the Nasampolai and Nosupukia water sources, giving a total storage capacity of 90,000 m³ run-off for livestock use. These sources should be fenced to ensure clean water supplies and proper soil and water conservation.

To the west of Nairagie Ngare, the field team visited the Ntulele area along and to the north of the Nairobi - Narok road. About 6 km north of Ntulele trading centre is the Pinyini spring which is the source of the Pinyini stream. The spring is permanent, and on the day of the field visit in February 1983 its flow was estimated at 10 l/s. Cattle are reported to trek from as far away as Suswa when there is no water at Nairagie Ngare. Water sample S 41 was taken for chemical analysis and E.C. was measured at 460 micromhos/cm at a temperature of 20°C.

There is a very good concrete weir site, with a potential reservoir of approximately 20 m by 40 m all on unweathered phonolitic volcanic rock. The dam section is about 10 m wide and a concrete weir of 3 to 4 metres in height could provide a good intake for piping water by gravity to Ntulele.

A new cattle dip is being constructed 2 to 3 km downstream from the spring source. Eventually Pinyini stream flows into Ntulele Dam, a short distance north of the main road. Ntulele Dam is an old earth dam which was once a large storage facility for storm water run-off, but which has now been seriously silted up and breached. Cattle tracks and overgrazing near to the dam have left soil bare and prone to serious erosion. Pinyini stream disappears after flowing into this dam.

Pinyini borehole, only some 2 km from Ntulele centre, was drilled in 1977/78, but has not yet been equipped with a pump. Since power lines are now passing very close to the borehole, it should be possible to equip it with a submersible electrical pump to provide water to the trading centre.

There are a number of small water holes, with storage capacity up to 150m^3 , around Ntulele trading centre, but they do not retain water well. These appears to be a continuous fault along the valley, and therefore any dam or water hole constructed there should be lined.

From the Nairobi-Narok road northward to Ildamat and Il Melili, the terrain is open grazing giving way to wheat fields on the higher ground. The group ranches are overgrazed and soil loss by erosion is widely evident. Much of the domestic and livestock water comes from seasonal streams.

Between Nkojonga and Encoseiyiani on the Nairagie Ngare - Melili road are ridges deeply incised by water courses. The very soft volcanic ashes on the steep hill slopes have formed light soils that are susceptible to sheet erosion, which is augmented by intensive cultivation on some of the slopes.

Appendix H

INPUTS AND OUTPUTS OF THE MAASAI PEOPLE'S PROJECT

INPUTS AND FOR TECHNICAL PROJECT COMPONENTS

FROM OCTOBER 1987 TO JULY, 1990

GOAL/ACTIVITY	QUANTITY	BUDGET PER UNIT	COST PER UNIT	TOTAL COST
1. AGRICULTURE/LIVESTOCK				
1.1 Rat proof granaries completed	32	\$60	\$50	1,600
1.2 No. of farmers whole land was accurately measured and who were supplied with seeds/ools	515	\$40	\$30	15,450
1.3 Chicken houses completed	17	\$40	\$45	765
1.4 No. of people trained in donkey plowing and cartage	115	\$5	\$5	575
1.5 Beehives installed at the Nursery	7	\$8	\$8	56
2. SMALL BUSINESS ENTERPRISES				
2.1 maize meal marketing [no. of people]	4	\$25	\$17	68
2.2 Kerosene marketing	1	\$20	\$15	15
2.3 Maize grading machine	1	\$9,000	\$8,900	8,900
2.4 Milk processing machine	1	\$1,000	1,900	1,900
3. HEALTH/SANITATION				
3.1 No. of latrines completed	32	\$100	85	2,720
3.2 No. of women practicing improved health	1,000	\$10	\$6	6,000
4. HOUSING				
4.1 No. of improved houses built on 50/50 sharing basis	12	300	260	3,120
4.2 No of improved houses built with less than 50% input from MPP	4	90	86	344
5. TRAINING				
5.1 Total no. of EM's trained	120	50	40	4,800
5.2 Other community members trained	2,000	5	5	10,000
5.3 Field staff trained	25	300	250	6,250
6. SCHOOLS				
6.1 No. of classrooms built	29	5,000	4,500	130,500
6.2 No. of desks distributed	528	50	50	26,400
6.3 No. of teachers housing units	16	800	720	11,520
7. WATER				
7.1 No. of machine built water pans	17	10,000	6,300	107,100
7.2 No of hafirs dug through MPP motivation	7	150	200	1,400
7.3 10,000 gallon water tanks at schools	5	2,000	2,000	10,000
7.4 Protected water springs and wells	2	3,000	2,000	4,000
7.5 Family roof catchment tanks	2	1,000	860	1,720
8. ENVIRONMENTAL CONSERVATION				
8.1 Seedlings produced at Nursery and planted in community	125,000	50	50	62,500
8.2 Tree Nursery fully established & operating	1	9,000	11,000	11,000
8.3 Community training events in conservation by Mzee Letoluo	22	20	20	440
			TOTAL	\$429,143

Appendix I

SCHOOLS CONSTRUCTED BY THE MPP

Appendix I. SCHOOLS CONSTRUCTED BY THE MPP

<u>Location</u>	<u>System</u>	<u>Size</u>	<u>Date Started</u>	<u>Date Comp.</u>	<u>Total Cost</u>	<u>Total Cost Met by Commun.</u>	<u>Popul. Served</u>
O. Naado	Classrooms	3 classes	5/89	7/89	500,000	20%	
	Teachers houses	8 rooms	7/89	9/89	200,000	Nil	110
	Toilets	6 singles	3/90	3/90	20,000	Nil	
Enoolbalbali	Classrooms	4 classes	8/89	9/89	400,000	Nil	73
	Toilets	3 doubles	3/90	3/90	20,000	35%	
Indero	Classrooms	4 classes	8/89	12/89	400,000	30%	
	Teachers houses	8 rooms	3/90	7/90	250,000	Nil	120
	Toilets	4 doubles	5/90	5/90	25,000	Nil	
Ntulele	Classrooms plus offices	2 classes & h/masters & staff offices	8/89	11/90	350,000	5%	200
Oltepesi	Classrooms	5 classes	12/89	3/90	500,000	Nil	189
	Toilets	3 doubles	4/90	4/90	20,000	25%	
Eor Ekule	Classroom	1 class (double)	3/90	5/90	180,000	Nil	70
Inturimeti	Classrooms	4 classes	1/90	3/90	400,000	Nil	82 students

(Costs in Malawi Kwacha; 1 US \$ = 2.8 MK)

Appendix J

BILL OF QUANTITIES FOR A PRIMARY SCHOOL CLASSROOM, MPP

BILL OF QUANTITIES FOR A PRIMARY SCHOOL CLASSROOM
SIZE 30FT(LENGTH) x 20FT(WIDTH) x 5FT

I T E M		U N I T	Q U A N T I T Y	R A T E	TOTAL(KSHS)
a)	Quarry Stones 9"x9"	R/Feet	350	3.40	1,190
	6"x9"	"	1,220	2.90	3,538
b)	River Sand (brown)	Tonnes	35 tonnes (5 Trucks)	1,400	7,000
c)	Ballast (quarry)	Tonnes	2 trucks	700	1,400
d)	Reinforcement Bars (12mm)	Lengths of feet	186 feet 5 Lengths	147	735
e)	Hard Core	Tonnes	4 trucks	250	1,000
f)	Cement	Bags	80 Bags	103	8,240
g)	GCI Sheets	No.	50	140	7,000
	Ridges	No.	7	29.65	207.55
h)	Timber	R/F			
	1) Roofing 11) Facia Board		800 120 Feet	3.50 10.00	2,800 1,200
i)	Nails Roofing Trusses Ironsheets	Kgs	15	14.00	210
		"	10	25.35	253.50
j)	Wall paḡḡ	Roll of Barbed wire	1 Roll	500.00	500.00
k)	Verandar Support Steel Colum		4	450	1,800
l)	Door (cḡder)	No.	1	600	600
	Frame (cḡder)	No.	1	300	300
	Windows (cḡder)	No.	4	550	2,200
	Fittings Door/windows	-	-	400	400
m)	Other small things	-	-	1,000	1,000
n)	Transport	-	-		20,000
o)	Water	drums	80	Appr. 80/-	6,400
				TOTAL	67,974.05
p) Labour					28,000
				TOTAL	95,974

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Appendix K

DETAILS OF MPP COMMUNITIES VISITED BY EVALUATION TEAM

Appendix K. DETAILS OF MPP COMMUNITIES VISITED BY EVALUATION TEAM
Page

	O'Naado		Eneleraf	
	<u>Base-</u> <u>line</u>	<u>Present</u>	<u>Base-</u> <u>line</u>	<u>Present</u>
<u>Community:</u>				
Population	172	--	174	--
Families	21		32	
No. of Emuna motivators	3	5	3	3
No. of community committees	1	3	2	3
<u>Water:</u>				
No. of pans/hafirs installed/refurbished	8	10	2	3
No. of roof catchment systems installed	0	1	0	0
Amount of water used (in liters, average per family)				
dry season, per day	30	50	35	45
wet season, per day	70	50	13	45
<u>Gardens:</u>				
No. of households w/gardens	2	24	9	21
No. of households w/improved storage facilities	0	1	0	0
No. of people using draft animals	0	0	0	0
<u>Soil conservation:</u>				
No. of trees planted	0	1500	120	0
No. of other measures employed	0	4	0	4
<u>Education:</u>				
No. of students	0	35	0	24
No. of classrooms built	0	3	0	3
<u>Health:</u>				
No. of people boiling milk	0	24	0	37
No. of people boiling water	0	0	0	30
No. of latrines built	0	0	0	0
<u>Training:</u>				
No. of people trained in: health education	0	13	0	41
agricultural methods	0	29	0	21
soil conservation methods	0	16	0	21
water system techniques	0	0	0	0
draft animal techniques	0	3	0	3
other (specify)				

Appendix K. DETAILS OF MPP COMMUNITIES VISITED BY EVALUATION TEAM
Page 2

	Inturumeti		Enoomparbali	
	<u>Base-</u> <u>line</u>	<u>Present</u>	<u>Base-</u> <u>line</u>	<u>Present</u>
<u>Community:</u>				
Population	563	--	215	--
Families	67		23	
No. of Emura motivators	4	4	3	3
No. of community committees	-	3+1	--	3
<u>Water:</u>				
No. of pans/hafirs installed/refurbished	17	19	11	13
No. of roof catchment systems installed	0	4	2	5
Amount of water used (in liters, average per family)				
dry season, per day	--	10-20	40	40
wet season, per day	--	20-40	50	50
<u>Gardens:</u>				
No. of households w/gardens	33	50	11	19
No. of households w/improved storage facilities	5	8	--	Nil
No. of people using draft animals		--	--	0
<u>Soil conservation:</u>				
No. of trees planted	522	600	348	788
No. of other measures employed	5		1	1
<u>Education:</u>				
No. of students	89	125	20	69
No. of classrooms built	2	7	1	5
<u>Health:</u>				
No. of people boiling milk	60%	80%	--	50%
No. of people boiling water	--		--	--
No. of latrines built	4	8	5	8
<u>Training:</u>				
No. of people trained in:				
health education		30%		70%
agricultural methods		70%		19/23
soil conservation methods		40%+comm.		50%
water system techniques				25
draught animal techniques		4		30%
other (specify)		awareness workshops		awareness workshops

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Appendix K. DETAILS OF MPP COMMUNITIES VISITED BY EVALUATION TEAM
Page 3

	Enkaroni		Indero	
	Base- line	Present	Base- line	Present
<u>Community:</u>				
Population	464	--	291	--
Families	52		14	
No. of Emura motivators	3	5	5	3+2
No. of community committees	2	2+3	2	2
<u>Water:</u>				
No. of pans/hafirs installed/refurbished	11	new 2, old 11	10	1
No. of roof catchment systems installed	0	--	1	1
Amount of water used (in liters, average per family)				
dry season, per day	60	60	70	70
wet season, per day	60	60	170	170
<u>Gardens:</u>				
No. of households w/gardens	almost all	all	9	all
No. of households w/improved storage facilities	5	5+1+1	1	--
No. of people using draft animals	0	1	--	1
<u>Soil conservation:</u>				
No. of trees planted	--	1200+80	--	1200+60
No. of other measures employed	--	2	--	1
<u>Education:</u>				
No. of students	0	30+10	--	60
No. of classrooms built	2	Nil	--	4
<u>Health:</u>				
No. of people boiling milk	26	all	4	almost all
No. of people boiling water	--	1/2	--	1/4
No. of latrines built	0	0	0	8
<u>Training:</u>				
No. of people trained in:				
health education		50%		25%
agricultural methods		all		all
soil conservation methods		all		--
water system techniques		all		--
draught animal techniques		1		1
other (specify)	mgmt. of IGAs	38	--	--

Appendix L

DETAILS OF WATER SUPPLY INFRASTRUCTURE, MPP

SYSTEM	LOCATION	SIZE	DATE OF INITIATION	DATE OF COMPLETION	TOTAL COST					% of Cost Borne in Community	Ppl Served
					Comm. Labour	Mat-rial	Labour	Water	Trans-Port		
1. Tank - for Teachers' and pupils lunch	Ongata Naado Primary Sch.	10000gal	July 89	August 89	1250	21754	11900	4800	1750	3.01	110
2. Tank for teachers and pupils lunch	Ntulele Pri. School	10000gal	Sept. 89	October 89	1250	21754	11900	3600	1400	3.13	200
3. Tank for teachers and pupils lunch	Enoomparbali Primary Sch.	10000gal	Aug. 89	Sept. 89	1250	21754	11900	4800	2000	2.99	73
4. Tank for teachers and pupils lunch	Ndero Primary School	10000gal	Nov. 90	Dec. 90	1250	21750	11900	4800	2000	2.99	120
5. Tank for Teachers and pupils lunch	Oltepesi pri. School	10000gal	Jan. 90	March 90	1250	21750	11900	3600	1750	3.10	189
		<u>LITRES</u>			<u>COMM.</u>	<u>IN KIND</u>	<u>CONTRACT</u>	<u>% of Cost Borne by Community</u>		<u>HUMAN</u>	<u>LIVE-STOCK</u>
6. Pan Domestic & Livestock	Ongata Naado I	4036480	July 89	July 89	3500	4000	91350	8.21		172	1200
7. Pan Domestic & Livestock	Ongata Naado II	2592000	July 89	Aug. 89	3500	4000	60900	12.31		172	1200
8. Pan Domestic & Livestock	Nkoirienito I	2784000	Aug. 89	Aug. 89	3000	2000	63000	7.93		371	2000
9. Pan Domestic & Livestock	Nkoirienito II	4032000	March 90	April 90	6000	2000	123900	6.45		371	2000
10. Pan Domestic & Livestock	Iloibor Lukuny I	5300000	Sept. 89	Sept. 89	-	-	140700	0		437	400
11. Pan Domestic & Livestock	Iloibor Lukuny II	4530000	Sept. 89	October 89	-	-	97650	0		437	400
12. Pan Domestic & Livestock	Ntulele	5540000	Oct. 89	October 89	5000	2000	147000	4.76		160	700
13. Pan Domestic & Livestock	Olkoroe	4531200	Nov. 89	Nov. 89	5000	2000	121800	5.79		271	350

(Costs in Kenya Shillings ; 1 US \$ = 22 KS)

SYSTEM	LOCATION	SIZE	DATE OF INITIA-TION	DATE OF COMPLE-TION	% OF COST BORNE BY COMMUNITY				POPULATION SERVED	
					CASH	IN KIND			HUMAN	LIVESTOC
14. Pan Domestic & Livestock	Inturumeti	LITRES 5300000	December 89	Dec. 89	5000	5000	143850	6.95	320	2000
15. Pan Domestic & Livestock	Enoltulelei	2150400	November 89	Dec. 89	4000	2000	109200	5.49	100	1000
16. Pan Domestic & Livestock	Lengasamo	5260000	February 90	March 90	6000	2000	143850	4.86	170	1000
17. Pan Domestic & Livestock	Eneleraí	4914000	January 90	Feb. 90	7000	5000	140700	8.52	174	1500
18. Pan Domestic & Livestock	Enkaroni I	5280000	October 89	Nov. 89	8000	5000	93000	13.97	464	3000
19. Pan Domestic & Livestock	Enkaroni II	327600	March 90	April 90	8000	5000	82150	15.82	464	3000
20. Pan Domestic & Livestock	Ndero	5809280	December 89	Jan. 90	8000	5000	190650	6.81	291	2000
21. Pan Domestic & Livestock	Enoomparbali	5400000	December 89	Jan. 90	6000	5000	283500	3.88	130	1000
22. Pan Domestic & Livestock	Kordai	2500000	Sep. 89	Nov. 89	0	0	375000	0	2000	6000

Appendix M

BILL OF QUANTITIES FOR 40 CU.M. WATER TANK

ACTUAL COST OF OF 10,000 GALLONS WATER TANK AT O/NAADO

FOR 3 CLASSROOMS (Costs in KS; 1 US \$ = 22 KS)

<u>MATERIAL</u>	<u>QUANTITY</u>	<u>RATE/ITEM</u>	<u>COST</u>
1. Reinforcement bars 6 mm ø	69	52/-	3,588
2. Ballast	7 tonnes	70/-	490
3. Ordinary cement	42 bags	104/-	4,368
4. Water proof cement	26 bags	38/-	1,068
5. Lime	2 Pkts @ 10 Kgs	28/-	56
6. Bondex	7 Kg	65/-	
7. Hardcore			850
8. Sand			2,200
9. 6'x9' stones	520 Rf		2,400
10. Water	60 drums	80/-	4,800
11. Sand seive wire	1 meter	145/-	145
12. 3 ply sheet	2 No	145/-	145
13. Binind wire	10 Kg	28/-	280
14. Hacksand blades	2 No	35/-	170
15. Concrete bowls (karai)	3 No	30/-	90
16. Manhole cover	1 No	450/-	450
17. Pipe & fittings GI			
a) 2" pipe	1 No	930	930
b) 2" sockets	5 No		225
c) 2" flanges	2 No		330
d) 2" 90° bends	2 No		312
e) 2" nipple	1 No	42/-	42
f) 2" plugs	2 No	35/-	70
Vent. g) 3" bend	1 No	980/-	980
h) 3" nipple	1 No	135/-	135
i) 3" flange	1 No	358/-	358
j) 3" elbow	1 No	580/-	580
18. Nails a) 1½"	1 Kg	22.50	22.50
b) 3"	2 Kg		27.80
c) 2"	3 Kg		41.70
19. Timber a) 4"x2"	170Rft	3.50	595
b) 6"x1"	150Rft	3/-	450
20. Transportation of materials (Stephen)			800
21. Transportation of Ballast (Parbat)			950
22. Payment to workers			11,900
TOTAL COST			40,204
Total materials cost			21,754
Total Transportation cost			1,750
Total labour cost			11,900
Total water cost			4,800

GRAND TOTAL

40 204

IN-K
LAB
1,25
63 00

Appendix N

MWP FIVE-YEAR BUDGET PLAN

Summary Budget for WVM Water Programm

Malawi Kwacha

Item	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93*	88-93
Piped Wat	101900	342200	299800	330500	402900	48100	1525400
Integ Bor	137500	450000	540000	648000	777600	466560	3069600
Bore repa	25000	20000	0	0	0	0	45000
HESP	13000	24000	26000	28000	30000	17000	148000
Prog man	131160	132900	176800	141300	154300	145500	881460
	468560	969100	1042600	1147800	1364800	677160	5665420

Summary Budget for WVM Water Programm
 US dollars - Exch rate = 2.46

Item	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93*	88-93
Piped Wat	41423	139114	121370	134350	163780	19553	629781
Integ Bor	55894	182927	219512	263415	316098	189659	1217719
Bore repa	10163	8135	0	0	0	0	18298
HESP	5287	9755	10569	11382	12195	6911	58106
Prog man	53317	54021	71870	57439	62724	59146	355200
	168484	340048	423821	466585	554797	275268	2402454

Piped Water Summary Component Budget I.

	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93*	ALL FYs 88-93
Project 1	101,900	121,300	5,700				228,900
Project 2		220,900	27,400	3,300			251,600
Project 3			266,700	32,800	4,000		303,500
Project 4				294,400	36,200	4,300	334,900
Project 5					362,700	43,800	406,500
All Projs	101,900	342,200	299,800	330,500	402,900	48,100	1,525,400

Piped Water Summary Component Budget II.

