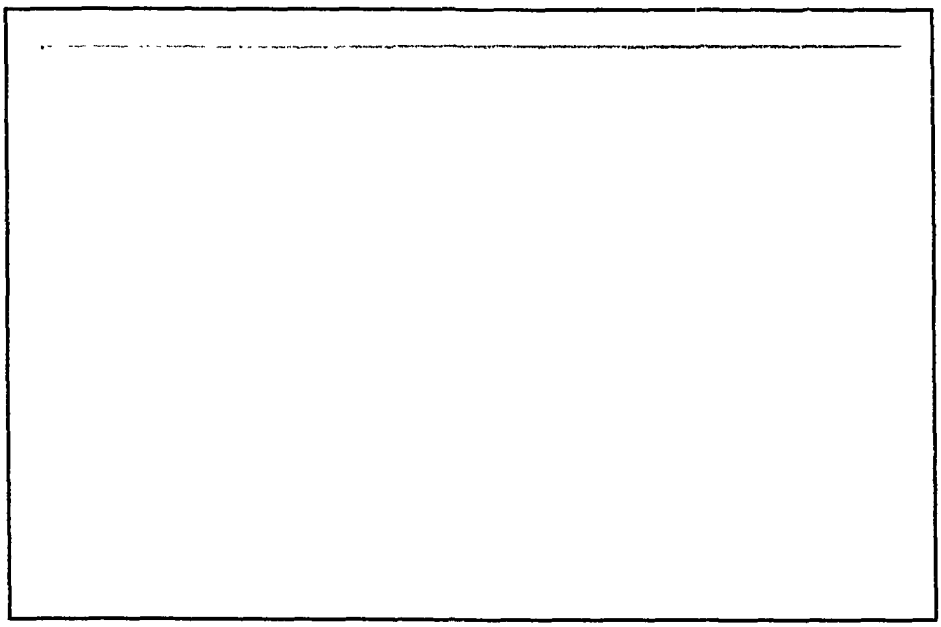

PRITECH

Technologies for Primary Health Care

Management Sciences for Health
1925 North Lynn Street
Suite 400
Arlington, Virginia 22209

ASSIST CARE IN DESIGN OF COMMUNITY MANAGED WATER PROJECT

MANICA PROVINCE
MOZAMBIQUE

A Report Prepared by PRITECH Consultant:
KATHERINE BURNS

During The Period:
MAY 5-25, 1991

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
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TRIP REPORT - MOZAMBIQUE
Kate Burns - Kenya Country Representative
May 5 - 25, 1991

INTRODUCTION

The purpose of this three week PRITECH consultancy was to assist CARE International in Mozambique in the design of a community managed water project based in Manica Province. Additionally, the terms of reference included a review of two other health concepts papers; one in Inhanbane and the other in Mafalala.

MANICA WATER PROJECT

The outcome of this consultancy was a draft project proposal for a water project in Manica Province. The document is undergoing review by the National Water Program but the general idea of a provincial based water project in Manica was approved. USAID, under the PVO umbrella grant to NGOs, is the proposed donor for this project. USAID health staff were also visited prior to departure and gave their informal approval of the project's scope and focus.

During the three week period, eight days were spent in Manica Province visiting government staff, communities and other donors/NGOs working in the water sector. There are many NGOs and donors in Manica and there is not a clear coordination between them and the GOM line ministries. This caused confusion during the design, but was resolved with the input of National Water Program staff (PRONAR). This confusion and change in project design focus four days before the end of the TDY, did cause delays in preparation of the final document.

In summary, the Manica Water Project is a three year, roughly $US 650,000, pilot project that will assist the GOM's Provincial Department of Construction and Water in the implementation of a community managed maintenance system and strengthening of hygiene education component of the extension arm of PRONAR. The project will support the installation of 40 Village Level Operations and Maintenance pumps (Afri/Devs) and training community groups in O&M. This follows the GOM's long term policy of substituting VLOM pumps for the existing India Mark IIs. The project will also support the commercialization of spare parts for the VLOM pumps.