Item	Proj 1	Proj 2	Proj 3	Proj 4	Proj 5	ALL FYs 88-93
Pipes/mate	157,500	173,000	209,000	230,600	279,000	1,049,100
Tools	6,000	6,000	7,900	8,700	10,400	39,000
Salaries	7,500	8,200	9,800	10,800	11,800	48,100
Spares	3,000	4,000	5,000	5,200	6,300	24,500
Labor	38,500	43,500	52,500	58,100	77,000	270,600
Vehicles	2,000	3,200	4,000	4,100	4,700	18,000
Materials	1,000	1,000	1,000	1,000	1,000	5,000
Maintenance	11,000	4,000	5,000	6,100	5,500	24,600
Total Est	228,900	251,600	303,500	334,900	406,500	1,525,400

* FY 93 only 6 months of the year are included

Integrated Borehole Component Budget - Malawi Kwacha

Item	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93 *	ALL FYs 88-93
Drilling	90,000	216,000	259,200	311,040	373,248	223,949	1,473,437
Casing	30,000	72,000	86,400	103,680	124,416	74,650	491,146
Component	22,500	54,000	64,800	77,760	93,312	55,987	368,359
Materials	6,000	14,400	17,280	20,736	24,883	14,930	98,229
P mps	12,750	30,600	36,720	44,064	52,877	31,726	208,737
AG works	7,500	18,000	21,600	25,920	31,104	18,662	122,786
Tools	3,000	7,200	8,640	10,368	12,442	7,465	49,115
Spares	3,000	7,200	8,640	10,368	12,442	7,465	49,115
Training	6,000	14,400	17,280	20,736	24,883	14,930	98,229
Supervisi	3,750	9,000	10,800	12,960	15,552	9,331	61,393
Equip hnt	3,000	7,200	8,640	10,368	12,442	7,465	49,115
TOTAL COS	187,500	450,000	540,000	648,000	777,600	466,560	3,069,250

* FY 93 represents 6 months of activity only

HESP Component Budget - Malawi Kwacha

Item	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	ALL FYs 88-93
Salary	4750	10000	11000	12000	13000	7000	57750
Training	750	1500	1500	1500	1500	1000	7750
Travel	2500	3500	4500	5500	6500	4000	26000
Supplies	5000	6000	7000	8000	8000	4500	38500
Capital	5000	3000	2000	1000	1000	500	12500
Total Cos	18000	24000	26000	29000	30000	17000	143000

Program Management Component Budget - Malawi Kwacha

Item	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93*	ALL FYs 88-93
Salaries	13,900	55,400	63,800	73,300	84,300	48,500	339,200
Consultan	50,260	21,500					71,760
Design/ev	40,000		50,000			60,000	150,000
Training	7,000	16,000	19,000	20,000	18,000	9,000	89,000
Admin	10,000	20,000	22,000	24,000	26,000	14,000	116,000
Travel	10,000	20,000	22,000	24,000	26,000	14,000	116,000
Capital	150,000						150,000

WVM Water Program Funding Requirements
Malawi Kwacha

Item	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93*	88-93
Piped Wat	89900	287200	250300	274600	330400	22400	1254800
Integ Bor	187500	450000	540000	648000	777600	466560	3069660
Bore repa	25000	20000	0	0	0	0	45000
HESP	18000	24000	26000	28000	30000	17000	143000
Prog man	131160	132900	176800	141300	154300	145500	881960
	451560	914100	993100	1091900	1292300	651460	5394420

WVM Water Program Funding Requirements
US dollars (Exch rate = 2.46)

Item	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93*	88-93
Piped Wat	36545	116745	101743	111626	134309	9106	510761
Integ Bor	76220	182927	219512	263415	316093	189659	1247829
Borehole	10163	8130	0	0	0	0	18293
HESP	7317	9756	10569	11382	12195	6911	58130
Prog man	53317	54024	71870	57439	62724	59146	358520
	183561	271535	403699	443862	525325	264821	2192354

Appendix O

MWP: PROJECTED EXPENDITURE FY90 AND PLANS FOR FY91

M E M O R A N D U M

DATE : 29th May 1990 cc Colin Mbawa
Mike Mtika
TO : Silas Kenala Chimwemwe
Rose N
FROM : Amos Kalawe
SUBJECT : **MALAWI WATER PROGRAMME: PROJECTED EXPENDITURE
FY90 AND PLANS FOR FY91**

Silas, I would like to let you know about what we see as the future cause of action for the Malawi Water Programme in view of the 50% cut in funding (due to the cessation of the USAID funding component) from FY91 - please see the attached table.

The main implication of this is that the programme will have to be implemented over a longer period of time than originally planned unless other additional sources of funding are identified. In FY91, we would like to concentrate our efforts on the installation of a gravity-fed piped water project at Bale; no new borehole will be drilled in the IBD sites. In view of the fact that the FY91 budget cannot fully sustain our activities at Bale in addition to other expenses, we have planned that most of the material requirements (PVCs, steel rods, cement, etc) for that project should be procured during the current financial year (FY90). This again means that no further borehole drilling will be done this year. Because of this move, we anticipate an over-budget expenditure of US\$20,187 in our supplies account (Ac 830), and underbudget expenditure of US\$14,265 in our professional services account (which meets borehole drilling). The impact of these adjustments on the overall FY90 budget is, however, minimal, i.e., an overbudget expenditure of US\$2,042.

In FY91, we shall, besides installing the gravity-fed piped system, monitor the performance of the Chipoka Water Project and the 49 boreholes already installed in the IBD sites, providing technical assistance to the communities as the case may be and continue with the HESP programme in all the water sites. It is anticipated that borehole drilling will be commenced again in FY92, after the Bale project has been finalised.

I would welcome any comments on these moves.

God bless


Amos

Attached.

2,00

MALAWI WATER PROGRAMME : PROJECTED EXPENDITURE (FY90)

ACCOUNT	ANNUAL BUDGET (USD) (1)	EXPENDITURE TO DATE (MARCH) (2)	PLANNED EXP APR-SEPT (3)	TOTAL PROJECTED EXP SEPT 1990 (2+3) (4)	DIFFERENCE ANNUAL BUDGET- PROJ. EXP SEPT 1990 (5)	FY91 BUDGET (6)
800 Expatriate Salaries	-	-	-	-	-	-
805 Local Salaries Benefits	24068	15789	11000	26789	(2721)	32000
810 Training	13085	3842	10000	13842	(757)	8000
820 Travel/ Transport	27283	12286	7000	19286	7997	20000
830 Supplies	51796	15483	56500	71983	(20187)	15000
840 Utilities Rent, Insurance	3840	3065	3065	6130	(2290)	5000
850 Non-vehicular repairs	1852	29	200	229	1623	1000
860 Communication	1780	861	919	1780	-	1500
870 Professional Services	204438	184673	5500	190173	14265	24000
880 Fixed assets	304	276	-	276	28	8500
	328446	236304	94184	330488	(2042)	115000

Appendix P

MALAWI WATER PROGRAMME: SOME FACTS

MALAWI WATER PROGRAMME

SOME FACTS

1 Planning and Budgeting

The World Vision fiscal year is October/September. Thus, FY 90 started in October 1989 and finishes on September, 1990. Budgeting for all activities including the MWP is carried out in May; six months before funding approval is received. Thus for the FY 90 activities, the budgeting process was done in May, 1989. At the budgeting time, however, the field office has guidelines which specify the budget limits. Any requirements above limits are submitted as additional requests with appropriate justifications. The budgets are submitted to WVI in June each year and approvals are received end of September each year.

Physical implementation planning is initially done during the budgeting process. This, however, gets modified when the money has been approved. For FY 90 activities, for example, some US \$450 000 was requested but US\$328 000 was approved. The additional request was for the project to acquire equipment and a vehicle. Modifications to the budget also take into account physical implementation carried out between June and September, since budgeting is done before the current fiscal year finishes.

In ~~October~~^{September}, action plans are prepared for the whole fiscal year and this is more realistic in that it is based on the approved money. The action plan details all activities to be done, when, and who will be responsible. A copy of this is available.

During the implementation itself, we keep on reviewing activities through monthly reports and quarterly progress reports. Thus as implementation of the action plan goes on, adjustments are made. More unplanned relevant activities may and do in fact take place for that reason.

In a nutshell, the following activities take place giving FY 90 as an example:-

- i) March/April 1989 Budget guidelines sent to Field Offices.
- ii) May/June 1989 Field Office budgeting and physical planning (initial), and submission to International Office.
- iii) September, 1989, Budget approvals received.
- iv) October, 1989, FY 90 Plans of Action.

2. Project Funding

Out of the 2.3 m USD required for a period of 5 years, the following funds have been disbursed so far:

MWP - Some facts

	<u>Planned (USD)</u>	<u>Actual Funding</u>
FY 88	188 439	165 900
FY 89	393 943	328 142
FY 90	<u>423 821</u>	<u>328 446</u>
	1 006 203	822 488
FY91 →	<u>466,525</u>	<u>115,000</u>

The figures reflect underfunding which means cuts in certain planned activities. As of now the project has not been able to purchase some equipment required (ref to p 42 of the proposal document). The MWP is large and there is every justification to ensure we are adequately equipped.

3. Borehole Drilling (Integrated)

Each borehole costs US \$4 627 (MK12 495) to drill. The procurement of the 120 pumps cost us US\$106 000 (excluding insurance) an average of US\$833 each. The installation cost, therefore, is US \$5 460 for a new borehole. *The dry hole cost 5000 usd for cement contracts.*

4. Status of Borehole Rehabilitation

Borehole Rehabilitation according to the proposal document is to be done at 15 sites, replacing the National Pump with the AFRIDEV pump. The rehabilitation of the 15 boreholes is yet to be done. The MWP has repaired 3 boreholes since it started. *But National Pumps were maintained; they will be replaced.* The full list of the sites involved in the borehole rehabilitation component is given.

Our findings suggest that the work is not just putting up new pumps alone. Some old boreholes will have to be re-drilled before installation. The cost of re-drilling is estimated at US\$1500 per borehole but the full cost has not yet been determined.

Borehole Drilling

MWP - Some facts

5. Current Plan of MWP Through 1993

For the period FY 91 through FY 93, the following activities are anticipated.

IBD and BR

i) So far the project has procured 120 borehole pumps out of 165 required for both the IBD (150) and BR (15) components. In this period, the project will procure additional 45 borehole pumps required. Procurement will cost at least US \$41,233 giving an allowance for 10% increase since last procurement. Again figures exclude insurance and handling costs.

ii) **Borehole Drilling**

To date 60 boreholes have been sunk but 11 are dry. Therefore, there are 49 boreholes for installation - this work is expected to be completed by September, 1990. To drill and instal the remaining 101 boreholes will cost US \$487,086 assuming all borehole sites are wet. It might be prudent to add possibility of 15 dry ones at a cost of US\$2,460 each or US\$36,900 for all of them. The total for component, therefore, can be estimated at US\$523,986.

Choma Community Development Project

This project has nearly 3000 people now and is to be turned into an IBD project rather than a piped water project following low flow studies. Using the ratio of 250 people per borehole 12 pumps need to be procured and installed at a cost of US\$65,520.

iii) **Piped Water Component**

Work at Chipoka is expected to be through by December, 1990 whilst work at Bale is expected to start by October, 1990. About 80% of material requirement for Bale are being procured out of FY 90 funding, at a cost of US\$39,000. In FY 91, about US\$15,000 is estimated for materials at Bale including HESP purchased. Total cost for Bale, therefore, is estimated at US \$54,000.

*It is important to note that Chipoka has had two phases. Much of the remainig work pertains to phase II.

iv) **HESP**

HESP will be following the water activities. Baseline data collection will be done ~~at each~~ ^{at each} site, determine appropriate intervention measures to be carried out. This is because health problems vary from place to place.

6. Implementation Schedule

- FY 90
- Chipoka (I & II)
 - IBD installation (49) in progress
 - HESP activities
 - Announcement for Bale
 - Initiate hand-over discussions with MOW and MOH
 - Chipoka
- FY 91
(Budget
115,000 USD)
- Complete Chipoka (Quarter I)
 - Supervise system at Chipoka.
 - Initiate trenching/piping/tap installation
 - Other constructions Bale
 - No IBD (because of reduced funding)
 - Short term training - Newton
 - Hand - over discussions
 - No Borehole rehabilitation (because of reduced funding)
 - HESP activities
 - Procure motor cycle, cement mixer, and vibrator
- FY 92
- Funding size not known but the potential implementation is as follows:
- studies for Mzokoto (alternatives being own system, or connection Bale or connection to Phwezi School water supply).
 - Procure 57 Afridev pumps 45 plus 12 for Choma (US\$52230)
 - Drill and instal 71 remaining boreholes (US\$328 517)
 - Supervision IBD, piped systems, HESP (US\$24000)
 - Rehabilitate 15 boreholes (US\$22000)
 - Refresher courses (community) (US\$8000)
 - Long term training in water supply systems (Chimwemwe) (US\$ 15000)
 - Replace 2 vehicles (US\$ 45000)
 - Hand-over Chipoka; hand over discussions, Bale
 - Salaries (part of salaries absorbed by MSC) (US\$ 25000)
- TOTAL Budget requirement (US \$520247)

The total FY 92 requirement may be compared with US\$554 797 in the proposal document although allocations by components are different.

MWP - some facts

FY 93	- Drill and instal 42 boreholes	(USD235200)
	- Implementation Mzokoto water system	(USD90000)
	- Hand over Bale	
	- Continue supervision of IBD systems in readiness for hand-over	(30000)
	- Salaries	(15000)
	Total Requirement	<u>USD370200</u>

* Additional needs in terms of FY 91 would be a 2 ton truck at USD35,000

One HESP Coordinator at USD5,200, (Including housing)

One Water Supply Coordinator at USD6,000, (including housing)

*Plans for Bale are for the Water Supply Coordinator to be resident at site although he would from time to time make supervision visits to Chipoka.

7. Reporting System

There are monthly, quarterly and annual progress reports that are produced. The reports are based on the approved funding and annual plan of action developed in September each year as already noted. These reports constitute the material for project monitoring. Review of activities is done each month and a new plan is developed based on activities achieved/ not achieved in the preceeding months.

The monthly report has inputs from all the components - IBD, BR, HESP, and Program Management. The reporting format for monthly reports is as follows:

Section I - Activities carried out in the month.

Section II - Major activities not accomplished

Section III - Major activities accomplished

Section IV - Plan of action for next month

Under each section are included all e components.

The quarterly progress report has two major sections, the narrative section and the financial section. The format is as follows:

Narrative Part

Section I - Milestones accomplished during quarter

Section II - Milestones not met and reasons for not being met

Section III - Plan of Action for Next Quarter

Financial Part

- Brief summary of overall financial performance and for those accounting categories sharing 10% variance from budget.
- This is followed by what is called R & D Activity Report forms that include the trial balance, balance sheet, analyse of aging advances, and analyse of different accounts under the project, giving all the expenditure descriptions.

The project is following a grant accounting system for which the accountant and the previous program manager went on training in Arusha, Tanzania. With the present accounting system all expenditures are aggregated together without separation by component. Such separation can be done but more resource would be necessary, particularly the computer to facilitate speedy production of such figures. The MWP has one accountant who is also responsible for purchases. Project decisions are all based on the current reporting system.

All the reports are submitted to WVRD.

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Appendix Q

CONSULTANCY AGREEMENT: MWP GRAVITY PIPED WATER SCHEMES

CONSULTANCY AGREEMENT BETWEEN
WORLD VISION MALAWI
AND
WILLY AND PARTNER ENGINEERING SERVICES
FOR
PROVISION OF CONSULTANCY SERVICES FOR
THE GRAVITY FED WATER SCHEME OF
THE MALAWI WATER PROGRAMME

TEXT OF AGREEMENT

AGREEMENT dated ^{21st August 1989}.....1989, between World Vision Malawi (hereinafter called "the Client") and Willy and Partner Engineering Services (hereinafter called "the Consulting Engineer").

WHEREAS

- i) The Client is desirous that Engineering Services be rendered for: *The Quality Education Scheme of the Government of Malawi (Phase 1 and 2)*.....
.....
- ii) The Client has requested the Consulting Engineer to provide Engineering Services for the scheme.
- iii) The Consulting Engineer has agreed to undertake and perform the duties and responsibilities subject to the terms and conditions set out in the general clauses of this Agreement.

Now, Therefore, the parties agree as follows:

1. NORMAL SERVICES TO BE PROVIDED BY THE CONSULTING ENGINEER

1.1 FEASIBILITY STUDIES

The Consulting Engineer shall undertake feasibility studies and submit to the Client a report containing preliminary proposals and estimates of costs including:-

- i) inspection of the site of the scheme;
- ii) collation of available data, surveys and maps; and
- iii) arranging, with the Client's consent and at his expense, for surveys, site investigations, analyses or tests.

1.2 DETAILED DESIGN

The Consulting Engineer shall, after thoroughly discussing the preliminary proposals under 1.1 with the Client and obtaining the Client's decision, develop a detailed design of the scheme including as may be necessary

- i) arranging, with the Client's consent and at his expense, for any surveys, site or special investigation, analyses or other tests required for the completion of design;
- ii) consultation on matters affecting the scheme with any other consulting engineer or specialist advisor appointed by the Client;
- iii) preparing plans, drawings, estimates and applications for statutory approval; and
- iv) making modifications to the detailed design of the scheme as dictated by the consultations or applications already mentioned.

1.3 SUPERVISION OF THE SCHEME

The Consulting Engineer shall during the construction of the scheme undertake necessary site inspection of the scheme at the frequency to be agreed with the Client.

He shall

- 1) advise the Client and, prepare, as may be necessary, any further plans, designs, including bending schedules for reinforced concrete work but not fabrication details for steelwork;

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- ii) arrange, with the Client's consent and at his expense, for the inspection and testing of whatever materials are usually inspected and tested;
- iii) arrange and witness performance or acceptance tests on site;
- iv) reproduce drawings and documents necessary for the completion of the scheme; and
- v) provide record drawings and manuals necessary for the operations and maintenance of the construction works.

The Consulting Engineer shall submit site inspection reports at the frequency agreed with the Client. He shall state his observations and advise the Client of the necessary steps to be carried out for the completion of the scheme.

2. ADDITIONAL SERVICES

The Consulting Engineer shall advise the Client on the necessity of additional work which, if carried out with the Client's consent, shall be paid for on a time and expense basis. The work listed below is not covered by the normal fees paid to the Consulting Engineer, who will advise the Client on the necessity for such work. If it is carried out by the Consulting Engineer with the Client's consent it shall be paid for on a time and expense basis in accordance with the schedule of fees in section 3.2.

- i) Submission to or obtaining approval, license or permit from the Water Department.
- ii) Revisions required to obtain formal approval of Government Departments or statutory authorities following a decision of any such authority, a change in policy or any other cause beyond the Consulting Engineer's control.
- iii) Preparing or setting out particulars and/or calculations in form required by any appropriate authority;
- iv) Arranging the construction of utility services not forming part of the scheme, save where such arrangements can be made by the Consulting Engineer with only minor effort;
- v) Detailed checking or inspection of any drawing or design not prepared by the Consulting Engineer.
- vi) Training of the Client's representatives associated with the scheme at the request of the Client.

3. **REMUNERATION OF THE CONSULTING ENGINEER**

3.1 The fees for the work covered by 1.1 shall be calculated on a time basis at the following rates:-

Senior Partner	MK50.00 per hour
Draughtsman	MK 8.00 per hour
Survey Team complete with instruments	MK250.00 per day

and shall become due on the submission of the preliminary proposals to the Client by the Consulting Engineer.

3.2 Where work is of normal character, the fees due in terms of 1.2 and 1.3 shall be calculated on the basis of the value of the scheme as defined below:

<u>Value of the Scheme</u>	<u>Fee</u>
Below MK65,000	325 plus 5%
65,000 to 130,000	780 plus 4.5%
130,000 to 260,000	1300 plus 4%
260,000 to 390,000	2600 plus 3.5%
390,000 to 780,000	3075 plus 3.25%

3.2.1 The fees shall be due as follows:
50% of the fees on completion of work under 1.2
50% of the fees as and when the work proceeds in proportion to the work done.