Next steps for the proposal review process in Maputo will be for CARE to make suggested changes to the draft document and submit officially to PRONAR for review. Once PRONAR's comments have been incorporated into the document, it can be translated to Portuguese and sent via PRONAR to the Provincial level for comments and approval. Once CARE has received GOM approval, the proposal can be submitted to USAID for funding. This whole review process should take only two - three weeks. CARE NY should be sent a copy of the document for review.

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MAFALALA WATER AND SANITATION PROJECT

Due to the delays in resolving key issues on the Manica Water Project, the review of Mafalala concept project took a lower profile. A very short visit was made to the Mafalala urban area and its primary GOM health center.

People fleeing the war torn country have migrated to the urban centers and taken up residence in any free spot. In the case of Mafalala, people have settled on the old town garbage dump. Mafalala is surrounded by rusting vehicle shells, stagnant water and garbage. As stated by the City Commission Health Director "the Mafalala population need to be relocated" if lasting changes are going to be made - especially vis a vis sanitation. But the Mafalala people will remain and make the best of a bad situation.

Discussion held with Mafalala residents during the concept paper development highlighted the need for income generating projects. However, a sanitation and water concept paper was written. Even though the lack of sanitation is an obvious problem to the outsider, especially during the rainy season, the population do not see it as a problem. Additionally, donors reviewing this sanitation and water concept paper have not responded favourably.

In light of the above, I would strongly recommend that CARE look into developing a SEAD project in Mafalala as the first entry point. Health, water and sanitation could be addressed in a second phase.

While visiting the GOM health clinic, areas that a future project might focus on are:

1. Maternal Health Care - few people are accessing services. Mothers seeking pre-natal care appear to be low, as do couples seeking family planning services. Quality of service delivery needs to be addressed.

2. Nutrition/Growth Monitoring - though growth monitoring services are offered, it appears that little or no follow up takes place nor is there appropriate nutrition education given.

3. Control of Diarrhoeal Diseases - There is a small ORT Corner, but messages to mothers needs to be reinforced. In a recent EPI coverage and CDD KAP survey conducted in the major cities only 17% of mothers were correctly using ORS/ORT. More support to home management needs to be given.

4. EPI - The recent coverage survey showed approx. 90% coverage. This is one of the best results in Africa. The program is very strong and does not appear to need major support.

The main strategy for the implementation of any health related project would be to involve the community. Motivation and training of barrio members, sometimes referred as activistas, could be done. But more information is needed from the community concerning their health needs and priorities before a health project is designed.

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INHAMBANE HEALTH AND TRAINING PROJECT

This project has been cancelled. Another donor has stepped in. However, it is important to note that many people in the MOH are interested in projects supporting continuing education or in-service training for health staff. I would recommend caution in how this is supported and primarily how this training will be followed up.

The lessons learned from the SCF UK project who supported the construction of a provincial level training center should be kept in mind. In essence if they had to do it over again, SCF would not have built a training center. I would make the following recommendations about in-service training.

1. Avoid getting involved in building new training centers. Rehabilitation could be done.

2. Any site for provincial or district training should be adjacent to a rural health center so that practical on the job training can take place during training sessions.

3. Before CARE supports any health training initiative, detail plans for how supervision and follow up will take place need to be described. Long distance learning methods should be used as part of a follow up package.

WATER STRATEGY

Since CARE seems to have found a niche in the water sector in Mozambique, the following strategy guidelines are proposed.

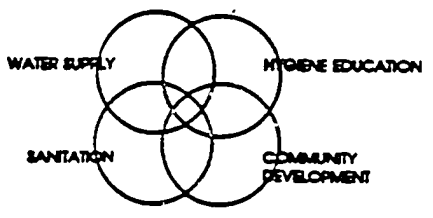
INTRODUCTION

CARE International has established a reputation for assisting in the water sectors of many countries throughout the world. Primarily CARE supports sustainable programs at the community level working with counterpart agencies or government line ministries.

CARE seeks to support improved health status of the population by contributing to the four main components of sustainable water improvements. These are community management/development, water supply, sanitation and hygiene education. See Figure 1 below.