3.3 Payments shall be subject to withholding tax

4. **VALUE OF SCHEME FOR FEE COMPUTATIONS**

For the purpose of ascertaining payments due under 3.2, the value of the scheme or any part thereof shall be a direct and fair valuation of the materials. The value of the scheme shall not include:

- i) administrative expense incurred by the Client
- ii) professional fees and disbursements
- iii) cost of surveys
- vi) salaries, costs of travel, and board and lodging of the Consulting Engineer.
- v) finance costs incurred by the Client

- vi) cost of land or wayleaves
- vii) value of self-help labour

5. **REIMBURSEMENTS**

The Client shall upon production of receipts reimburse the Consultancy Engineer in respect of all the Consulting Engineer's expenditures properly incurred in connection with:

- i) Telegrams, telex charges, postage of drawings and documents
- ii) Travelling, board and lodging
- iii) Computer costs incurred when fees are charged on

6. **ALTERATIONS OR MODIFICATIONS TO DESIGNS**

In the event of circumstances which could not have been reasonably foreseen, or in the event of the Client modifying the design requirements necessitating alterations to complete designs or designs in progress or which require the alteration or remarking of any specification, drawings, or other documents prepared in whole or in part by the Consulting Engineer, the whole cost of revising, amending or reproducing such designs, drawings or documents to bring the work to the stage at which it was modified shall be subject of additional payment completed on a time basis in accordance with 3.1.

7. **CARE AND DILIGENCE**

The Consulting Engineer shall exercise all reasonable skill, care and diligence in the performance of the services under the Agreement and shall carry out his responsibilities in accordance with recognised professional standards.

8. **ASSIGNMENT**

The Consulting Engineer shall not, without written consent of the Client, effect partial assignment of the work covered under this Agreement. If such assignment is agreed, it shall incorporate all the relevant provisions of this Agreement without in any way relieving the Consulting Engineer of his obligations.

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9. POSTPONEMENT OR TERMINATION OF SERVICES

If at any time the Client satisfies himself that the work programme is not being carried out by the Consulting Engineer to the best interest of the Client with respect to the quality of work, time and expense, the Client may terminate this Agreement by giving 15 (fifteen) days notice and by paying all costs and fees due to the Consulting Engineer up to the end of the notice period. Upon receipt of such notice, the Consulting Engineer shall take immediate action to bring the services to a close in a prompt and orderly manner and to reduce expenditure for this purpose to a minimum.

10. FORCE MAJOURE

10.1 The Consulting Engineer shall promptly notify, in writing, the Client of any situation or even arising from circumstances beyond his control and which he could not reasonably foresee which makes it impossible for the Consulting Engineer to fulfil his obligations in whole or in part. Upon the occurrence of such a situation or event the services shall be deemed to be postponed for a period of time equal to that caused by the Force Majoure and a reasonable period of time not exceeding 10 (ten) days to remobilize for the continuation of the services.

10.2 If at any time during the continuance of this Agreement it shall become impossible for the Consulting Engineer by reason of Force Majoure or other hindrances his control, to execute his obligations in accordance with this Agreement, the Consulting Engineer shall promptly notify the Client in writing and, with the agreement of the Client, shall be relieved of his obligations to execute this Agreement. In this case, this Agreement shall come to an end within 15 (fifteen) days of notification provided that the Client shall pay to the Consulting Engineer all costs and fees falling due up to the date of termination and arising out of liabilities properly incurred by the Consulting Engineer by reason of this Agreement before the date of termination thereof.

11. ARBITRATION

Any dispute or differences arising out of this Agreement shall be settled by arbitration in accordance with the Arbitration Act (Cap 6:03) of the Laws of the Republic of Malawi.

12. NOTIFICATION AND ADDRESS

The addresses for notification relating to performance of this Agreement are:

Client : World Vision International
P O Box 2050
BLANTYRE

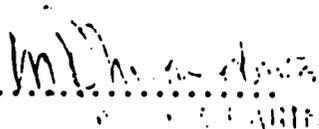
Telephone: 651 444

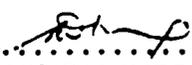
Consulting Engineer : Willy and Partner Services
c/o Mtemadanga Estate
P O Box 2257
BLANTYRE

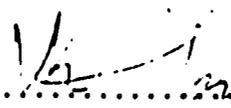
IN WITNESS whereof, the parties hereto, acting through their representatives thereunto duly authorised have caused this Agreement to be signed and to be delivered in Blantyre, Malawi, as of the day and year first above written.

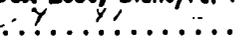
CONSULTING ENGINEER

WORLD VISION INTERNATIONAL

SIGNED BY: 

SIGNED BY: 
WORLD VISION INTERNATIONAL

WITNESS: 

Malawi Justice
P.O. Box 2050, Blantyre, Malawi
WITNESS: 



Appendix R

CHIPOKA RURAL PIPED WATER PROJECT TECHNICAL BRIEF, MWP

CHIPOKA RURAL PIPED WATER

PROJECT TECHNICAL BRIEF

1. Design Population : 8,000
2. No of Villages involved : 13
3. Design Water Consumption per capita per day : 36 Litres
4. No of intakes : 2
5. Sedimentation tank capacity: 2 No x 50m³
6. Storage tanks capacity : 2 No x 30m³
7. Total length of Pipeline : 80Km
8. Estimate Area of Project : 70Km²
9. Total No of taps when completed : 80
10. Estimated Cost of project : K400,000

Appendix S

BALE RURAL PIPED WATER PROJECT DESCRIPTION, MWP

BALE RURAL PIPED WATER

SUPPLY PROJECT

1.0 INTRODUCTION AND SUMMARY: Bale Project is one of World Vision International (Malawi) holistic development project which is located 30km to the east of Rumphu Boma on Karonga/Mzuzu Road in the area of Sub-Chief Mwankhunikira. One of the goals of the project is the provision of safe and clean water to the community.

Kakvale and Vilala streams have been identified as source of gravity, piped water supply whose catchment areas are in Uzumara Forest Reserve. The project will serve a design population of 4800 through 40 stand points.

The material cost of the project is estimated at K 190,268:55.

2.0 DETAILS OF PROJECT

2.1 LOCALITY: Bale is located at a distance of approximately 30km to the East of Rumphu Boma on Karonga/Mzuzu main road in the area of Sub-Chief Mwankhunikira. The project area covers four villages namely; Chinjoka, Kamubvi Munthali, Hudeka Mzumara and Munyonga.

2.2 LAND USE: The main occupation of Bale Community is farming with Cassava and Maize being the main crop grown in the area. Millet is grown on the steep slopes of the area. According to information obtained from Mzuzu A.D.D., there are at present 92 registered farmers in the project area.

2.3 POPULATION: The present estimate of the population in the area according to figures obtained from National Statistical Office in Zomba is 2,000. Taking a growth rate 4.26% given in 1987 Preliminary National Statistical Report, the projected design population for a period of 20 years works out to be 4800.

- 2.4 **INSTITUTIONS:** The only institution available in the area is a full primary school with present enrollment of 480 and staff strength of 9. The Community also run a non residential carpentry school with the financial assistance of World Vision International.
- 2.5 **WATER SOURCE:** It is proposed to have the intake for the piped water supply immediately down stream of the confluence of Vilala and Kakvale streams. Water samples collected from the intake site revealed traces of fecal coliform which could be from animal source. It is proposed to provide biological form of treatment through slow sand filters. From a number of flow measurements taken by Hydrology section of Water Department the minimum flow of each stream recorded is 6l/sec. Discussions with the locals revealed that the streams are perennial.
- 2.6 **WATER DEMAND:** The recommended per capita consumption figure used for Rural Community with public stand points in Malawi is 36 litres. A total daily demand of 172m³/day is required for a design population of 4800 which is available assuming design low flows of 2l/sec (151.2m³/day) for each stream.
- INTAKE WORKS:** It is proposed to construct a concrete weir of maximum height of 0.3m at the intake site. The intake pipe will be 75mm diameter galvanised steel pipe with 3/16" diameter drilled holes all round. Leaves and sand that may enter the intake will be removed in screening tank of size 2.5m length x 1.5m width x 1.0m height.
- 2.7 **TREATMENT WORKS:** Removal of sediments will be achieved through 45m capacity circular sedimentation tank with a detention period of 4 hours. It is proposed to provide a circular slow sand filter with inside diameter of 6.7m to work as biological form of treatment. The filtration rate designed for is 0.2m/hr.
- 2.8 **STORAGE TANK:** 2 No. circular storage tanks with storage capacity of 30m³ each are proposed. The internal diameter of the tank is 4.5 and the height is 2.0m.

2.9 SERVICE AREA: The project covers a total service area of 17km² and 40 No. public stand points are proposed. A minimum of 5m exit pressure is allowed at each stand point. No allowance has been made for private house connection. A peak factor of 1.5 is used for design of distribution system. Headloss due to fitting and bends is taken as 10% of friction headloss.

3.0 BILL OF QUANTITIES

Detailed below is the bill of quantities for the project. Reference is made to appropriate drawings for the working out of the quantities.

BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1.0	<u>U PVC Pressure Pipes to MBS Specification</u>				
1.1	90mm (6) dia PVC pipe	"	450	14.05	6322.50
1.2	50mm dia class 10 PVC pipe	"	5700	6.60	37620.00
1.3	40mm dia class 10 " "	"	12000	4.72	56640.00
1.4	32mm dia class 10 " "	"	3300	3.75	12375.00
1.5	25mm dia class 10 " "	"	2100	2.77	5817.00
1.6	20mm dia class 10 " "	"	9000	1.93	17370.00
2.0	<u>U PVC Pressure Pipe fittings to MBS Specification</u>				
2.1	90mm x 63mm Reducing Tee	No.	5	54.55	272.75
2.2	50mm x Equal Tee	No.	10	11.10	111.00
2.3	50mm x 25mm Reducing Tee	No.	5	11.10	55.50
2.4	50mm x 20mm Reducing Tee	No.	4	11.10	44.40
2.5	40mm Equal Tee	No.	5	8.64	43.20
2.6	40mm x 20mm Reducing Tee	No.	15	8.64	129.60
2.7	32mm Equal Tee	No.	10	5.34	53.40
2.8	32mm x 25mm Reducing Tee	No.	1	5.34	5.34
2.9	32mm x 20mm Reducing Tee	No.	4	5.34	21.36
2.10	25mm x 20mm Reducing Tee	No.	4	3.93	15.72
2.11	90mm x 50mm Reducer	No.	5	21.75	108.75
2.12	63mm x 32mm Reducer	No.	4	14.95	59.80
2.13	50mm x 40mm Reducer	No.	3	8.45	25.35
2.14	50mm x 32mm Reducer	No.	6	8.45	50.70
2.15	40mm x 32mm Reducer	No.	1	7.45	7.45
2.16	32mm x 25mm Reducer	No.	1	5.20	5.20
2.17	25mm x 20mm Reducer	No.	5	4.66	23.30

125100.5

1,022.22

177,97.32

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ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
2.18	90mm Valve Socket	No.	4	14.84	59.36
2.19	63mm Valve Socket	No.	4	12.29	49.16
2.20	50mm Valve Socket	No.	12	10.76	129.12
2.21	40mm Valve Socket	No.	8	8.39	67.12
2.22	32mm Valve Socket	No.	42	6.54	274.68
2.23	25mm Valve Socket	No.	10	5.68	56.80
2.24	20mm Valve Socket	No.	120	3.99	478.80
2.25	32mm Air Valves	No.	20	32.14	642.84
					1757.87
3.0	<u>Galvanized Steel Pipes to BS Specification</u>				
3.1	75mm (3") Galvanized Steel Pipes	"	18	48.54	873.72
3.2	63mm (2") " " "	"	24	25.00	600.00
3.3	50mm (1") " " "	"	60	17.73	1063.80
3.4	40mm (1") " " "	"	60	15.36	921.60
3.5	32mm (1") " " "	"	120	12.55	1506.00
3.6	25mm (3/4") " " "	"	24	8.08	193.92
3.7	20mm (") " " "	"	120	6.23	747.60
					5975.64
4.0	<u>Galvanized Steel Pipe Fittings to BS Specification</u>				
4.1	75mm (3") dia Gatevalve	No.	2	135.37	270.74
4.2	50mm (2") dia "	No.	1	59.15	59.15
4.3	38mm (1") dia "	No.	6	38.13	228.78
4.4	32mm (1") dia "	No.	4	34.00	136.00
4.5	25mm (1") dia "	No.	27	21.60	583.20
4.6	20mm (3/4") dia "	No.	5	17.03	85.15
4.7	12.5mm (") dia "	No.	40	14.85	594.00
4.8	38mm (1") dia "	No.	1	415.00	415.00
4.9	25mm (1") Ball Valve	No.	1	350.00	350.00
					2722.92
					10,305.86

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
4.10	50mm (2") x 90 Bend	No.	6	17.45	104.70
4.11	50mm (2") Elbow	No.	3	9.42	28.44
4.12	50mm (2") Equal Tee	No.	6	11.50	69.00
4.13	38mm (1 1/2") elbow	No.	2	6.08	12.16
4.14	25mm (1") Elbow	No.	2	3.18	6.36
4.15	50mm (2") Plug	No.	7	3.80	26.60
4.16	12.5mm (1/2") Plug	No.	40	1.10	44.00
4.17	12.5mm (1/2") Bib Cocks	No.	50	20.40	1020.00
4.18	12.5mm (1/2") Elbow	No.	100	1.66	166.00
4.19	12.5mm (1/2") Sockets	No.	50	1.28	64.00
					1512.6
5.0	<u>Concrete Intake Weir</u>				
		Fct.	3	25.00	75.00
5.1	Portland Cement	m ³	4	10.00	40.00
5.2	Sand	m ³	6	40.00	240.00
5.3	Course Aggregate				255.00
6.0	<u>Rectangular Concrete Screening Tank</u> <u>2.5m x 1.5m x 1.0m Internal Dimension</u> <u>with Thickness of 120mm</u>				
		Fct.	19	25.00	475.00
6.1	Portland Cement	m ³	0.1	10.00	1.00
6.2	Sand	m ³	0.2	40.00	8.00
6.3	Course Aggregate				
6.4	10mm dia Cold Formed Reinf. Bar ✓	Kg	80	2.93	234.40
6.5	A98 Wire Mesh ✓	m ²	6.72	20.00	134.40
7.0	<u>Circular Reinforced Concrete Sedimentation Tank</u> <u>45m³ Capacity Internal Dia of 6.7m and 200mm Thick</u>				
		Fct	160	25.00	4000.00
7.1	Portland Cement	m ³	12	10.00	120.00
7.2	Sand	m ³	17	40.00	680.00
7.3	Course Aggregate				565.00
					5490.00

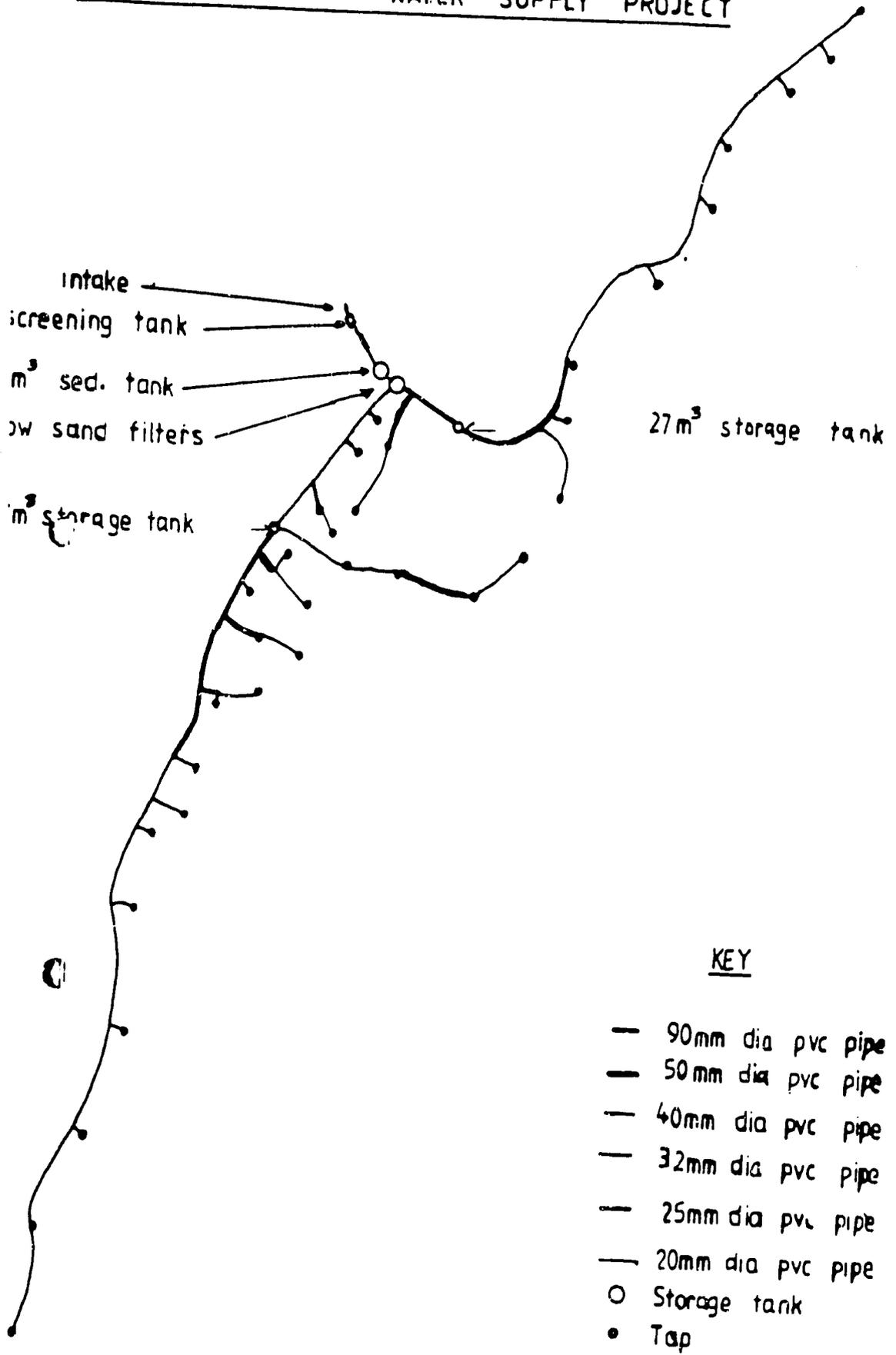
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
7.4	Bricks	1000	1000	70.00	70.00
7.5	6mm dia Round Bar	Kg	2.64	2.93	7.75
7.6	10mm dia Cold Formed Bar	Kg	193.44	2.93	560.80
7.7	12mm dia Cold Formed Bar	Kg	1110.72	2.93	3254.41
7.8	16mm dia Cold Formed Bar	Kg	37.92	2.93	111.11
7.9	Manhole Covers	No.	2	105.00	210.00
8.0	<u>Circular Reinforced Concrete Slow Sand Filter Tank with Capacity of 70m Internal Dia of 6.7m and 200mm Thick (concrete mix 1:2:3)</u>				
8.1	Portland Cement	Pkt	170	25.00	4250.00
8.2	Sand	m ³	12	10.00	120.00
8.3	Course Aggregate	m ³	20	40.00	200.00
8.4	10mm dia Cold Formed Bar	Kg	340	2.93	996.20
8.5	12mm dia Cold Formed Bar	Kg	1480	2.93	4336.40
8.6	Filtration Sand	m ³	36	15.00	540.00
8.7	Course Aggregate	m ³	11	40.00	440.00
8.8	160mm dia PVC Pipe Manifold	m	12	34.22	417.24
8.9	75mm dia PVC Pipe Laterals	m	120	8.04	964.80
8.10	160mm x 75mm PVC Tee	No.	44	110.22	4870.00
8.11	160mm dia PVC Plug	No.	1	36.79	36.79
8.12	75mm dia PVC Plug	No.	44	19.11	307.24
9.0	<u>No. Circular Reinforced Concrete Storage Tank 27m Capacity Internal Dia of 4.5m and Wall Thickness of 200mm (concrete mix 1:2:3)</u>				
9.1	Portland Cement	Pkt	240	25.00	6000.00
9.2	Course Aggregate	m ³	26	40.00	1040.00
9.3	Sand	m ³	17	10.00	170.00
9.4	Bricks	1000	1200	70.00	24.00

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ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
9. 5	6mm dia Round Bars	Kg	3	2.93	8.79
9. 6	10mm dia Cold Formed Reinf. Bar	Kg	168	2.93	492.24
9. 7	12mm dia Cold Formed Reinf.	Kg	1608	2.93	4711.44
9. 8	16mm dia " " "	Kg	38	2.93	111.34
9. 9	Manhole Cover	No.	4	105.00	420.00

TOTAL K190,262.55

BALE RURAL PIPED WATER SUPPLY PROJECT



Appendix T

BILLS OF QUANTITIES FOR GRAVITY SYSTEM WORKS, MWP

T

No.

DATE

29/7/88

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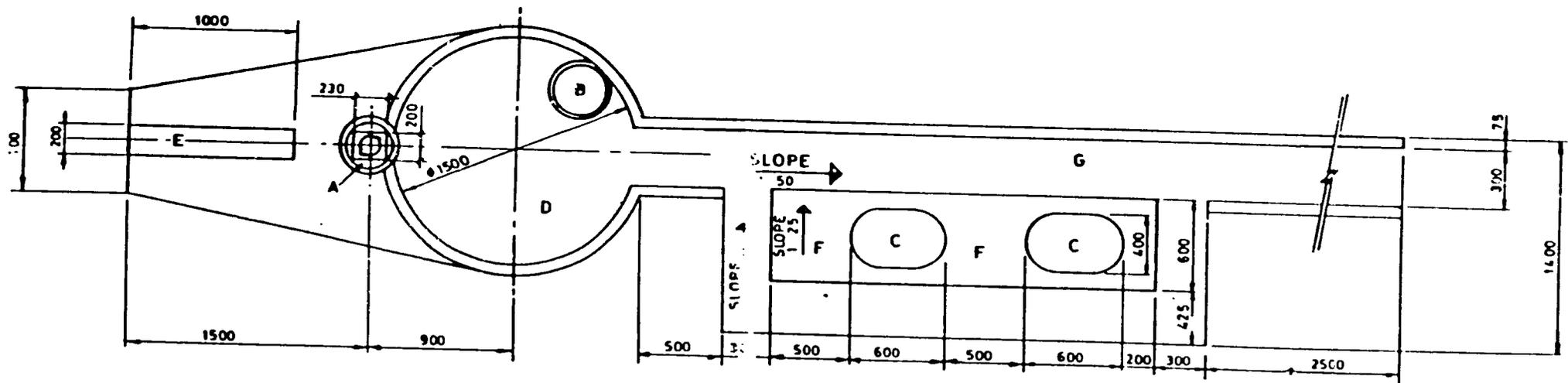
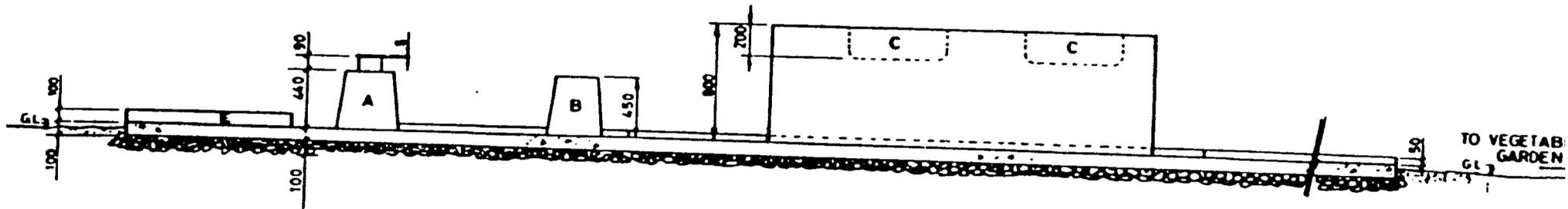
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QUANTITIES FOR INTAKE WORKS, SEDIMENTATION TANKS & STORAGE TANKS

NO.	DESCRIPTION	UNIT	QUANTITY	RATE	K	l
A. INTAKE WORKS						
1	Cement	Pkt	30			
2	Sand	m ³	4			
3	Course Aggregate	m ³	8			
B. SEDIMENTATION & STORAGE TANKS						
1	Cement	Pkt	240			
2	Sand	m ³	14			
3	Course Aggregate	m ³	25			
4	10mm ϕ reinforcing bars	kg	515			
5	12mm ϕ reinforcing bars	kg	1190			
6	20mm ϕ reinforcing bars	kg	651			
7	Man hole covers	No	6			
8	Bricks	1000	3000			
C. TAP APRON						
1	Cement	Pkt	180			
D. WASHING SLABS						
1	Cement	Pkt	300			
2	Bricks	1000	54,000			

Appendix U

STANDARD DESIGN OF TAP/PUMP APRON FOR MWP



- A - CONCRETE PUMP PEDESTAL
- B - BUCKET STAND
- C - WASH BASIN
- D - APRON AREA
- E - STANDING AREA
- F - WASHING AREA
- G - DRAIN

FIG 3

DIMENSIONS IN MILLIMETRES

KIE SPECIAL ENERGY PROGRAMM		
HANDPUMP		
- APRON, DRAINAGE AND WASHBASIN		
1:25 scale	1987-07-31 date	

Appendix V

REVISED CONSTRUCTIONAL CHARGES FOR CIRCULAR CONCRETE TANKS, WV/M

RURAL PIPED WATER PROJECTS

REVISED CONSTRUCTIONAL CHARGES FOR CIRCULAR CONCRETE TANKS

<u>Tank size Gallons</u>	<u>Foundation</u>	<u>Walls</u>	<u>Pillars & Plaster</u>	<u>Roof</u>	<u>Completion</u>	<u>Total Cost</u>
50,000	780	420	420	520	342	2,432
30,000	480	354	209	375	286	1,704
20,000	356	270	147	270	219	1,262
15,000	314	208	140	208	173	1,043
10,000	228	175	120	175	102	800
6,000	176	122	69	88	85	540
3,000	104	70	37	52	52	315
600	105	-	-	-	-	105

NOTE

A bonus of 10% will be paid for tanks constructed on step hill slopes. Payment should be claimed by sending an invoice for the work which has been completed.

Building materials: aggregates, sand, cement, reinforcement bars and pipe fittings will be supplied on site. The contract prices are for building construction work as set out in the above table.

Revised August 1989
(WORLD VISION MALAWI)

NK:adk

Appendix W

SAMPLE QUOTATION FOR PROCUREMENT OF PVC PIPE, MALAWI

PIPE EXTRUDERS LIMITED

TEL: KANENGO 765 388
SALES 765 321
TELEX. 4871 PIPEX MI

40

P.O. BOX 30041
LILONGWE 3
MALAWI.
AFRICA

Our Ref: FLL 195

Your Ref:

10 June 1988

World Vision International
P O Box 2050
BLANTYRE

ATTENTION : Mr Larry Quist

Dear Sir

RE: QUOTATION FOR PVC PIPINGS FOR CHIPOKA PROJECT

We refer to your enquiry of 28 May 1988, and are pleased to quote you as follows :-

(1) LOCAL PAYMENT

3,000	metres x 63mm class 6 pipes at	K6.35 per metre	=	K	19,050.00
6,300	metres x 50mm class 10 pipes at	6.02 per metre	=		37,926.00
6,900	metres x 40mm class 10 pipes at	4.31 per metre	=		29,739.00
13,200	metres x 32mm class 10 pipes at	3.42 per metre	=		45,144.00
10,800	metres x 25mm class 10 pipes at	2.53 per metre	=		27,324.00
24,000	metres x 20mm class 10 pipes at	1.73 per metre	=		41,520.00
				K	200,703.00
		Less 30% discount			60,210.90
					<u>140,492.10</u>

Plus 10% surtax if applicable

Prices quoted are ex-factory valid for eight weeks, subject to alteration in the event of price increase on raw materials. Delivery will commence two to three weeks from receipt of firm order depending on materials availability.

(2) OFF SHORE PAYMENT - (CONVERSION COST)

3,000	metres x 63mm class 6 pipes at	K 2.17 per metre		K	6,510.00
6,300	metres x 50mm class 10 pipes at	2.00 per metre			12,600.00
6,900	metres x 40mm class 10 pipes at	1.47 per metre			10,143.00
13,200	metres x 32mm class 10 pipes at	1.05 per metre			13,860.00
10,800	metres x 25mm class 10 pipes at	0.75 per metre			8,100.00
24,000	metres x 20mm class 10 pipes at	0.48 per metre			11,520.00
					<u> </u>
		Total nett		K	<u>62,733.00</u>

DIRECTORS: AML Buckley, A.C. Barrum, V.Y. Kapwepwe, V.E. Livingston, J.G. Naphumba

ALTERNATE DIRECTORS: W.A. Francey,

A MEMBER OF ELLERBY INVESTMENTS LIMITED - AN INTERNATIONAL GROUP OF COMPANIES

11/5/1

Appendix AA

PROFORMA INVOICE, AFRIDEV PUMP, MWP

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East African Foundry Works(K)Ltd.

Specialist in: CAST IRON, BRONZE AND ALLUMINIUM CASTINGS



P. O. Box 48624
NAIROBI

Telephones: 2601, 2602
RUARAKA

9th September, 1988

World Vision Malawi,
P. O. Box 2050,
Blantyre,
MALAWI

PROFORMA INVOICE No. EAF/030/JS88

ITEM No.	QTY	DESCRIPTION	TOTAL PRICE (U.S. DOLLARS)
1.	120	Units Afridev Handpump Complete Hot-Dip Galvanised Finish Pump Heads.	36,145.00
2.	1560	Units 3/8" Galvanised finish Hook Type Pump Rods with Pump Rod Centralisers.	14,174.00
3.	120	Units 1/2" Galvanised finish Hook Type Pump Rods with Pump Rod Centralisers.	1,585.00
4.	1680	Units 63.0mm O.D uPVC Rising Mains with a Bell Socket on one side and a Rising Main Centraliser.	23,127.50
5.	120	Units Plunger Assembly.	2,709.00
6.	120	Units Main Cylinder Assemblies with Suction Pipe and Rubber Centralisers.	8,727.50
7.	120	Units 85 Meters long Polypropylene Safety Lines.	1,685.00
8.	120	Units 24mm Universal Socket Spanner.	1,321.50
9.	120	Units Fishing Tools.	2,317.50
10.	120	Units 1/4 Liter Tins Cleaning Fluid.	330.00
11.	120	Units 1/4 Liter Tins Solvent Cement.	561.50
12.	120	Units Spare Part Kits.	1,486.50
TOTAL FOB VALUE - U.S. DOLLARS			94,160.00
PACKING & FREIGHT CHARGES BY ROAD TO BLANTYRE			11,840.00
TOTAL C & F BLANTYRE VALUE - U.S. DOLLARS			106,000.00

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Appendix BB

MINOR AILMENT MANAGEMENT AT COMMUNITY LEVEL, MWP

Appendix BB. MINOR AILMENT MANAGEMENT AT COMMUNITY LEVEL

Malaria Management

Trained V.H.V.'s administer chloroquin tablets for treatment of malaria by setting the chloroquine tablets at 5 tambala, aspirin for fever 3 tablets at 2 tambala. Following are projects which has stopped the programme and had received the following drugs:

Chilconde - 4 tins of chloroquin each containing 1000 tablets
5 tins of aspirin each containing 1000 tablets

Nzimbari - 4 tins of chloroquin each containing 1000 tablets
6 tins of aspirin " " " "

Management of Diarrhea

This is carried out in all water projects. Trained VHV's administer ORS at community level. The sachets which were distributed were as follows.

Chilconde - 16 cartons of ORS each containing 50 sachets

Chipoka - 12 cartons of ORS each containing 50 sachets

Nzimbari - 6 cartons of ORS each containing 50 sachets

Munakera - 6 cartons of ORS each containing 50 sachets

Appendix CC

WS&S SYSTEM INSTALLATION COSTS PER CAPITA

SERVICE LEVELS AND APPROXIMATE INSTALLATION COSTS

<u>System Type</u>	<u>U.S.\$/Capita</u>	<u>Beneficiaries</u>	<u>Comments</u>
KENYA			
Roof FWC	15	850	5 schools
Hafir FWC	23	5000	17 hafirs costed; range of \$20-45 per capita
Sanitation	5	500	4 schools
MALAWI			
Gravity Piped Water			
Chipoka	20	8000	Phase I costs (54 taps)
Bale	157	4800	Design estimate based on 120 capita per tap — appears low
Integrated Boreholes	25	19000	60 boreholes — Drilling costs up 50% in 2 yr, Total costs up minimum 25%

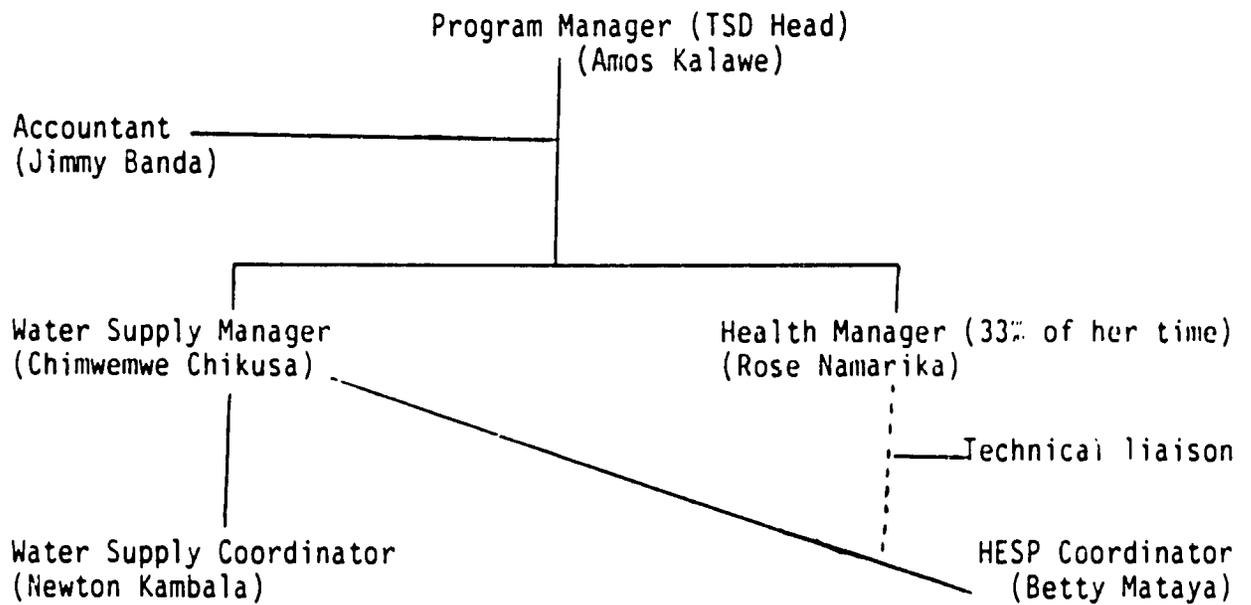
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Appendix DD

MALAWI WATER PROGRAM STAFFING

MALAWI WATER PROGRAM

Staffing



Appendix EE

LIFE-OF-PROJECT PROCUREMENTS OF MWP

Appendix EE. PROCUREMENTS OF MWP (THROUGH JUNE 1990)
Page 1

<u>Description of Item</u>	<u>Date Procured</u>	<u>Purpose</u>	<u>Amount</u>
Motor vehicle - Pajero	25-11-87	Prog. mgmt.	MK41,087.78
Motor vehicle - Subaru	12-01-88	" "	32,229.68
Filing cabinet	18-02-88	" " - office	1,328.10
Desk calculator	"	" " - office	565.25
Office desk & chairs	"	" " - office	2,011.25
Partitioning offices	03-06-88	" "	10,346.00
Cooker	15-06-88	Prog. mgmt. - LGQ	3,420.00
Refrigerator	"	" "	3,589.30
Furniture	"	" "	2,940.30
Office desks & chairs	08-07-88	Prog. mgmt.	2,211.30
Mattresses & pillows	12-07-88	Prog. mgmt. - LGQ	538.89
Pipes, taps & tools	08-09-88	Chipoka - piped water	49,862.18
PVC - Polymer	09-09-88	Piped water	72,105.02
Desk fans & top plugs	21-09-88	Prog. mgmt. - office	1,524.00
Afridev pumps (1st pymt.)	28-09-88	IBD	82,571.90
Stationery cabinet	30-09-88	Prog. mgmt. - office	1,328.10
4-drawer filing cabinet	30-09-88	" " "	1,328.10
Heaters (3)	"	" " "	926.25
Solar pocket calculators	"	" " "	253.65
PVC pipe fittings	"	Piped water	47,987.93
Ceiling in office	26-10-88	Prog. mgmt. - office	9,000.00
Afridev pumps (2nd pymt.)	30-11-88	IBD	197,020.54
PVC pipes	30-12-88	Piped water	20,121.82
Quarry stones	08-02-89	" "	1,469.50
Quarry stones	15-02-89	" "	500.00
Typewriter	14-03-89	Prog. mgmt. - office	10,385.00
Weighing scales	28-03-89	Hesp	2,450.00
Concrete mixer - repairs	25-04-89	Piped water	1,702.09
Scandril - drilling costs	23-05-89	IBD	37,045.92
" " "	25-05-89	IBD	37,485.60
Insurance on Afridev pumps	09-06-89	IBD	1,688.64
Tools - hesp kit	26-06-89	Hesp	1,322.15
" - " "	28-06-89	Hesp	2,129.44
Push-bike	20-07-89	Hesp	625.00
Scandril - drilling costs	14-09-89	IBD	64,979.04
" " "	30-09-89	IBD	65,831.56
" " "	30-10-89	IBD	215,450.12
PVC pipes	02-11-89	Piped water	7,137.32
Cement	13-11-89	Hesp	860.00
Scandril - refund	16-11-89	IBD	(495.00)
" - drilling costs	05-12-89	IBD	123,709.20
Reinforcement bars	16-01-90	Piped water	1,469.85
" "	22-01-90	" "	1,303.85
Tap accessories	24-01-90	" "	660.25
Scandril - drilling costs	10-01-90	IBD	75,000.00
Cement	12-02-90	Piped water	8,622.00
Drawing board & access.	20-02-90	Prog. mgmt. - office	1,322.74
Scandril - drilling costs	12-02-90	IBD	48,709.20

Appendix EE. PROCUREMENTS OF MWP (THROUGH JUNE 1990)
 Page 2

<u>Description of Item</u>	<u>Date Procured</u>	<u>Purpose</u>	<u>Amount</u>
Cement	12-03-90	Hesp	5,880.00
Galvanized pipes	13-03-90	Piped water	1,400.00
Drugs	13-03-90	Hesp	3,080.00
Tools - repair kits	20-03-90	Piped water	1,209.00
Tools - hesp kits	20-03-90	Hesp	5,805.28
Cement	26-04-90	Hesp	4,590.00
Quarry stones	21-05-90	Piped water	710.00
Cement	14-06-90	Piped water	5,900.00

Appendix EE. PROCUREMENTS OF MWP (THROUGH JUNE 1990)

Page 3

PROGRAM MANAGEMENT

<u>Description of Item</u>	<u>Date Procured</u>	<u>Purpose</u>	<u>Amount</u>
Motor vehicle - Pajero	25-11-87	Prog. mgmt.	Mk41,087.78
Motor vehicle - Subaru	12-01-88	" "	32,229.68
Filing cabinet	18-02-88	" " - office	1,328.10
Desk calculator	"	" " - office	565.25
Office desk & chairs	"	" " - office	2,011.25
Partitioning offices	03-06-88	" "	10,346.00
Cooker	15-06-88	Prog. mgmt. - LGQ	3,420.00
Refrigerator	"	" "	3,589.30
Furniture	"	" "	2,940.30
Office desks & chairs	08-07-88	Prog. mgmt.	2,211.30
Mattresses & pillows	12-07-88	Prog. mgmt. - LGQ	538.89
Desk fans & top plugs	21-09-88	Prog. mgmt. - office	1,524.00
Stationery cabinet	30-09-88	Prog. mgmt. - office	1,328.10
4-drawer filing cabinet	30-09-88	" " "	1,328.10
Heaters (3)	"	" " "	926.25
Pocket calculators	"	" " "	253.65
Ceiling in office	26-10-88	Prog. mgmt. - office	9,000.00
Typewriter	14-03-89	Prog. mgmt. - office	10,385.00
Drawing board & access.	20-02-90	Prog. mgmt. - office	1,322.74