Figure 1

RELATIONSHIP OF FOUR KEY COMPONENTS IN THE PROJECT



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WATER PROGRAMMING IN MOZAMBIQUE

Sustainable water programming is made more difficult in Mozambique because the country continues to experience internal strive due to civil war. Many populations groups are dislocated or affected by the war. The economic situation is unstable and influences the ability of the government and people to afford even the simplest technologies for improved water systems development. As in other countries in Africa, modern technology, such as hand pumps, are difficult to maintain. Due to these and other constraints, CARE Mozambique has established the following broad guidelines or strategy to direct its water programming in the country.

CONSTRAINT #1 - Population Stability: Due to the war many population groups are dislocated.

GUIDELINE #1 Development programming in the water sector should seek to serve or assist those populations that are reasonably settled. Support for water systems improvement for dislocated people could be targeted, but sustainability of the system itself would not be an achievable objective as people would be returning to their homes when the areas are more secure.

CONSTRAINT #2 - Choice of Hand pump: The current hand pump used in Mozambique is a locally manufactured version of the India Mark II. The maintenance and repair of this pump relies almost entirely on outside expertise (i.e. outside of the community) and more sophisticated equipment/tools. Therefore, the community can not be self sufficient in its maintenance and repair. The GOM has recognized this as a major problem to community management and has decided to change to the AfriDev/Tara hand pump models which are village level maintenance and operations (VLOM) pumps. The change-over to these pumps is now being initiated and a local factory will begin making these pumps. However, their production capacity will not achieve the countries needs for some years to come.

GUIDELINE #2 CARE should not support projects which install any new India Mark II pumps. Projects to rehabilitate India Mark IIs should carefully research the maintenance capacity of the locale executing workshop. In addition, the ability of the community to pay for maintenance of these handpumps should be assessed. Where communities are unable to maintain India Mark IIs, other systems options should be implemented - i.e. roof catchments, open protected bucket pumps and gravity where possible.

GUIDELINE #3 If given GOM approval, CARE can import VLOM pumps following GOM specifications, and install them in proposed projects. Spare parts necessary for a 3-5 year period should be included as part of the CARE supported project's budget.

GUIDELINE #4 Effective training of community based maintenance groups should be an output of all CARE support

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water projects especially so when VLOM pumps are installed.

CONSTRAINT #3 Communities ability to pay: Given the economic situation of most communities in the country, there is serious question as to the communities ability to pay for water systems maintenance and repair.

GUIDELINE #5 CARE projects should always conduct a systems option review with the community following the decision ladder process. (See Attachment). Specifically CARE supported projects should analyze the communities ability to cover long term O&M.

GUIDELINE #6 Where communities are unable to afford O&M of handpumps, CARE should support improved protected open wells as the most appropriate and economically feasible option.

CONSTRAINT #4 Linkages with sanitation and hygiene education: The overall gains in health or the reduction of water related diseases can not be achieved through water systems improvements alone.

GUIDELINE #7 All CARE supported water projects should have components directly related to improved sanitation and hygiene practices unless these aspects are adequately handled by other agencies in the same project area.

CONCLUSION

I would like to thank the CARE Mozambique staff for providing necessary support to me during this consultancy. Special thanks to Luis Mate who accompanied me to Manica. Also at the PRONAR office in Maputo, special appreciation to Leo Stolk who helped guide CARE through negotiations for the Manica Water Project.

The programming office of CARE Mozambique was very busy during my visit and sometimes appears to have bit off more then it could chew. I would strongly recommend that no new programming be done until the existing concept papers are brought to a proposal stage. Careful negotiations with GOM at the National Level should take place prior to discussions at the provincial level.