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Appendix FF

ATMS/RTT ACTIVITY PLAN, FY 1988 AND 1989

ATMS/RTT
LSD/CS/AWP ACTIVITY PLAN
CHRONOLOGICAL LISTING
FISCAL YEARS 1988 AND 1989

Time Frame	Activity #	Activity	Client Location	Lead Persons
10/87	KEN #8802	Maasai Project Strategic Planning	KEN	Nicoll/Clark
10/87	KEN #8803	Maasai Ongoing Project Support	KEN	Clark/Sena
10/87	AFR #8802	Locating RTT Regional Office	AFR/NBI	Muwonge/Nicoll
10/87	ADM #8802	RTT Contract Preparation	WVI/LAX	Fields
10/87	AFR #8804	ATMS/RTT Staff Planning Meeting	AFR/NBI	All Staff
10/87	ADM #8801	Director's Conference	WVI/LAX	Fields
10/87	AFR #8801	AWP Workshop Planning/Admin.	AFR/NBI	Muwonge
10/87	KEN #8801	Operation SMILE	KEN	Ngatiri
10/87	AFR #8803	AWP Start-up Workshop	AFR/NBI	All Staff
10/87	KEN #8804	Namelok C.S. Ongoing Project Support	KEN	Sena
11/87	NIG #8801	Child Survival Proposal Design	NIG	Fields/Riverson
11/87	ETH #8801	LSD Project Monitoring Visits	ETH	Fields
11/87	AFR #8805	Africa Directors' Conference	AFR/ETH	Fields
12/87	AFR #8806	Initial Discussions on Procurement Administration	AFR/AMS	Fields
12/87	ETH #8803	Field Office Planning and Technical Assistance	ETH	Nicoll
12/87	ADM #8803	Establish ATMS Office	WVI/DCA	Fields
12/87	MWI #8801	Ongoing Project Support	MWI	Quist
12/87	SEN #8801	PEW Foundation Marketing Support Visit	SEN	Fields
12/87	ETH #8802	Water Project Assessment	ETH	Quist/Nicoll
01/88	MWI #8802	AID Consultants and Team Debriefing	MWI	Fields
01/88	ADM #8801	Senegal Evaluation Team Planning	WVI/DCA	Fields/WASH/IO
01/88	ADM #8801	Start ATMS Admin., Budget and Personnel	WVI/DCA	Martin
01/88	ZAM #8801	LSD Needs Analysis Field Program	ZAM	Muwonge
01/88	SEN #8801	WASH/WVIO Community Participation Proj Eval Strat.	SEN	Fields/IO/WASH
01/88	MWI #8801	Water Feasibility/Project Design	MWI	Nicoll/Quist/WASH
01/88	ZIM #8801	LSD Needs Analysis	ZIM	Muwonge
01/88	ADM #8802	WVRD Meetings with AID	WVI/DCA	Fields/WVRD
02/88	AFR #8808	Oversight Committee Meetings	AFR/LOS	Fields
02/88	ZIM #8802	LSD Meetings with ZIM/ZAM FO's	ZIM	Fields/Muwonge
02/88	NIG #8801	C.S. Project Meetings and Aid Consultations	NIG	Fields
02/88	UGA #8801	LSD Needs Assessment	UGA	Fields/Ngatiri
02/88	ZAM #8802	LSD Pre-feasibility/Design Study	ZAM	Muwonge
02/88	AFR #8807	ARVP Staff Meetings	AFR/LOS	Fields
03/88	ADM #8805	WASH Team Planning for Ghana	WVI/DCA	Fields/WASH
03/88	UGA #8802	Ongoing Project Support	UGA	Ngatiri
03/88	ZIM #8803	LSD Project Design	ZIM	Muwonge
03/88	ADM #8804	WVRD/IO Consultations on LSD/AWP Management Issues	WVI/LAX	Fields
03/88	ADM #8803	WVRD/WASH/AID Debriefings on Senegal, Mali, AWP	WVI/DCA	Fields/WVRD
04/88	ZIM #8804	WV/AUS and F.O. Program Review and Planning	ZIM	Fields/Muwonge
04/88	KEN #8801	FO Activity Planning	KEN	Fields/Nicoll/Clark
04/88	NIG #8802	C.S. Project Meetings and AID Discussions	NIG	Fields
04/88	ETH #8801	Team Planning Meetings	ETH	Fields/Nicoll
04/88	UGA #8803	C.S. Feasibility Design	UGA	Ngatiri
04/88	AFR #8809	AIDS Conference Presentations	AFR/USA	Ngatiri
05/88	GHA #8802	Workshop Design	GHA	WASH/Riak
05/88	GHA #8801	LSD Review and Activity Planning	GHA	Fields
05/88	DEM #8802	Maasai Project Monitoring Visit	KEN	Fields
05/88	MWI #8803	Detailed Budget Activity Planning	MWI	Quist
05/88	NIG #8803	C.S. Program Planning Meetings	NIG	Fields/Riak/Riverson
05/88	ETH #8803	Four LSD Project Tech Designs	ETH	Nicoll/Quist/RTT
05/88	ETH #8804	FO Program Review and Activity Planning	ETH	Fields/RTT
05/88	ETH #8802	Water, Health and Ag Sector Studies	ETH	Nicoll/RTT
05/88	UGA #8804	World Bank Proposal Discussions	UGA/USA	Ngatiri
06/88	KEN #8804	Enhancement of Tech Performance of Small Projects	KEN	Nicoll
06/88	ADM #8806	WASH/RTT Annual Assessment	WVI/DCA	Fields/Muwonge
06/88	ADM #8807	Liaison with WASH/WVRD Planning for Resource Center	WVI/DCA	Muwonge
06/88	KEN #8803	Manpower Assessment (part 1)	KEN	Nicoll
06/88	UGA #8805	World Bank Proposal Development and Ongoing Support	UGA/USA	Fields/Ngatiri
07/88	NIG #8804	Revision of Project Paper Budget	NIG/USA	Fields
07/88	NIG #8805	Mtgs w/UNICEF/AID re: Project Nigeria Development	NIG/USA	Fields

continued

(cont'd)

Time Frame	Activity #	Activity	Client Location	Lead Persons
07/88	KEN #8805	Namelok Assessment and Expansion	KEN	Sarone
07/88	AFR #8811	ATMS/RTT Detailed Activity Planning	AFR/DCA	Fields/Nicoll/Muwonge
07/88	ZIM #8805	Uzumba Maramba Pfungwe Ump Pgm Start Wkshp, Baseline	ZIM	Muwonge
07/88	ADM #8809	Management Oversight Committee	WVI/LAC	Fields
07/88	ADM #8808	Nigeria C.S. Meetings with UNICEF/AID	WVI/ NYC	Fields
07/88	ZAM #8803	Qtrly Monitoring and Support of Immunization Proj.	ZAM	Ngatiri
07/88	AFR #8810	Oversight Committee Meeting	AFR/LAG	Fields/Nicoll/Muwonge
08/88	ZAM #8804	Luapula Community Dev. Revision of Project Paper	ZAM	Muwonge
08/88	KEN #8866	Manpower Needs Assessment (Part ii)	KEN	Nicoll/Fields/Clark
08/88	MWI #8804	Start-up Workshop: WVM Water Project	MWI	RTT/Quist
08/88	AFR #8812	Africa FD Meeting	AFR/ZAM	Ngatiri/Fields
08/88	SEN #8802	Project Monitoring Visit	SEN	Fields/WASH
08/88	ADM #8810	USAID Annual Report	WVI/DCA	Fields/Muwonge
08/88	AFR #8813	ATMS/RTT Staff Planning Meeting	AFR/NBI	Fields/Staff
08/88	GHA #8803	Workshop: Community Participation Health Education	GHA	Fields
09/88	KEN #8807	Manpower Assessment and Dev. Proj.	KEN	Nicoll
09/88	ADM #8812	WV Canada Marketing Support Visit	WVI/CAN	Fields
09/88	ADM #8811	Establishment of Technical Documentation Unit	WVI/DCA	Fields/Muwonge
09/88	ADM #8814	Comprehensive Training Strategy for AWP, RTT, F.O.S	WVI/DCA	Fields/WASH
09/88	AFR #8814	AIDS Proposal Dev. for Zambia, Kenya, Tanzania	AFR	Fields/Ngatiri
09/88	ADM #8813	WV Ethiopia Marketing Support Visit	WVI/CAN	Fields

PROPOSED FY89

10/88	ADM #8901	Costing Well Construction	WVI/DCA	Fields/WASH
10/88	ETH #8901	Water Drilling Workshop and Field Training	ETH	Quist
10/88	ZIM #8901	Water Feasibility Study	ZIM	Muwonge/Quist
10/88	UGA #8901	Child Survival Program Document	UGA	Ngatiri/Fields
10/88	ZIM #8902	Detailed Implementation Plan of the UMP Project	ZIM	Ngatiri/Muwonge/WASH
10/88	NIG #8901	Start-up Workshop	NIG	Fields/Riak
10/88	ETH #8902	Health Planning Workshop	ETH	Mangawe
10/88	KEN #8901	Operation SMILE and Ongoing Tech Support	KEN	Ngatiri
10/88	KEN #8902	Manpower Needs Assessment and FO Training Strategy	KEN	Nicoll/Clark/WASH
10/88	GHA #8901	LANDSAT-Remote Sensing Image	GHA	Sarone/RTT
10/88	ADM #8902	WV Guidelines and Procedures for WS&S Activities	WVI/DCA	Fields/WASH
10/88	ADM #8903	Sanitation Technologies for WV Projects	WVI/AFR	Fields/WASH
10/88	KEN #8903	Emergency Preparedness Strategy	KEN	RTT
10/88	NIG #8902	Baseline Survey	NIG	Riak
11/88	ZIM #8903	Ongoing Monitoring and Support of C.S. Project	ZIM	Ngatiri
11/88	ETH #8903	Ongoing Project Coordination	ETH	Nicoll
11/88	GHA #8902	Water Program: Prop. Assessmt & Integration Tech Srv	GHA	Fields
11/88	ZAM #8901	Gwemby Valley LSD Feasibility/Design	IO/ZAM	Fields/Muwonge
11/88	NIG #8903	Ongoing Project Coordination	NIG	Fields/Riak
11/88	ZIM #8904	Water Feasibility Study	ZIM	Muwonge/Quist
11/88	KEN #8904	MPP Ongoing Project Support	KEN	Sarone/Clark
11/88	KEN #8905	Establishment of Technical Services Unit	KEN	Nicoll
12/88	UGA #8902	World Bank Project Feasibility/Design	UGA	Fields/Ngatiri
12/88	GHA #8903	Mono-Pumps: Demonstration and Pilot Testing	GHA	Quist/RTT/WASH
12/88	AFR #8901	LSD/CS/AWP Workshop in Project Management	AFR/NBI	Fields/WASH
12/88	GHA #8904	Monitoring & Evaluation/Western Reg. Immunization	GHA	Fields/Pitchford
12/88	MWI #8901	Ongoing Project Support	MWI	Quist
12/88	KEN #8906	Operation SMILE Ongoing Technical Support	KEN	Ngatiri
12/88	SEN #8901	O&M Evaluation Strategy	SEN	Fields/WASH
12/88	GHA #8905	Ident. of Train'g Course for Trainers of Trainers	GHA	Sarone/WASH
01/89	MWI #8902	O&M Strategy and Training Workshop	MWI	Quist/WASH
01/89	KEN #8907	Namelok Ongoing Project Support	KEN	Sarone
01/89	GHA #8906	Hydrogeologist Recruitment	GHA	Fields/Pitchford
01/89	MWI #8903	WVM - Water Project Marketing Support Strategy	MWI	Fields/Quist
01/89	KEN #8908	MPP Evaluation and Monitoring Strategy	KEN	Clark
01/89	NIG #8904	Detailed Implementation Plan	NIG	Riverson/Riak
01/89	KEN #8909	MPP (Namelok) Design	KEN	Clark
01/89	AFR #8902	Oversight Committee Meetings	AFR/SEN	Fields
02/89	ZIM #8905	Detailed Implement. Plan-Ox-Ploughing & Water Dev.	ZIM	Muwonge/Quist
02/89	ETH #8904	Water Program Assessment	ETH	Quist
02/89	ZAM #8902	AIDS Proposal Design Document	ZAM	Ngatiri

continued

(cont'd)

Time Frame	Activity #	Activity	Client Location	Lead Persons
02/89	ETH #8905	Child Survival Feasibility Study and Design	ETH	Mungawe
02/89	ETH #8906	WV Pgm Start-up Workshop Pgm Strategy, Team Bldg	ETH	Nicoll/Fields
03/89	KEN #8910	Enhancing Tech Performance of Small Proj. Workshops	KEN	Nicoll
03/89	KEN #8911	Child Survival Feasibility Study & Project Design	KEN	Mungawe
03/89	KEN #8912	Project Design and LSD Water Project	KEN	Clark/WASH
03/89	NIG #8905	Participatory Evaluation Process	NIG	Riverson/Riak
03/89	AFR #8903	Training of Trainers and O&M Planning Workshop	AFR/ACC	Fields/WASH
03/89	KEN #8913	Establishment of FO Water Operational Capability	KEN	Clark/WASH
03/89	AFR #8904	Africa FO Meeting	AFR	Muwonge
04/89	NIG #8906	Monitoring and Evaluating Strategy	NIG	Riverson/Riak
04/89	UGA #8903	Ongoing Monitor'g & Supp of Immunization/Sanitation	UGA	Ngatiri
06/89	GHA #8907	Midterm Assessment of LSD Water Project	GHA	Muwonge
06/89	ETH #8906	Project Monitoring and Evaluation Workshop	ETH	Nicoll/Quist
06/89	AFR #8905	Field Reviews/WV-LSD/Water/CS Guidelines/Handbooks	AFR	Fields/WASH
07/89	ADM #8904	WVRD Matching Grant Proposals	WVI/LAX	Fields
07/89	ZIM #8906	Annual Project Review	ZIM	Muwonge/Fields
07/89	KEN #8914	Local Resource Development and Networking	KEN	Fields
07/89	KEN #8915	MPP Mid-Term Assessment	KEN	Fields/Clark
07/89	AFR #8906	Oversight Committee Meetings	AFR/LAX	Fields
08/89	ADM #8905	Transfer Tech Info and Documentation Unit to Field	WVI/AFR	Muwonge
08/89	AFR #8907	ATMS/RTT Staff Planning Meeting	AFR/DCA	Fields/All
08/89	ADM #8906	USAID Annual Report	WVI/DCA	Fields/Muwonge
08/89	UGA #8904	Annual Project Evaluation	UGA	Ngatiri
08/89	SEN #8902	Mid-Term Assessment	SEN	Fields/IO
08/89	NIG #8907	Annual Project Evaluation	NIG	Fields/Riak
09/89	ZAM #8903	Ongoing Project Support Luapala LSD	ZAM	Muwonge

Appendix GG

ATMS/RTT PERSONNEL ROSTER, ORGANIZATION CHART AND STAFF MOVEMENTS

1/14

KEY PERSONNEL AND ORGANIZATIONAL CHART

The key personnel which the Contractor shall furnish for the performance of this contract are as follows:

	<u>Quantity</u>	<u>Person</u>
LEVEL I -- <u>SENIOR PROGRAM MANAGEMENT</u>		
1. Director/Team Leader	Full-Time	Nate Fields
2. Deputy Director, Project Operations, Financial Management and Grant Coordination	Full-Time	Bob Schiller
LEVEL II -- <u>RTT TECHNICAL STAFF</u>		
1. Associate Director, Program and Project Design, Monitoring and Evaluation	Full-Time	Robin Nicoll
2. Associate Director, Health and Child Survial Program	Full-Time	(To be named) *
3. Associate Director, Water Resources Development, Engineering and Technology	Full-Time	(To be named) *
4. Associate Director, Sociological Research, Training and Community Development	Full-Time	(To be named) *
LEVEL III - <u>SHORT-TERM CONSULTANCIES</u>		
1. Senior Program Assistant (proposal writing and other activities)	10 m/m	(To be named) *
2. Technical Informations Systems	4 m/m	(To be named) *
LEVEL IV -- <u>OFFICE AND ADMINISTRATION</u> (Permanent WV staff)		
1. Local -- Administrative Assistant	Full-Time	Nancy Mbito
2. Local -- Executive Secretary	Full-Time	Keziah Mutiso
3. Local -- Executive Secretary	Full-Time	Irene Mwangi
4. Local -- Receptionist/Tea Lady/Cleaner	Full-Time	Celina Dondo
5. Local -- Contracted Secretary/Typist	8 m/m	(As needed)
6. U.S. -- Contracted Administrative Assistant	8 m/m	(As needed)

* Candidates have been identified an tentatively approved by the ARVP, pending final approval of the group contract.

ATMS/RTT PERSONNEL ROSTER

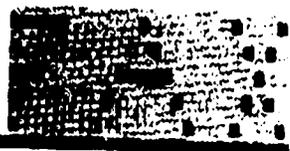
The enclosed documents represent contracts between Associates in Technology and Management Services, International and its employees and consultants. The following Personnel Roster represents the current status of the individual contracts.

Name of the Individual	Personnel Status	Signed by ATMS	Signed by Individual	Position
Nate Fields	Employee	N/A	N/A	Director, RTT Team Leader
Dennis Martin	Employee	YES	YES	Deputy Director, Finance and Administration
Robin Nicoll	Employee	YES	YES	Assoc. Dir., Design, Monitoring, Management
Joe Muwonge	Employee	YES	YES	*Associate Director, Design, Tech Info
Larry Quist	Employee	YES	YES	*Associate Director, Water Resources
a) George Ngatiri	Seconded	YES	NO	*Associate Director, Health/Child Survival
b) Harry Clark	Seconded	YES	NO	*Assoc. Dir., Design, Community Participation
Sammy Mwangi	Employee	YES	YES	Office Manager
Carol Ann Mullen	Employee	YES	YES	Staff Assistant
Keziah Mutiso	Seconded	N/A	N/A	*Senior Secretary
c) Bo Schiller	Consultant	YES	NO	Consultant, Program Management
Olu Lafe	Consultant	YES	YES	Consultant, Water Resources
d) Pauline Riak	Ret'd Cons	YES	NO	Consultant, Sociology, Community Participation
d) Eli Mangawa	Ret'd Cons	YES	NO	Consultant, Health, Child Survival
d) Ole Sena	Ret'd Cons	YES	NO	Consultant, Sociology, Community Participation
Judith Bahemuka	Pending	NO	NO	Ret'd Consultant, Sociology, Rural Development
Judith Oki	Pending	NO	NO	Ret'd Consultant, Design, Facilitation, Train'g
Robert Smith	Pending	NO	NO	Ret'd Consultant, Management, Design, Training
Dan Kasaje	Pending	NO	NO	*Consultant, or WV Permanent RTT/Health
Greg Slayton	Pending	NO	NO	*Associate Director, Design, Management
Kofi Asante	Pending	NO	NO	Ret'd Consultant, Health, Child Survival

* These employees and/or positions are designated to become or remain as permanent employee members of ARVP Regional Technical Team, pending ARVP and their concurrence.

- a) Ngatiri has given his verbal concurrence to ARVP in May '88 Nairobi meetings; secondment letter sent for signature.
- b) Harry Clark has given his verbal concurrence to secondment, letter sent for signature.
- c) Bo Schiller completed consultant assignment Nov/Dec '87; did not sign contract; no outstanding obligations.
- d) Retained Consultants: Doctors Riak, Mangawa, and Ole Sena have all performed various consultant assignments over course of FY88; all have agreed to two-year consultant retainer contracts effective July 1, 1988.

~~CONFIDENTIAL~~



Page 1 of ..3

Date : August 28, 1990

To : Frank Carroll

cc : Jana Phifer, Larry Johnson

From : Julian Pitchford

Subject : RTT / ATMS STAFF MOVEMENTS

As we discussed yesterday I will do the best that I can to give you a tracking of the key people that participated in the ATMS/RTT during the life of the AWP grant.

Early FY'87 at the start of calendar year 1987 the core of technical expertise within World Vision was essentially what had remained from the Large Scale Development team:

- | | |
|----------------------|---|
| Bruce Carlson | - Project Manager, Karapokot Project |
| Dr. Ruth Clay | - Management, Training, Education, etc. |
| Harry Clark | - Project Manager for MPP |
| Aba Mpesha | - Economics, Finance |
| Dr. Joe Muwonge | - Demography, Project Management |
| Robin Nicoll | - Project Design, Systems, Evaluation |
| Dr. George Ngatiri | - Health, Child Survival |
| Julian Pitchford | - Water Engineering, Project Design, etc. |
| Kate Robbins | - Rural Sociology |
| Glyn Roberts | - Hydrogeology |
| James Sholto-Douglas | - Agriculture, Forestry |

In addition, at that stage there was also Nate Fields and Barry Harper from ATMS, as sub-contract program management staff. Dr. Sarone ole Sena was also available as a rural Sociology Consultant.