Prepared By: Kate Burns
PRITECH
May 30, 1991

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CONTACT LIST
MOZAMBIQUE - MAY 1991

GOVERNMENT OF MOCAMBIGUE (GOM)

CENTRAL LEVEL

Dr. Benadita da Silva	CDD Programme Manager

MANICA PROVINCE

Mr. B. Mtambe	Director - DPCA
Mr. Tembe	Director - EPAR/Manica
Mr. Alfonso	Acting Director/DPS
Mr. Policarpo	DPS Chimoio
Mr. Fazenda	Director DDCA - Villa de Manica
Mr. _____	Director DDS - Villa de Manica
Mr. Constatino	Preventive Mediciene Chef - DDS
Mr. Serra	Water Technician - DDCA V de Manica
Mr. Tiago	Water Technician - EPAR V de Manica
Ms. Suzanne	PEC Animator - V de Manica
Ms. Margarida	PEC Animator - V de Manica

CARE-INTERNATIONAL IN MOCAMBIQUE

David Neff	Country Director
Martine Ede	Programme Director
Virginia Vaughn	Projects Officer
Eduardo	Assistant Projects Officer
Luis Mate	Research Officer
Dan Roth	Finance Director
Phil Grey	Computer Expert

USAID

Mary Pat Salvaggio	Health Officer
Aileen Marshall	PVO Umbrella Project

UNICEF

Dan O'Dell	Representative
Dr. Osvaldo Legon	Health Officer
Ken Gibbs	Water Programme Officer

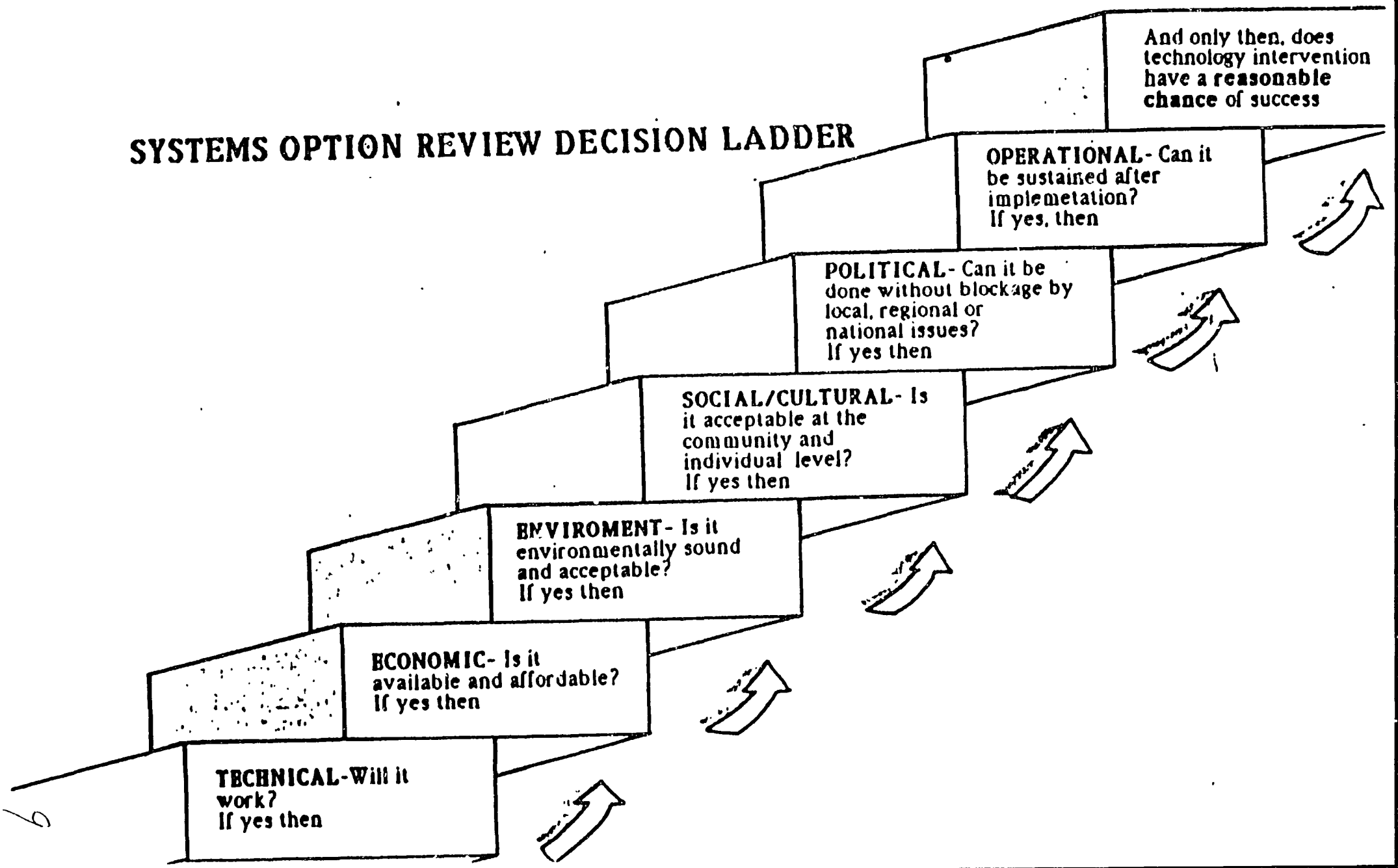
WORLD HEALTH ORGANIZATION

Dr. Kabamba Nkamany	Representative

OTHERS

Donald Batchhelder	Country Director - Save the Children - US
Dr. Julie Cliff	Faculty of Medicine
Dr. U. Weyl	Director of GTZ/MARRP - Manica
Mr. Zana	Proj. Mgr VAT Project/GTZ
Dr. N. Anderson	Consultant-GTZ Manica
Bonnie	Director American Friends Service

SYSTEMS OPTION REVIEW DECISION LADDER



DRAFT

PROJECT PROPOSAL

CARE INTERNATIONAL IN MOZAMBIQUE

MANICA WATER PROJECT

Implementation of a Sustainable
Community Managed Maintenance System
And Strengthening of Hygiene Education
For
Rural Water Supplies Program
IN
Manica Province
MOZAMBIQUE

Programa de Actualizacao
De Uma Sistema De Manutencao
De Agua Rural E Educacao Sanitaria
Provencia De Manica

(PASMARES)

MAY 1991

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PASMARES

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ACRONYMS

DPCA	Provincial Direction of Construction and Water
DPCCN	Department of Prevention and Combat of Calamaties
EPAR	Provincial Workshop for Rural Water
GTZ	German Development Agency
GOM	Government of Mozambique
IEC	Informtion, Education and Communication
MARPP	Manica Agriculture and Rehabilitation Project (GTZ)
MOCW/MCA	Ministry of Water/ Minsiterio de Construcao e Aguas
MOH	Ministry of Health
OJM	Mozambican Youth Organization
OMM	Mozambican Womens Organization
PEC	Participation, Edcuation for the Community
PASMARES	Programa de Actualizacao De Uma Sistema De Manutencao De Agua Rural E Educacao Sanitaria
PRONAR	National Water Program
PVO	Private Voluntary Organization
USAID	US Agency for International Development

A. EXECUTIVE SUMMARY

CARE International has been in Mozambique since 1985 providing support to the relief effort through the Government of Mozambique's (GOM) Department of Prevention of Natural Calamities (DPCCN). Through this, CARE Mozambique has established a presences in all ten provinces as well as a functioning office in Maputo. CARE's first development project started in 1990 in Inhambane province and provides support to water, sanitation and health areas in coordination with GOM line ministries. Other development initiatives are in the design phase.

After design missions to Manica Province and extensive discussions with the National Water Program Director and staff, CARE has been asked to assist the Manica Provincial Department of Water and Construction in the implementation of a decentralized maintenance program for rural water supply and strengthening of the Participation and Education for the Community (PEC) program in the province.

The proposed project - PASMARES, is a three year pilot project. It will be situated at the DPCA office in Chimoio, the capital of Manica Province. The three main components of the project are: strengthening of hygiene education, implementation of community development element and rehabilitation of 40 wells/boreholes substituting existing India Mark II handpumps with Village Level Operations and Maintenance pumps (VLOM) - AfriDev/Tara. Sanitation, specifically the building of latrines, will not be a focus of the project since other ministries and donors are supporting this component in the province but PASMARES will play a coordination role in this area.

Manica province, with a population of 850,000, is located in west central Mozambique bordering with Zimbabwe. Some of the nine districts in the province are relatively safe due to the passage of the Beira Corridor through the province. From the three safest districts - Manica, Gondola or Sussendenga, a pilot zone for the implementation of the PASMARES will be chosen jointly with DPCA after baseline surveys are done. A pilot zone will have the following characteristics: 1)be located in a secure area, 2) have indigenous population (not dislocated people) 3) have approximately 40 wells/boreholes that need rehabilitation and 4) have initiated the improved latrines project.