It should also be noted that both the Ghana and the Senegal (Louga) projects already had their own nucleus of technical staff at this point, so that the RTT was not the only source of technical wisdom for the AWP.

Late FY'87 The first major cut-back in funding took place in the Spring of 1987 and the "LSD" programs were heavily hit by what I consider to be insensitive decisions by Dr. Sam Odunaika, the then Regional VP. This led to Bruce Carlson, Glyn Roberts and James Sholto-Douglas being laid off, soon followed by Kate Robbins leaving World Vision. In addition, Aba Mpesha was transferred into the role of Africa Regional Manager and then

some time later became Field Director for Tanzania (where he still is).

Late in FY'87 Julian Pitchford transferred back from the Africa RTT to the role of corporate water resource specialist in the I.O., where he remained until the end of 1988, although he was employed as an external consultant in that role during 1988.

It was very soon realized that the RTT could not manage without a Water Specialist and Dr. Larry Quist, who had been a consultant to WV Ghana was recruited by ATMS to join the RTT. At about the same time Barry Harper left ATMS and was replaced by Bo Schiller.

The next person to leave the RTT was Dr. Ruth Clay who was recruited during 1988 by the Asia Region Vice President to take over the management of his activities in the Philippines where she stayed for two years doing excellent work. She is now based in Geneva in the International Relations office of World Vision.

Late in FY'88 Harry Clark left the MPP, having trained a team of Maasai to ruin the project and was transferred to Tanzania to assist the Field Director with the large scale activities in that country. (He is still there today).

During this period of attrition, funding was extremely short and staff were not replaced.

Change of RVP At the start of 1989 Dr. Odunaike left World Vision and Nate Fields took over as ARVP. At this point the US part of ATMS was shut down. Dr. Joe Riverson, the Head of Technical Services for the Ghana Field Office was selected to replace Nate as Head of the RTT. He stayed in that role less than a year before he was chosen to replace Philemon Quaye as Field Director for WV Ghana. Dr. Isaac Riak was recruited to replace Dr. Riverson.

The RTT suffered a further loss at this time when Dr. Joe Muwonge, a Ugandan, was asked to leave Kenya along with many other Ugandans. He was moved to Washington and remained assisting the ARVP in a technical role until he moved to Uganda early this year to provide management support to WV Uganda on a major project funded by World Bank.

Somewhere about this time Dr. Ngatiri left the RTT and World Vision.

The ATMS African operation was finally closed at the end of January 1990 and Robin Nicoll left at that point to join a leading auditing company.

Conclusions

During this period of severe funding restraints, World Vision appears to have focussed its cuts on people rather than projects and the loss of competent technical people has been severe.

However, the good news is that while the RTT is obviously very weak, a good part of its capability remains, albeit distributed around the organization.

The staff that remain are:

Dr. Ruth (Clay) Henderson
Harry Clark
Nate Fields
Aba Mpesha
Dr. Joe Muwonge
Julian Pitchford
Larry Quist
Dr. Joe Riverson
Dr. Isaac Riak

In addition the technical teams in the Field Offices have survived relatively unscathed.

I hope that this will help you.

Appendix HH

ROLES AND RESPONSIBILITIES UNDER WV-ATMS CONTRACT

1.0 ORGANIZATION CHART

The organization chart in Figure 1 pictorially illustrates responsibilities for project monitoring, control and management.

2.0 WVRO ROLES AND RESPONSIBILITIES

WVRO shall act as the representative of the World Vision partnership in general regarding the AID-financed technical components of the program, and shall contribute as necessary to assure the efficient operation of the program. More specifically WVRO will be responsible for the following support activities:

- 2.1 Negotiation and signing of all documents required under the AWP Cooperative Agreement with A.I.D., and receiving and reviewing reports to assure compliance with commitments and obligations made under the A.I.D. Cooperative Agreement.
- 2.2 Monitoring and reviewing the progress of the program and providing assistance where required, especially as regards arranging meetings and communications with other World Vision support offices involved in the program.
- 2.3 Annual review of the basic assumptions on which the components of the LSD/CS/AWP was planned and financed, and advising WVI and field offices when revisions might be necessary.
- 2.4 Keeping WVI informed and up-to-date on any significant activities or problems which may significantly affect the program.
- 2.5 Participating as a member of the LSD/CS/AWP Management Oversight Committee and reporting to the AID/PVC office on the results of meetings.
- 2.6 Organizing and participating in the administration and support of A.I.D. required evaluations of the program.

3.0 WVI Roles and Responsibilities

- 3.1 The office of the Africa Regional Vice President (ARVP) is responsible to manage and coordinate World Vision International's participation in the program. The management and administration of the Larger Scale Development projects, Africa Water Program and Child Survival programs are under the line authority of the ARVP, who will assign one executive as LSD/CS/AWP Coordinator.

3.2 To assist the ARVP's office and to assure adherence to World Vision's corporate technical standards, the Vice President for Corporate Services (VP/CS) will assign a Senior Water Specialist the responsibility for monitoring the design and performance of all technical aspects of the program.

3.3 WVI will assume responsibilities for various functions which will be appropriated as outlined below.

4.0 ARVP Roles and Responsibilities - The ARVP shall be responsible for:

4.1 Obtaining the World Vision approvals necessary for timely implementation of major contracts under the LSD/CS/AWP.

4.2 Managing the agreements with the Contractor and any other individual consultants' involvement in the program.

4.3 Arranging for the preparation and signing of individual Project Agreements and Plans of Operation which outline the responsibilities of the respective Field Offices and other WV entities involved in the program.

4.4 As necessary, recommending/negotiating and obtaining approval for changes to the Plans of Operation.

4.5 Making arrangements for the timely disbursement of program funds to field offices, contractors and suppliers.

4.6 Monitoring to ensure timely procurement and delivery of purchased equipment, vehicles and spare parts.

4.7 Making recommendations to the WV partnership for planning of similar projects in the future.

4.8 Providing additional office space required for short term assignments at various times and locations.

5.0 VP/CS Roles and Responsibilities - The VP/CS shall be responsible for:

5.1 Monitoring the program based on information contained in control reports detailed later in Section 10, and plans and schedules referenced in Section 7 of the Agreement between WVI and ATMS International.

5.2 Ensuring that the degree of effectiveness achieved in attaining program purposes has been objectively determined by methods approved by and consistent with World Vision's Audit, Finance, and Evaluation departments.

5.3 Review and approval of all technical policies and standards.

- 5.4 Review and agreement to all training curricula prior to their use.
- 5.5 Technical reviews of program quality as needed.
- 6.0 **Joint ARVP/VPCS Roles and Responsibilities** - The ARVP and VP/CS shall jointly be responsible for:
 - 6.1 Inspecting projects as often as necessary to verify and supplement the information received through the reports detailed in Section 10.
 - 6.2 Reviewing the validity of original assumptions.
 - 6.3 Measuring the efficiency with which LSD/CS/AWP activities were performed in terms of expectations.
 - 6.4 Monitoring actual achievement in terms of time, human resources, and material and financial resources expended.
 - 6.5 Participating in Annual program Review Meeting.
 - 6.6 Receiving and reviewing the End-of-Program Report.

7.0 **Field Offices/Field Directors**

As the implementing agency, Field Offices and Field Directors are specifically responsible for:

- 7.1 Assuring adequate operational support for their respective LSD projects, oversight of project managers, and compliance with all normal World Vision reporting procedures.
- 7.2 All representations and communications with host country government officials and assuring that governmental, church and partnership relationships are nurtured and sustained, including all contractual and legal requirements.
- 7.3 Assuring that a Project Manager is appointed and assigned full managerial responsibility for the implementation of each project, and that the project manager reports directly to the Field Director or Field office Operations Director. (The Project Manager is appointed by the Field Director with advice from the LSD/CS/AWP Coordinator and the Contractor. The appointment requires specific approval by the ARVP.)
- 7.4 Assuring that appropriate evangelism strategies are developed and instituted, consistency with World Vision's established policies, standards, and procedures.
- 7.5 Assuring that an overall strategy is developed which effectively incorporates and integrates all LSD/CS/AWP activities into the 5-year Management Plan, Country Strategy, other program

marketing strategies, other project implementation strategies, and the 1-year Operating Plan.

- 7.6 Assuring that LSD/CS/AWP project budgets, reporting and monitoring systems are maintained separately from regular field office operations.
- 7.7 Assuring that LSD/CS/AWP project budgets provide for management and technical staff as required such that field office staff are not over-burdened or distracted from their existing project commitments.
- 7.8 All local personnel, materials, buildings and land required to investigate, construct, operate and maintain all works and activities which form part of their respective projects.
- 7.9 Suitable accommodation within the local scheme of services for WVI local personnel assigned to projects, where it is required.
- 7.10 Customs clearance, shipping and forwarding within country, of all equipment, materials and supplies, as well as effects of Contractor's personnel, required for the program, including payment of all association local costs.
- 7.11 Operations and maintenance of all field office project vehicles and equipment.
- 7.12 All expenses incurred by field office project staff for business travel in country associated with the project in accordance with existing field office policies.
- 7.13 Maintain policies of insurance or agree to replace project equipment, materials and supplies, as listed in the inventories referenced in Section 9.5 of the Scope of Work in the event of loss or damage incurred in country.
- 7.14 Arranging for the Contractor to be designated as the project's procurement agent with authority to sign procurement contracts for which the project manager or field director must provide final authorization.

8.0 LSD/CS/AWP/Management Oversight Committee

- 8.1 This Committee will be established to review project progress; provide advice to the ARVP regarding program direction and strategy; provide direction to the Contractor on implementation and introduction of necessary changes; and to ensure co-ordination with Water, Health/Child Survival and other technical program activities and strategies being implemented by the ARVP, VP/CS, WVRO, and particularly the Field Offices.
- 8.2 Membership will include the African Regional Vice President as Chairman, the Vice President for Corporate Services, his LSD/CS/AWP Coordinator, the contractor's Team Leader, the Water

and/or Health specialists from the Vice President for Corporate Services, a representative of the IAC special funding group, WVRO's designated AWP Coordinator, the Regional Finance Director and two alternating units of 2 Field Directors as representatives of the East/Southern and West Africa Field Offices.

- 8.3 The Committee will meet at least quarterly to review progress reports prepared by the Contractor for the ARVP and Field Directors.
- 8.4 The Committee will conduct an annual review of the LSD/CS/AWP along with a review of the Plans of Operation for the coming year. A representative of the AID/WASH project team will attend this review.
- 8.5 The Committee shall review the appropriateness of the term "Larger Scale Development" in characterizing the ministry and program functions detailed in the LSD Terms of Reference. A recommendation will be made to WVI's President regarding a name that more accurately reflects the special characteristics of the projects and/or ministry.
- 8.6 Terms of Reference for the Committee will be developed by the ARVP and presented for WVI concurrence and approval by December 15, 1987.

9.0 ATMS International (The Contractor)

- 9.1 ATMS, International will be retained by ARVP through a professional services contract agreement. The Contractor shall:
 - 9.1.1 Report to and be under the direction of the ARVP in matters relating to expenditures, progress reports, proposed revisions and completion of the program defined in the LSD/CS/AWP Comprehensive Plans of Operation and the functions defined in the scope of work.
 - 9.1.2 Report to the Field Directors and the LSD/CS/AWP Regional Management Oversight Committee for matters relating to implementation of the specific projects and activities.
 - 9.1.3 Comply with all local laws and regulations and act in accordance with the social and legal requirements imposed upon it and WVI in the host country.
 - 9.1.4 Provide professional and technical services on behalf of ARVP to designated offices, designated LSD and CS projects, and, when approved by ARVP. Regional Satellite groups, WVRO, WVI, and other WV Support Offices and/or partner agencies.
 - 9.1.5 Provide multidisciplinary technical assistance in accordance with Section 7 of the Agreement between WVI and, ATMS International.

- 9.1.6 Provide principally field-based staff with previous experience with World vision activities and/or experience in Africa.
- 9.1.7 Provide subject-specific, geographical, and country expertise, including water resources development, public health, community development, engineering, human resources development and training, program and project design, project management, institutional development, operations and maintenance, information services, marketing support, procurement services, and other specialized knowledge and experience needed for identification, development, design, implementation, monitoring, and evaluation of water, health, and other technical projects and programs in Africa.
- 9.1.8 Provide necessary and adequate organizational, administrative, and management ability and capacity to plan and implement the program activities as referenced in Section 7 of the Agreement between WVI and ATMS International in an effective, timely and efficient manner.
- 9.1.9 Assure that key personnel are prepared and physically able to serve on technical assistance assignments in Africa, occasionally on short notice and under hardship conditions.
- 9.1.10 Be responsible for reviewing and approving the qualifications and suitability of all consultants and sub-contractors employed within LSD projects and those provided for within the LSD/CS/AWP under WVRO grants from AID. The contractor shall also review and certify the satisfactory performance of consultants' and sub-contractors' work prior to requesting and authorizing payment for services rendered.
- 9.1.11 Be responsible for ensuring that all work done complies with WVI ministry and technical policies and standards. This will include gaining the understanding and acceptance of the VP Corporate Services that all training curricula will comply with the policies and standards of WVI.
- 9.1.12 Adhere to financial reporting requirements as stipulated in Section 10 of Organization of the Program (Exhibit E), and WVRO's Reporting Requirements for Africa Water Program; and as WVI's corporate Finance Department, and/or Regional Finance Director may request. The contractor shall submit, prior to October 16, 1987, the names and qualifications of three individuals authorized to approve, prepare and transmit financial reports, records, data and information.

10.0 Program Control Responsibilities

10.1 Control decisions for the LSD/CS/AWP Program shall be based on information contained in the following documents:

10.1.1 Annual Project and Program Reviews - Conducted jointly by LSD/CS/AWP project team members in each country. The LSD/CS/AWP Management Oversight Committee will, at one quarterly meeting, review progress of projects over the previous year and approve work plans for the following year. The review reports and work plan will be prepared by the Contractor as the report for the quarterly meeting. A member of the AID/WASH Project team will attend the review.

10.1.2 Annual Project Audits - Conducted in accordance with the WVI and AID stipulated schedules, and so as to be available as input into the annual review meeting noted above.

10.1.3 Quarterly LSD/CS/AWP Management Oversight Committee Reports - The quarterly reports shall be prepared by the Contractor, and will be reviewed by the Committee at this meeting.

10.1.4 Monthly Procurement Status Reports - Prepared by the Contractor, in conjunction with field office and project staff.

10.1.5 End-of-Project Report - By the Contractor.

10.1.6 Mid-Term and End-of-Term Evaluations - Conducted jointly with WVI, WVRO, Contractor, and AID/WASH participation.

10.2 Format and Content of Report

10.2.1 Annual Reviews - The reviews will follow the format of the quarterly reports and provide similar information but for the complete previous year. They will include Proposed LSD/CS/AWP Plans of Operation with targets, schedules and a proposed budget for the upcoming year.

10.2.2 Annual Project Audits - These will follow formats stipulated by WVI and AID.

10.2.3 Quarterly Reports - These must be received by the WVI and WVRO offices, Monrovia, within the month following the end of the quarter, and shall include:

- All Field Office/WVRO/AID Grant accounting and reporting requirements;
- A narrative summary of the general status of the project;

- A comparative analysis of variations between planned and actual activities for the period, including the nature of the problems encountered, their causes and the corrective action taken or recommend;
- A description of the next three (3) months activities, anticipated problems over the next three (3) months, and recommended solutions for resolving the problems;
- A financial analysis of each project activity which includes the sum disbursed for consultant services compared to the sum provided by the budget, and
- The need for changes in the Plan of Operation and/or the level of funding required to successfully complete the project.

10.2.4 Monthly Reports - These shall contain:

- All Field Office/WVRO/AID Grant accounting and reporting requirements;
- Status of procurement and delivery of vehicles and equipment, purchase orders issued and funds committed, and a monthly cash flow for the financial year; and
- A summary of monthly progress in the field highlighting any significant delays or difficulties.

10.2.5 Final Report - A detailed Terms of Reference will be prepared for the Final Report by the Contractor's Team Leader, for ARVP and LSD/CS/AWP Management Oversight Committee approval, at least three quarters prior to the termination of the Contract Agreement.

10.3 Format and Transmission of Reports

Based on to the foregoing the detailed format and means of transmission of reports will be decided by WVI and WVRO in conjunction with LSD/CS/AWP Management Oversight Committee.

Appendix II

SCOPE OF WORK FOR ATMS

SCOPE OF WORK

LARGER SCALE DEVELOPMENT CHILD SURVIVAL, AND AFRICA WATER PROGRAM (LSD/CS/AWP)

1.0 Background

- 1.1 From March until June 1987 the LSD Regional Technical Team carried out technical assessments of all Larger Scale Development (LSD) and Child Survival (CS) projects proposed for FY88 and beyond. The team also conducted an intensive review and assessment of the program management and technical support requirements necessary to assure successful implementation of LSD and CS projects and functions.
- 1.2 The scope of work for the Larger Scale Development, Child Survival and Africa Water program (LSD/CS/AWP) is derived from those findings, and geared specifically to rectifying any significant deficiencies in the design and/or implementation of the projects. The scope of work is directly geared to field ministry enhancement in terms of improving the technical capability of the project staff and the program development and management capability of the field offices. Most importantly, the program is designed to fully involve field office, WVI, and WVRO staff so as to generate and sustain the "commonality of purpose" which is essential to successfully implementing the overall LSD/CS/AWP program.

2.0 Duration

LSD/CS/AWP is approved for an initial three year period from January 1987 to January 1990. The duration of this scope of work is from October 1, 1987 to June 30, 1990 (33 months). Performance under this scope of work including preparation, submission, review, and acceptance of the final report shall be completed on or before June 30, 1990.

3.0 Summary of Contractor's Scope of Work

For the period set forth above the Contractor shall provide professional services to establish an ongoing institutional capability within World Vision's Africa management structure to plan, implement, and monitor effective health and water development projects; and other specially-funded technical projects (SFTP).

The services provided by the Contractor will be provided within guidelines and policies set by the Corporate Services group of WVI. All policies and training curriculum will be reviewed by the VP Corporate Services prior to use.

The scope of work shall include the following functions:

- 3.1 Program Development, under which the Contractor will assist the Africa Regional Vice President and Field Directors in the development of policies, management systems, and specialized procedures necessary to carry out the LSD/CS/AWP and other designated SFTP's.
- 3.2 Project Development and Monitoring, under which the Contractor will undertake the identification, feasibility study, design, monitoring and evaluation of LSD/CS/AWP and other designated SFTP's.
- 3.3 Institutional and Human Resource Development and Training, under which the Contractor will provide technical and managerial training of WV and partner agency staff connected with LSD/CS/AWP and other designated SFTP's.
- 3.4 Water and Sanitation for Health Project (WASH) Technical Assistance, under which the Contractor shall oversee on behalf of World Vision, the technical assistance provided by WASH under the AWP matching Grant from AID.
- 3.5 Marketing Support and Grant Monitoring, under which the Contractor will assist the Partnership Services Division of WVI, and World Vision's Support Offices to market LSD/CS/AWP and other specially-funded technical projects, by writing funding proposals and concept papers, locating suitable donors, and meeting donor reporting and auditing requirements.
- 3.6 Procurement Management Services, under which the Contractor will source, purchase, insure and dispatch equipment and supplies to service LSD projects (and other projects as requested); with delegated authority to act as procurement agent, or to subcontract for such.
- 3.7 Technical Information Services, under which the Contractor will establish a technical information system to provide technical information related to the functional areas covered by this contract.

A discussion of key elements of the work to be performed is contained below.

4.0 Program Development

- 4.1 The contractor will assist the ARVP and Field Office Directors in the development of policies, management systems, and specialized procedures necessary to carry out the Larger Scale Development, Child Survival, and Africa Water Programs.
- 4.2 The Contractor will assist in developing and instituting a number of innovative program management mechanisms, strategies, policies and procedures for the development and management of complex technical development activities.
- 4.3 As important program and policy innovations are developed and proposed, they will be presented to the LSD/CS/AWP Management Oversight Committee for discussion and appraisal. As these innovations are proven to be appropriate, effective and efficient, with regard to LSD/CS/AWP and other SFTP's, they will be carefully documented and presented to WVI Senior management for consideration, approval, and possible replication in other programs and field offices.
- 4.4 Based on recent program history, there is a verified need for frequent consultation, and coordination between the Regional Technical Team and the various World Vision organizational entities to assure program coherence and to accomplish agreed upon objectives. Therefore the Contractor shall establish a plan and schedule which will provide regular communications and briefing to ARVP, WVI and WVRO executives.
- 4.5 The Contractor will also be available to assist in the development of presentations, plans and reports, beyond those specified in Section 7.3 of the Agreement as requested; and to make presentations to various internal and external groups as requested and authorized by WVI.