The PASMARES project is uniquely situated at the Provincial level and offers the opportunity to work along side of key DPCA coordinators and supervisors of water systems development in the province. Through the piloting of creative approaches, systems and steps for a decentralized community managed maintenance system, PASMARES will put in place replicable and sustainable skills and techniques that can be duplicated in other zones in the province.

The foundation for PASMARES is PRONAR's policy which turns over ownership, and thus maintenance and repair responsibilities, of water supply systems to the community. PRONAR has set down broad guidelines for this policy, but urgently needs support to pilot how this policy can be implemented in a sustainable way.

As an integral part of the National Water Program (PRONAR) and the DPCA, CARE will also work with the PEC (Community Participation and Education) program and EPAR (Provincial Rural Water Workshop). PEC is the extension arm of PRONAR and is responsible for community mobilization and training. EPAR is one of the technical executing workshops for construction of water systems.

To further integrate and strengthen health aspects of improved water systems, PASMARES will coordinate with the Ministry of Health's provincial office through the preventive medicine and public health sector. Following the PEC model, PASMARES will link with such groups as Organization of Mozambican Women (OMM), Organization of Youth (OJM) and other community based groups to extend hygiene education messages and community management. PASMARES will also work in conjunction with the Village Technology Project, financed by GTZ, which is successfully assisting community latrine project in the province. In addition PASMARES will coordinate with UNICEF, Finnida, GTZ and American Friends Services who are working in the area of community development, water, health and sanitation.

Given that full community participation and management training vis a vis financing repairs and maintenance etc. has not been done prior to the installation of water systems nor has effective hygiene education, it is no wonder that today most systems with hand pumps are not functioning. It is the goal of PASMARES to initiated and strengthen the province's capacity to do these things that will result in more reliable and sustainable water systems in the province. However, it must be taken into account that communities have not been part of the process in choosing or understanding the full financial costs of handpump technologies. They need to know the costs and decide if they can afford the long term O&M of these systems. Some communities may not be able to afford the continuation of this new technology. PASMARES will assist some communities who may need to seek other more affordable water systems.

CARE International has assisted projects in enhancing community ownership and management of water systems in several other African countries, specifically Rwanda, Kenya, Sudan, Chad, Cameroon. Through these projects CARE has gained a recognized expertise in the water and sanitation area. Lessons learned from these projects will be applied in Mozambique as well as a similar project which is underway by CARE Mozambique in the water sector in Inhambane Province.

PASMARES is a pilot project which will work hand in hand with the Ministry of Construction and Water in implementing the PRONAR guidelines for community management of water resources. The project budget for this first three year phase is _____. Through the USAID PVO umbrella grant CARE seeks 75% of this budget. The remaining funding of ____ will be sought from CARE International member countries.

B. PROBLEM STATEMENT

B.1 SETTING

B.1.1 THE COUNTRY

Mozambique with a population of 17 million, is one of the poorest countries in Africa. It has, for over two decades, been the site of a devastating war which has caused and continues to cause unimaginable suffering and destruction. Assistance has focused on relief of nearly half the population which has been dislocated or severely affect by the internal war. On top of this, insufficient rainfall in 1990 resulted in lost harvest which has left the country in a draught and famine situation. Though peace talks are now on going, a return to peace is not in sight. Mozambique, a country with enormous potential in natural resources, strategic geography and energetic population is bound for a arduous and lengthy recuperation before it will achieve stability and growth.

B.1.2 THE PROJECT AREA

The proposed project - Manica Water Project (Programa Actualizacao de uma Sistema de Manutencao de Agua Rural e Education Sanitaria - PASMARES) is set in Manica Province located in west-central Mozambique bordering with Zimbabwe. Due to the countries instability over the last decades, the situation of existing water supply systems is not fully known. To start off, PASMARES will assist with rapid assessments of water systems in secure areas. From these studies, a specific project zone for PASMARES will be chosen. The area will be secure, be made up of local inhabitants, have wells/boreholes that need rehabilitation and have an on-going latrine intervention. The project zone will target approximately 15 villages with and estimated population of 20-25,000.