5.0 Project Development and Monitoring

- 5.1 The LSD/CS/AWP is established with a specific mandate to assist the Africa Vice President and the Field Directors in the planning, design, implementation, monitoring and evaluation of LSD/CS/AWP projects and other SFTP's in designated countries.
- 5.2 Specifically, the mandate is to assure the highest level of technical quality in all phases of these projects and to assist the Field Directors in establishing an ongoing capability to plan, design, and implement such activities within their respective field offices.
- 5.3 All technical specialists, whether permanent staff or contract, will know and understand WVI ministry and technical policies, and carry out their technical assistance efforts in complete conformity with the same.

- 5.4 Responsibility for achieving the goals and objectives of the projects is shared jointly by the designated representatives and offices of all World Vision program entities involved in the project.
- 5.5 With respect to each LSD/CS/AWP Project, internal project agreements will be prepared which clearly describe the background, goals and objectives of the project, and which clearly delineate the Scope of Work, organization of the project, roles and responsibilities, project control procedures, all project activities, schedules, and budgets. The purpose of the project agreements is to record the understandings between WVI, the Contractor, and major donors regarding the strategies, methods and schedules for achieving project goals and objectives.
- 5.6 The Contractor will carry out identification, feasibility analysis, planning, design, monitoring and evaluation of projects as detailed on the Project Activity Listing (Exhibit H).
- 5.7 The contractor will work in conjunction with Field Directors and WVI in developing specifics of work to be done and technical assistance required, which will be set forth in Annual Plans of operation for each project. A schedule of quarterly visits to the projects to perform specified tasks will be established at the beginning of each fiscal year.
- 5.8 The Contractor shall maintain a staff of Key Personnel (Exhibit G; Part A) who are deployed on assigned project tasks on a regularly scheduled basis. In addition, the Contractor shall establish and maintain a consultant roster of personnel available for quick responses to implementation problems in projects.
- 5.9 Overseas field-based assistance will be provided by the Contractor's staff, consultants, and subcontractors on a short-term basis during single or repeated field visits. A typical visit would use a single consultant or small technical team for ten to twenty one days.
- 5.10 In some instances, members of the contract staff may be assigned to a specific project on a one or two year basis.
- 5.11 Where outside consultants or subcontractors are used, the contractor will endeavor to use citizens or residents of host countries, who meet with the approval of the Field Director concerned. The Contractor shall negotiate with all outside consultants or subcontractors to establish the specifics of work to be performed, and will finalize this with a written consultant agreement prior to these individuals commencing any work.

6.0 Institution Building, Human Resource Development and Training

- 6.1 This function relates to the organization, management, staffing, training, operations and maintenance of LSD/CS/AWP projects and field offices as discrete entities. In particular the function relates to the broad range of human resources and skills needed in the field offices and projects to assure the development and institutionalization of an ongoing program management capability.
- 6.2 The Contractor shall assist in providing technical and managerial training of World Vision staff, and partner agency staff connected with LSD/CS/AWP Projects.
- 6.3 All training plans and training curricula will be reviewed and agreed to by the VP Corporate Services to ensure consistency with WV ministry and technical policies and standards, and other WV training in the same technical specialty.
- 6.4 The type of activities and areas to be addressed under this function include: strategic planning, team building, development of managerial leadership, project management, communications and reporting; human relationships in technical programs, budgeting, financial management, training of trainers, technical and management information system, and various technical training courses specifically related to water, sanitation and health programs.
- 6.5 Much of the information discussed in the preceding functions pertains equally to this function. Additionally, many of the specific activities to be provided under this function will be funded and delivered under the WASH Technical Assistance component of the AWP Matching Grant (discussed in following function).

7.0 WASH Technical Assistance

- 7.1 All WASH training plans and training curricula will be reviewed by the VP Corporate Services to ensure consistency with WV ministry and technical policies and standards, and other training in the same technical specialty.
- 7.2 The realization of the goal of upgrading the capability of the World Vision field offices and LSD Project management staff is significantly tied to a program of transferring technology ("know how") for design, implementation, management and evaluation of water projects which has been accumulated under the WASH Project.
- 7.3 The Contractor shall oversee and manage, on behalf of World Vision, the technical assistance provided by the Water and Sanitation for Health (WASH) project under the AWP matching Grant.

- 7.4 WASH professional staff and WASH contracted consultants will provide a broad range of planning, training, documentation, design and appraisal services under this grant.
- 7.5 WASH and World Vision have identified a series of workshops and technical assistance services that could be provided to World Vision field staff. The scope of these activities is described.
- 7.5.1 AWP Program Planning and Project Development Workshop
A one-week workshop for approximately 15-20 World Vision staff is to be held in October 1987. The objective is to devise an overall LSD/CS/AWP Plan of Operation from individual project plans and the specific needs as determined from the technical assessments and from field staff problems identified during the preceding five to six-month period.
- 7.5.2 Monitoring Strategy and Formative Evaluation Workshop
Because of the need to have ongoing internal monitoring of projects, WASH proposes a one-week monitoring strategy and formative evaluation workshop to be held in June or July 1988. The purpose of the workshop is to develop a systematic approach for World Vision project managers to evaluate the progress of their projects (objectives, schedules, use of personnel and resources, training needs, and impacts). The workshop will also focus on ways to use these evaluations to modify project implementation. A planning session for workshop trainers will be held about six to eight weeks before the actual workshop.
- 7.5.3 Assistance in Developing a Training Strategy
To increase World Vision's capability to assess its field staff's training needs for water projects and to design workshops and training programs to meet these needs, WASH proposed to provide training consultant to work with World Vision staff. This assistance could start after the first workshop and be provided on a regular basis over the course of the three-year project.
- 7.5.4 Other Technical Assistance Workshops During the Course of the Three Year Project
WASH has developed or is currently producing workshops, guidelines and handbooks in a number of areas of interest to World Vision. The following is a list of those activities which appear to be most relevant to World Vision's needs. Note that no specific dates are proposed for these activities, but they would be scheduled during the course of the three-year project.
- (a) Community Participation - WASH has developed a trainer's guide for conducting a workshop to improve the skills of field workers responsible for promoting the active participation of communities in

environmental health projects. This guide has been field tested and revised. It will be examined to determine its compatibility with World Vision's standards and procedures.

- (b) Operations and Maintenance Workshop - WASH has developed a series of workshops (currently being delivered in Bolivia) to teach equipment operations and maintenance concepts and pump maintenance skills to field personnel. This workshop could be modified for use in World Vision's Africa projects.
- (c) Construction Workshops - WASH has developed and field tested a series of technical workshops in spring capping, rainwater harvesting, handpump installations, and latrine construction. These workshops could be delivered, as needed, to World Vision staff and community participants.
- (d) Well Rehabilitation and Drilling Rig Selection WASH is developing guidelines for the rehabilitation of existing water supply wells and a handbook for installing new wells. Both of these handbooks will be available to World Vision but could also be used in conjunction with workshops for World Vision staff.

8.0 Marketing Support

- 8.1 It is understood that the contractor's experience and long-term relationships with major bilateral donors, the contractor's proven abilities to conceptualize and design top quality project proposals, and the RTT's availability on the ground could be beneficial to the World Vision Partnership's fundraising efforts.
- 8.2 The ARVP, WVRO, and the Partnership Services Division of WVI shall establish a specific agreement on the plan and procedures for utilizing the contractor's services in this area.
- 8.3 The Contractor shall advise ARVP, WVI and WVRO of potential donors with interest in supporting particular technical programs or component of programs.
- 8.4 The contractor shall assist the Partnership Services Division of WVI, and WV support offices in locating suitable donors, development of funding proposals, writing various reports and analysis for marketing purposes, and meeting specified donor reporting and auditing requirements, when requested and approved by ARVP and WVI.
- 8.5 In particular, the Contractor shall assist WVRO, other WV support offices, and the Africa Field Offices in the development and review of technical program proposals to be submitted to large donors. This is particularly applicable in cases where

field offices are submitting proposals to local bilateral donor agencies such as AID, CIDA, EEC, etc.

9.0 Procurement Services

- 9.1 Given that technically precise, cost efficient, and timely procurement of materials is critical to the success of technical projects, priority will be given to providing experienced, reliable, and proven procurement capability under this contract.
- 9.2 The project technical assessments provide clear evidence that various aspects of vehicle, equipment, and supplies procurement have been particularly problematic and have hampered scheduled implementation activities. Moreover, WVI and WVRO program managers have been overwhelmed by the array of requirements for approving, sourcing, purchasing, and shipping/dispatching procurement items.
- 9.3 The Contractor will source, purchase, insure and dispatch equipment and supplies on behalf of LSD project, with the delegated and designated authority to act as procurement agent, or to subcontract for such.
- 9.4 At the inception of the contract, the Contractor's overall plan and arrangements to assure timely, technically precise, cost efficient procurement, will be reviewed and approved by ARVP, WVI and WVRO. This will include a detailed listing of procedures to be followed by the procurement agent to assure compliance and consistency with the requirements of World Vision and other participating donors.
- 9.5 Following approval, the Contractor shall immediately perform the following urgent tasks:
 - 9.5.1 Become familiar with the procurement requirements, by reviewing and updating current inventory listing of all vehicles, tools, equipment, spare parts, supplies and materials in each LSD and CS project.
 - 9.5.2 Specify and procure equipment and supplies necessary to reactivate and/or sustain implementation of the Ghana Rural Water Project, Senegal/Louga Potable Water Project, and (if approved as LSD) and the Tanzania/Shinyanga Community Development Project.
 - 9.5.3 Review, update, and/or establish sequential six-month priority listings of equipment and supplies needed in all designated LSD and CS projects for the periods: October 1, 1987 to March 31, 1988; April 1, 1988 to September 30, 1988; October 1, 1988 to March 31, 1989; April 1, 1989 to September 30, 1989; and October 1, 1989 to March 31, 1990.

- 9.5.4 Advise on the limit and cost of any spare parts, vehicles, tools and equipment required to support a viable operations and maintenance program for the number of water supplies anticipated by March 31, 1990.
- 9.5.5 With respect to directed gifts in-kind, the Contractor shall also assist WVI, WVRO, and other WV support offices with the establishment of priority listings of equipment and supplies needed in other non-LSD projects, when requested and approved by WVI and ARVP.
- 9.6 As part of the LSD/CS/AWP Comprehensive Plan of Operation the Contractor shall include a detailed logistical Plan of Operation for Project procurement (to be completed by the fifth month) of items on the priority listings noted above.

10.0 Technical Information Services

- 10.1 Funds have been provided for the establishment of a technical information systems to support WVI Headquarter's and field office needs for specialized documentation on water supply and sanitation technology, hydrology, human resource development training, institutional development, community participation, environmental health and epidemiology, health education, economics and finance, women-in-development, and technology transfer.
- 10.2 The Contractor will assist with the establishment of a technical information system for the provision of technical information related to the preceding functional areas.
- 10.3 The exact composition, functions, and size of the system will be determined by a WASH/World Vision joint assessment of information and documentation most urgently needed to support existing and projected technical program requirements. Specific planning for this function will begin in January 1988.

Appendix JJ

LSD DESIGNATED PROJECTS FOR ATMS RESPONSIBILITY

3/16

LSD DESIGNATED PROJECTS

LSD/Water Projects

#51-531327	Senegal/Louga Potable Water
#51-500674	Senegal/Louga Tree and Vegetable
#51-531800	Senegal/Louga Water Extension and Training
#51-231543	Ghana Rural Water
#51-131377	Kenya Maasai People's Project
	Kenya Karapokot
	Malawi Rural Water
	Ethiopia Water Development
	Tanzania Shinyanga Rural Development

Child Survival Projects

Zimbabwe
Sudan
Kenya
Senegal
Mali
Mauritania

New Project Development

Malawi Child Survival Proposal
Nigeria Child Survival Proposal
Uganda Child Survival Proposal
Other specially funded technical programs to be
designated

Appendix KK

PROCEDURE FOR MOBILIZING WASH

Appendix KK. PROCEDURE FOR MOBILIZING WASH

During the LOP, WASH will assist WVRO in providing the necessary technical assistance in design, implementation, training and evaluation of ongoing and new water development activities. The following outlines the procedures between S&T/HEA, WVRO and WASH regarding requests for technical assistance for WASH services:

1. A.I.D.'s Cognizant Technical Officer (CTO) receives a written communication such as a cable, memorandum or letter from WVRO requesting WASH technical assistance.
2. CTO reviews request, solicits additional information if necessary and then determines if request will be approved or rejected. Before CTO rejects request, FVA/PVC Project Officer will be consulted and, if necessary, set up a joint meeting between WASH, A.I.D. and WVRO to solve issue(s).
3. CTO forwards request to WASH Project Director with one of the following instructions:
information only -- no action required;
prepare activity sheet;
contact WVRO to obtain additional information.
4. WASH Project Director assigns Activity Manager to the request.
5. Activity Manager contacts WVRO Project Manager to clarify any information needed to prepare Activity Sheet.
6. Activity Manager returns completed Activity Sheet to CTO for review.
7. CTO reviews final document and either approves or rejects request or asks for additional information. The request is then returned to Activity Manager.
8. Activity Manager prepares draft Activity Implementation Plan (AIP) and SOW. If draft AIP and SOW differ from original request, WVRO Project Manager is consulted and approves of any changes in requests by signing SOW (including recommendations for additional work, budget variances, completion date, etc.).
9. AIP/SOW is returned to CTO for final clearance. If approved, signed AIP/SOW is returned to WASH for action.
10. Implementation begins.
11. At the end of the service provided, WASH delivers a mutually agreed upon final report to WVRO Project Manager describing the services rendered and final outcome.
12. Activities closed by CTO.

Appendix LL

RATIONALE AND SCOPE OF WASH PARTICIPATION

PROPOSED WASH ACTIVITIES**WITH WORLD VISION**

World Vision, a U.S. private voluntary organization, is seeking funding from USAID's FVC office to improve World Vision's development assistance capabilities, especially in the design and implementation of water supply and sanitation (WS&S) projects. Funding for the project, if approved, is expected to be available in May 1987.

In recent discussions with World Vision staff, the Water and Sanitation for Health (WASH) Project has been asked to prepare a description of workshops and technical assistance activities that could be provided to World Vision for its upcoming water supply and sanitation projects in Africa. Although the proposed FVC grant would not be available until May 1987, World Vision wishes to secure assistance from WASH so that the first of a series of workshops could be delivered in January 1987.

The principal objectives of WASH assistance to World Vision are:

- o increase staff technical capabilities to design and implement WS&S projects
- o broaden awareness of complexities of WS&S projects, in particular, the role of technology selection, community participation, health education and operation and maintenance training, in successful projects
- o improve World Vision's capability to evaluate and implement training programs using its own staff resources
- o improve World Vision's ability to carry-out self-monitoring through formative evaluations

A description of and estimated delivery dates for WASH's proposed workshops and technical assistance follows.

A. Pre-Implementation Workshop

A one week workshop for approximately 20-25 World Vision field staff to be conducted in Nairobi, Kenya in January 1987. The workshop would cover the following items:

- o Overview of WS&S sector in Africa and activities by other FVO's and donors

- o Review of World Vision's organization, policy objectives and implementation strategy
- o Team building for field staff
- o Major Issues and obstacles to implementing successful WS&S projects
- o Project implementation strategies

Prior to the workshop, a one week planning workshop is to be held in the U.S., in late November 1986. The purpose of the workshop is to develop a training team, review results of needs assessment surveys (completed by field staff) and refine the objective and course content of the Pre-Implementation Workshop.

B. Technical Assistance Following Workshop

Because of the need to re-design several upcoming WS&S projects, WASH proposes providing two workshop consultants (technical trainers from the workshop) and two additional WASH consultants to work with World Vision field staff in three countries, Kenya, Ghana, and Malawi. The purpose of the follow-on consultation is to assist field office staff to incorporate the workshop experience (new implementation objectives and strategies) in the re-design of one major project in each of the countries. WASH assistance would be provided for two weeks in each of the countries.

C. Project Development and Assistance Workshop

A second one week workshop for approximately 15-20 World Vision field staff is to be held in June or July 1987. The workshop would focus on specific needs of the staff, as determined during technical assistance consultation (following the previous workshop) and from field staff problems during the intervening 5-6 month period.

As in the case of the first workshop, a one week planning workshop will be held for the workshop trainers, about 6-8 weeks before the actual workshop.

D. Monitoring Strategy and Formative Evaluation Workshop

Because of the need to have on-going internal monitoring of projects, WASH proposes a one week monitoring strategy and formative evaluation workshop to be held in June or July 1988. The purpose of the workshop is to develop a systematic approach for World Vision project managers to evaluate the progress of their projects (project objectives, schedules, use of personnel and resources, training needs, and impacts). The workshop will also focus on ways to use these evaluations to modify project implementation.

A planning workshop for the workshop trainers would be held about 6-8 weeks before the actual workshop.

E. Assistance in Developing a Training Strategy

To increase World Vision's capability to assess its field staff's training needs for W&S's projects and to design workshops and training programs to meet these needs, WASH proposes to provide a training consultant to work with World Vision staff. This assistance could start after the first workshop and be provided on a regular basis over the course of the three year project.

F. Possible Technical Assistance Workshops During the Course of the 3-4 Year Project

WASH has developed or is currently producing workshops, guidelines and handbooks in a number of areas of interest to World Vision. The following is a list of those activities which we believe to be most relevant to World Vision's needs. Note that no specific dates are proposed for these activities but they could be provided, as needed, during the course of the 3-year project.

1. Community Participation - WASH has developed a trainer's guide for conducting a workshop to improve the skills of field workers responsible for promoting the active participation of communities in environmental health projects.
2. Operations and Maintenance Workshop - WASH has developed a series of workshops (currently being delivered in Bolivia) to teach O&M concepts and pump maintenance skills to field personnel. This workshop could be modified for use in World Vision's Africa projects.
3. Construction Workshops - WASH has developed and field tested a series of technical workshops in spring capping, rainwater harvesting, handpump installation, and latrine construction. These workshops could be delivered, as needed, to World Vision staff and community participants.
4. Well Rehabilitation and Drilling Rig Selection - WASH is developing guidelines for the rehabilitation of existing water supply wells and a handbook for the selection of drilling equipment for installing new wells. Both of these handbooks will be available to World Vision but could also be used in conjunction with workshops that could be developed for World Vision staff.

In addition to the above workshops, WASH has proposed the design and delivery of a project evaluation workshop that would be attended by staff from a number of PVO's in FY1987. If funding for this project is approved, WASH will invite World Vision staff to participate in the workshop.

Appendix MM

AWP CONCERNS REGARDING WASH PARTICIPATION

Concerns

In the discussion that took place, several concerns were voiced. These are listed below and, where applicable, along with the respective recommendations.

<u>Concern</u>	<u>Recommendation</u>
1) Insufficient lead time was often an issue leading to crisis planning.	Major activities need adequate notice and planning. Sufficient lead time should be allowed. Co-planning between RTT/WASH is very important and should be emphasized.
2) The role of WASH was not clear in cases of participants viewing it as that of a donor or consultant.	Definition of roles should be made clear up front.
3) There were some shortfalls in the selection of consultants, earlier groups not being familiar with the concept of WV.	This should be improved together with a process of their evaluation. Whenever new consultants are sent, adequate time should be allowed to discuss background issues.
4) Was Rapid Assessment the best approach in Ghana and Senegal?	(It revealed what was going on.)
5) Do we need to broaden consultant pool?	Whenever new consultants are used, adequate time to be allowed to discuss background issues.
6) Onerous reporting requirements to some extent curtail effective implementation.	
7) Current project managers are experienced. But in some cases there are no stand-ins to help run programs if others retire.	Advance thinking for the eventual replacement of some need to be considered, especially in Senegal.
8) Project review and appraisal process is weak.	This needs to be strengthened.
9) There is need for training to uplift the overall project management and operations and maintenance capabilities of FO staff.	1) A needs assessment from which a manpower development plan can be developed needs to be undertaken. 2) The relationship between corporate training and RTT training needs to be defined.
10) A Technical Information Documentation Center has not yet been established.	A strategy for the technical support system needs to be developed.
11) Joint ventures are now going to be common.	Securing agreements on the process is becoming all the more important. Ideally each party should strive to surface all issues so that their timely resolution can be ensured.

Participants noted that a modest beginning had been made although much still needs to be done. In the Summary Chart below is a presentation of participants' assessment of progress made in the management of AWP as well as what in their view needs to be done for the expectations of 1987 to be realized.



AWP Objective: 1. Establish Corporate Competence.

Participants' Assessment of Progress Made

1. Not made progress in putting in place a permanent structure/capability.
2. Need clarification how corporate water specialist fits into global picture.
3. Need long-term plan for RTT to be ratified; permanency still not assured.
4. Made good progress in developing a corporate philosophy to water projects -- Monrovia and field.
5. Have made progress in defining roles and responsibilities -- still more to do.

Activities Needing to be Done

1. Need to generate corporate policies.
2. Develop indicator of competency for field staff.
3. Need to strengthen skills "how to's" of staff.

AWP Objective: 2. Effective implementation of Water Projects.

Participants' Assessment of Progress Made

1. Project Managers are more experienced.
2. Some progress in establishing a review committee -- still need to organize committee.
3. Progress in educating donors -- more to do with child sponsorship donors (still pressure to have concrete outputs).
4. Dealing with effect of onerous reporting requirements on implementation time.

Activities Needing to be Done

1. Need to develop replacements for LOC and other program managers.
2. Strengthen review and appraisal process.

AWP Objective: 3. Establish Management capability of field office.

Participants' Assessment of Progress Made

1. Establish a project development cycle.
2. Held start-up AWP workshop.
3. Have in place relationship between RTT and FO.
4. Field technical units established, but program not in place.

Activities Needing to be Done

1. Need to do some project management training.
2. Need to do overall needs assessment of management/manager development.

25/1

AWP Objective: 4. Enhance staff.

Participants' Assessment of Progress Made

1. Good progress in developing staff through field training assistance and Nairobi AWP workshop.
2. Need to follow up on training assistance that reinforces the skills.

Activities Needing to be Done

1. Organize follow-up/monitoring of enhancement activities.
2. Develop a dedicated training plan (including workshops and training assistance).

AWP Objective: 5. Develop skills for Effective Program Planning.

Participants' Assessment of Progress Made

1. Not yet started.

Activities Needing to be Done

1. Need to assess training needs of field staff.

AWP Objective: 6. Community-based Management System.

Participants' Assessment of Progress Made

1. Not yet started.

Activities Needing to be Done

1. Need to develop a strategy to have community-based maintenance and implementation (especially in Ghana, Senegal and Ethiopia).

AWP Objective: 7. Field Office Technical capability.

Participants' Assessment of Progress Made

1. Initial Progress through participation in AWP workshops and T.A. activities.

Activities Needing to be Done

1. Set up technical service units in field offices.
2. Clarify relationship between corporate, RTT and field office training units.

AWP Objective: 8. Establish Technical Information capability.

Participants' Assessment of Progress Made

1. Not yet started.

Activities Needing to be Done

2. Need to develop strategy and implement it.

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Appendix NN

FRAMEWORK FOR SUSTAINABILITY OF DEVELOPMENT

PAYMENT FOR PRODUCTIVE HOLES:

Scandrill Ltd., Malawi	:	50%	KW 189,956.50
Dandrill Ltd., Denmark	:	50%	KW 189,956.50

NOTE: Payment to Dandrill Ltd., Denmark will be effected in German Marks according to the rate of exchange on the date of signing this agreement.

The amount paid to Dandrill Ltd. Denmark covers cost of necessary overseas purchase of spare parts, consumables and supervision by one Expatriate Driller.

A separate account for the amount paid overseas will be kept by Dandrill Ltd, Denmark and any balance will be returned to Scandrill Ltd., Malawi upon completion of the project.

D A N D R I L L L T D ' S A C C O U N T :

Account No: 12324-9,
DEN DANSKE BANK,
HOLMENS KANAL 12,
COPENHAGEN K,
DENMARK.

P A Y M E N T F O R D R Y (U N P R O D U C T I V E H O L E S)

In case a hole is found to be dry, the hole will be charged with 45% of the price of a productive hole i.e. KW 5,698.69, payment for any dry holes will only take place in Malawi Kwacha.

Dandrill accepts to undertake drilling of replacement holes in the same area where the dry hole was found at a price per hole of KW 12,663.77. Payment for replacement holes will be charged on the 50/50% basis.

The price is valid for max. 10PCS replacement holes.

D O W N P A Y M E N T :

Mobilization will take place after a downpayment of Kwacha 50,000 has been received. The downpayment will be deducted in equal shares on the invoice in Malawi Kwacha for the 30 boreholes.

I N V O I C E S :

Invoices will be forwarded monthly to World Vision International, Malawi Office. Each borehole will be invoiced with two invoices, one covering 50% payment to Scandrill Ltd., Malawi and one covering 50% payment to Dandrill Ltd., Denmark, the later will be in German Marks.

Rate of exchange, this 12th Day of December 1988 is: 1.4527 Kwacha
to German Marks

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T I M E S C H E D U L E :

It is in the interest of both World Vision International and Dandrill Ltd. to complete the work as soon as possible.

The production period is planned to be 3 months, however delays may occur due to the rainy season.

Dandrill Ltd., however addresses itself to try to minimize any delays which may occur.

SIGNED: _____

DATE: _____

FOR WORLD VISION INTERNATIONAL

SIGNED: Hans Andersen

DATE: 12/12/88

FOR DANDRILL LTD.



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PAYMENT FOR NON-PRODUCTIVE HOLES

In case a hole is found to be dry, the hole will be charged at 40% of the price of a productive hole i.e. KW 5,000.

Scandrill Ltd. accepts to undertake drilling of replacement holes in the same areas where the dry holes were found as a price per hole of KW 12,495.20.

The price is valid for mazimum 10 pcs replacement holes.

DOWNPAYMENT

Mobilization will take place after a downpayment of 20% of the contract sum has been received by Scandrill Ltd. i.e. KW 74,971.20.

The downpayment will be deducted in equal shares on the invoices as presented by Scandrill Ltd.

INVOICES:

Invoices will be forwarded on a monthly basis to World Vision International, Malawi office.

TIME SCHEDULE:

It is in the interest of both World Vision International and Scandrill Ltd. to complete the project as fast as possible.

The production period is planned to be 3 months, however delays may occur due to the rainy season. Scandrill Ltd., however addresses itself to try to minimize any delays which may occur.

SIGNED:

[Signature]
P.P.F.D

DATE:

16.05.89

FOR WORLD VISION INTERNATIONAL

SIGNED:

[Signature]

DATE:

27th July 1989

FOR SCANDRILL LTD.

WORLD VISION INTERNATIONAL
Malawi Office

SCANDRILL LTD.
DRILLING & WATER ENGINEERS
P.O. Box 602, LILONGWE, MALAWI
PHONE: 723986, 723006
TELEX: 44238 SCAN MI.

B E T W E E N:

WORLD VISION INTERNATIONAL,
MALAWI OFFICE,
P.O. BOX 2050,
BLANTYRE,
MALAWI.

A N D

DANDRILL LTD,
EDITHSVEJ 12,
2600 GLOSTRUP,
DENMARK.

It is hereby agreed that DANDRILL LIMITED, using SCANDRILL LIMITED, P.O. BOX 602, LILONGWE, MALAWI, as subcontractor, undertakes to execute in total 30PCS of boreholes in the following areas in Malawi:

- A) Mphanda/Namitsitsi-Blantyre
- B) Nzimhiri-Thyolo
- C) Chikonde-Chikwawa

C O N D I T I O N S:

All boreholes will be sited and marked with pegs by World Vision International before mobilization.

A detailed site instruction, including a sketch showing the location of each borehole, will be given to Dandrill Ltd. before mobilization.

World Vision International will supply 30PCS of hand pumps including detailed drawings to Dandrill before mobilization. Pumps and drawings will be delivered free of charge in Scandrill's yard in Lilongwe, Malawi.

D E S C R I P T I O N O F W O R K:

Each borehole will be provided with 4" PVC lining, comprising end cap, screen and plain lining.

30PCS 1 x 1 Meter concrete slab, being foundations for the handpumps, will be supplied including fixtures for installation of handpumps.

The handpump will be provided with rising mains and will be installed on the concrete slab.

P R I C E:

30PCS of boreholes as described for a	
Fixed price of	: KW 403,350.00
Less: General Discount	<u>23,437.00</u>
TOTAL PRICE	KW 379,913.00 -----
Price per borehole including concrete slabs and installation of handpumps	<u>KW 12,663.77</u>

Appendix X

DRILLING QUOTATIONS AND CONTRACTS, MWP

1. Local institutional capacity

Strong local institutions are essential for mobilizing human and material resources for development.

2. Local participation

Motivation for doing the hard work of development is directly related to the amount of participation by beneficiaries in planning, implementing, and evaluating development activities.

3. Compatibility with social and cultural patterns

Activities that contradict social and cultural patterns have little chance of being continued after external assistance stops. Useful activities, which are grounded in those patterns, even though they are new in some sense, have a chance.

4. Local partnerships

Results that are due to efforts by community-level organizations or agencies tend to be more sustainable than those that are dependent on efforts by organizations or agencies at higher levels.

5. Economic realities

A sustainable program cannot be in serious conflict with prevailing market forces.

6. Environmental constraints

A sustainable activity must be compatible with the environment.

7. Long-term implications

The better one can anticipate what the situation will be like years later, the better one can plan development activities now that will not be incompatible with that situation.

8. Policy environment neutral

A sustainable activity must not be in conflict with existing policy, nor be dependent on adoption of new policy.

9. Information networks

When different development agencies share information and experience, a knowledge base is established that can be used by beneficiaries to influence decision-makers more effectively.

10. Financial support

Adequate, uninterrupted financial support is critical to sustainability.

FRAMEWORK FOR SUSTAINABILITY OF DEVELOPMENT

Sustainability is a simple concept; it refers to the capability for benefits to continue being delivered for a long period after external assistance is withdrawn. Determining how to attain sustainability in a particular context, however, is not simple. Measuring sustainability with satisfactory reliability and validity involves resolving complex issues generally beyond the capability of any single agency.

First, a distinction must be made between sustaining tangible benefits such as increased income, improved health, increased agricultural production, etc.; or sustaining continuing improvements in the ability to manage individual and community development. In the first case emphasis is on sustaining desirable products, while in the second emphasis is on sustaining desirable processes. Sustaining desirable processes generally involves longer periods of time and more complex types of facilitation.

Second, many factors influence the extent to which benefits can be delivered. Factors change over time, and may not be controllable by the agency providing assistance. Determining how sustainability of benefits is affected by such factors is extremely difficult, if even possible.

The following analytic framework for discussing sustainability is based on "The Effectiveness of Private Voluntary Organizations," a report of the Advisory Committee on Voluntary Foreign Aid to A.I.D., 1988. The Advisory Committee described ten factors (page following) that influence the degree to which a program generates sustainable benefits:

Appendix Y

SAMPLE HANDING-OVER CERTIFICATE FOR BOREHOLES, MWP

HANDING OVER CERTIFICATE

THE BOREHOLE WITH THE FOLLOWING SPECIFICATIONS IS COMPLETED AND IS
HEREBY HANDED OVER.

PROJECT : WORLD VISION INTERNATIONAL

CLIENT : WVI

LOCATION : NAMPWETU WE, MKANDA, PHALOMBE

NAT. B.H. NO : CG 241

SCAN B.H. NO : 3048

DEPTH OF B.H. : 49m

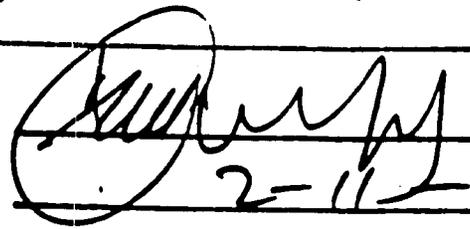
CASING SIZE : 4"

EST. YIELD : 10m³/HR

CONCRETE SLAB : NIL

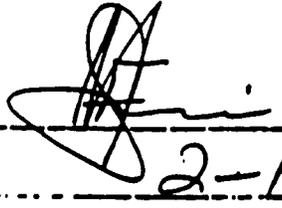
CONTENT OF SOLIDS : LESS THAN: 500 MG/L

REMARKS : Yield quite suitable
for a handpump.

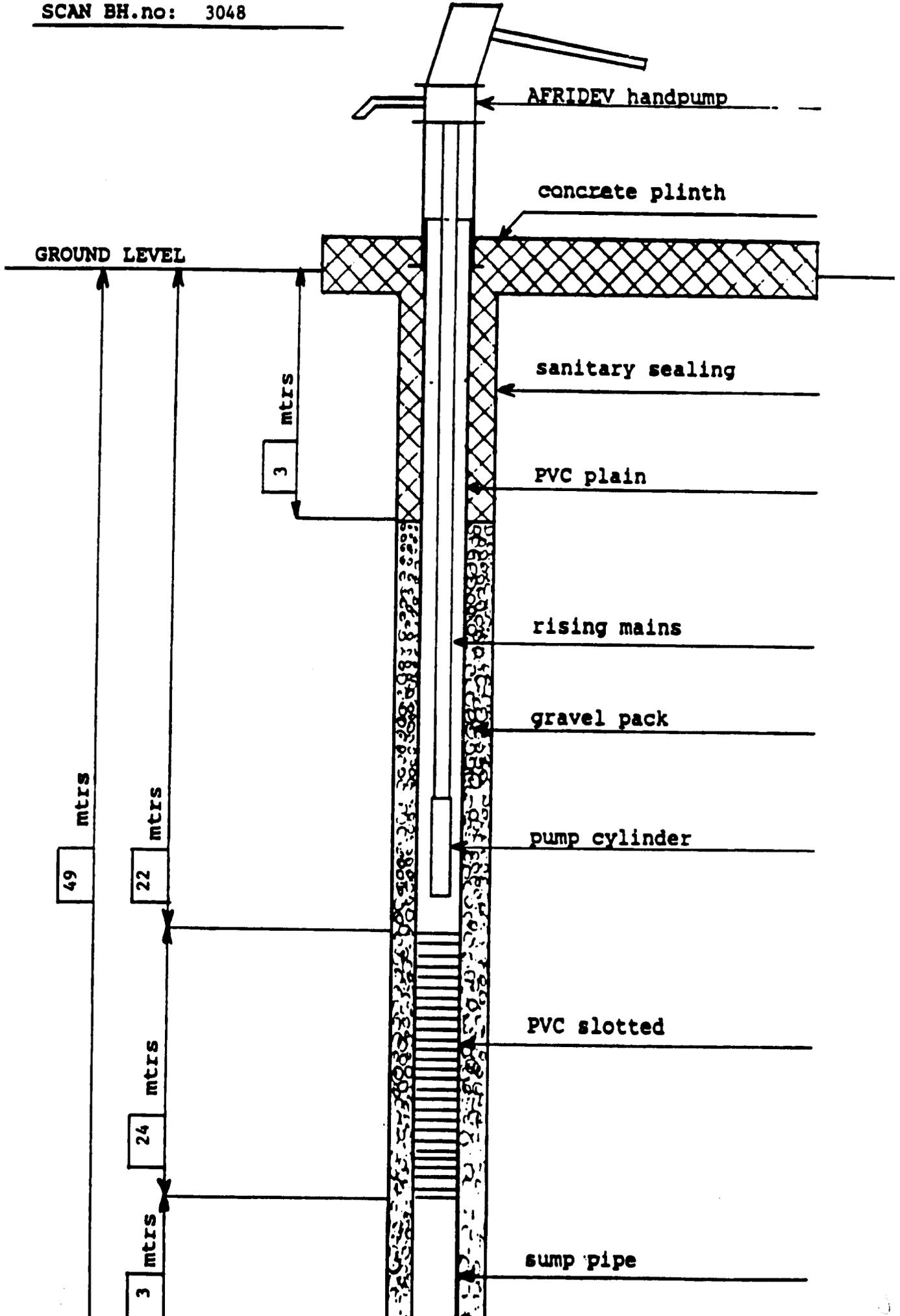
HANDED OVER BY : 

DATE : 2-11-89

THE BOREHOLE WITH INSTALLATIONS HAS BEEN CHECKED AND FOUND CORRECT ACCORDING
TO SPECIFICATIONS GIVEN TO THE CONTRACTOR.

APPROVED : 

DATE : 2-10-89



DEPTH BELOW GROUND		SAMPLE NO.	DRILLERS DESCRIPTION	MINUTES DRILLING	YIELD : SECONDS FOR 200 LITERS
FROM (M)	TO (M)				
0	6		Grey clay		
6	9		Wethered quartz and feldspar rock		
9	27		Pink wethered rock		
27	36		Semi hard Gneiss rock		
36	46		Hard Gneiss rock		

LOCATION OF BOREHOLE

CHIRADZULU

MUWONEKELA F.P.SCHOOL



Appendix Z

WORLD VISION BOREHOLES THROUGH FY 1990

WORLD VISION BOREHOLES

BOREHOLE NO.	LOCATION	DISTRICT	GRID REFERENCE	DATE SURVEYED
FD 114	Kazimbi	Mulanje	640638/1535C2	12/10/89
FD 115	Chinama	Mulanje	646636/1535C2	"
FD 115B	Chinama	"	640634/1535C2	19/10/89 resite
FD 116	Mathyola	"	652634/1535C2	12/10/89
FD 116B	Mathyola	"	650630/1535C2	19/10/89 resite
FD 117	Lobeni	"	625609/1535C2	12/10/89
FD 118	Richard	"	618607/1535C2	13/10/89
FD 119	Chimbalanga	"	615600/1535C2	13/10/89
FD 120	Mang'oma	"	553599/1535C2	13/10/89
FD 121	Maula	"	550610/1535C2	13/10/89
FD 122	Manindo	"	560610/1535C2	13/10/89
FD 123	Chimbalanga E.	"	555606/1535C2	16/10/89
FD 124	Chimbalanga C.	"	615607/1535C2	16/10/89
FD 125	Lobeni West	"	621594/1535C2	16/10/89
FD 126	Muonekera Market	"	620632/1535C2	16/10/89
FD 127	Mkwera	"	567590/1535C2	16/10/89
FD 128	Mkatasi East	"	572617/1535C2	16/10/89
FD 129	Lapwetu	"	650622/1535C2	18/10/89
FD 130	Kazimbi West	"	638632/1535C2	18/10/89
FD 131	Mathyola East	"	638615/1535C2	19/10/89
FD 132	Gowelo	"	653617/1535C2	19/10/89
FD 133	Gowelo West	"	650610/1535C2	19/10/89
FD 134	Chinama East	"	630640/1535C2	19/10/89
CG 235B	Richard	"	588605/1535C2	18/10/89 resite
CG 239B	Chimbalanga	"	610602/1535C2	20/10/89 resite
FD 135	Chinama West	"	621637/1535C2	19/10/89
FD 136	Matuli	"	620622/1535C2	20/10/89
CG 234	Muonekera Sch	"	578615/1535C2	13/9/89
CG 235	Richard	"	590607/1535C2	13/9/89
CG 236	Muhiyo	"	580600/1535C2	13/9/89
CG 237	Mkatasi	"	554606/1535C2	14/9/89
CG 238	Kaluyitoni	"	600610/1535C2	14/9/89
CG 239	Chimbalanga	"	613605/1535C2	14/9/89
CG 240	Sitaubi	"	619618/1535C2	14/9/89
CG 241	Napwetu	"	615608/1535C2	14/9/89

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WORLD VISION BOREHOLES

BOREHOLE NO	LOCATION	DISTRICT	GRID REFERENCE	DATE SURVEYED
	Namitsitsi Sch	Blantyre	098907/1534B4	19/7/89
	Makoka Vge	"	090918/1534B4	19/7/89
	Sumbuleta	"	092912/1534B4	19/7/89
	Makoka II	"	100929/1534B4	20/7/89
	Mpanda Sch.	"	068870/1534B4	20/7/89
	Chiripa II	"	062867/1534B4	20/7/89
	Chiripa	"	055865/1534B4	20/7/89
	Mangeni II	"	045873/1534B4	17/11/89
	Mandiwa III	"	064882/1534B4	16/11/89
	Chiripa III	"	070904/1534B4	16/11/89
	Sumbuleta II	"	113904/1534B4	16/11/89
	Makoka IV	"	098907/1534B4	15/11/89
	Makoka III	"	110196/1534B4	15/11/89

CMC:adk
 (22:03:90)

4/06