Parts of the province of Manica offer unparalled security due to the importance of the transport route from Zimbabwe to the port town of Beira. A secure area is one of the main determinants for development programming considering the aim of sustainable interventions.

B.2 PROBLEM AND ITS CAUSES

B.2.1 PROBLEM ANALYSIS

The main problem this project addresses is the lack of adequate and reliable potable water to the target population. Due to the deficiency of reliable water supplies, the target population is afflicted by excreta and water-related diseases. Of principle note is the exceedingly high proportions of deaths that are caused by diarrhoea. In a recent survey of the health status conducted in Manica District (Anderson/GTZ 1990), 54% of deaths reported from the hospital in Villa de Manica were caused by diarrhoea. A look at the out patient records of health facilities in the district, demonstrates that 50% of visits are related to water-related illnesses, such as diarrhoea, parasites, scabies, and malaria. Cholera and bilharzia are endemic in the Province.

The government water sector in Manica Province has installed xx locally manufactured India Mark II handpumps on boreholes and protected wells in yy communities. The situation of these pumps is not fully known. One example of the status of handpumps in the province was studied by GTZ in 1990. (MARPP/GTZ 1990 - Evaluation of Handpump Installations in Machipanda Area with Emphasis on Maintenance and Sustainability). This study illustrated that 20% of 34 pumps were not functioning and an additional 60% required major overhaul. The study also pointed out that no maintenance system existed nor did the community possess the required tools to perform even routine maintenance. The study concluded that the community did not participate fully in the installation of the pumps nor did they understand who owns the pumps or who is responsible for maintaining them. (It must be noted that the India Mark II is not maintainable by the community and they can only perform minimal maintenance tasks).

Given this scenario it is obvious that the communities were not involved to the degree necessary to assure maintenance of the systems. The recent policy set forth by PRONAR which states that communities own the water systems and are responsible for repair and maintenance, was not fully delineated at the time of the installation of these systems nor were the PEC extensionists in place as they only arrived in late 1990. These reasons coupled with shortfalls of finances and adequate logistics for supply of spare parts are reasons these systems have failed. The type of pump also is a key factor in why the community can not be self sufficient in operations and maintenance (O&M).

During the design phase of this project communities visited stated their desire to contribute to the maintenance and repair of the systems. However, to date there are no established prices, systems for collection of fees, adequate spare parts, allocation of specified maintenance responsibilities or community management skills in place which would assure long term maintenance of these water points.

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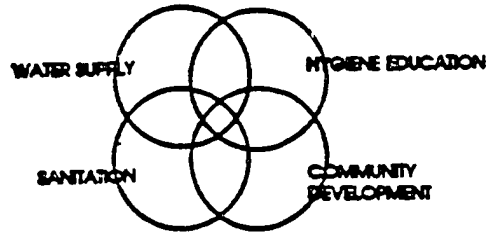
An additional problem the project faces is the type of hand pumps currently being used. The India Mark II hand pump installed in the project area is a locally manufactured pump. Technical review of this pumps has shown some weaknesses in its design and installation. Besides the technical aspects, the India Mark II is not easily repaired or maintained by village level trained people. PRONAR is supporting pilot efforts in each province to introduce the Village Level Operations and Maintenance Pump (VLOM) otherwise commonly known as the AfriDev/Tara. This pump is more easily maintained and repaired by trained villagers without relying on sophisticated equipment and expertise.

Even though the new water systems have benefited at least a portion of the province by improving access to potable water, the impact on improved health or reduced diseases due to contaminated water has not been studied. During the design of PASMARES the education methods used to impart information on hygiene and proper use and storage of water were assessed as inadequate. Extension workers were observed given "lectures" to large groups (150 +) using diagrams smaller then the size of this paper. Hygiene education given in this manner is bound to fall short of reaching its goal of behavioral change. Another clue to the shortfalls in the existing hygiene education was the condition of water carrying vessels seen during community visits. These containers were extremely dirty. Though PEC animators say they give instructions on cleaning water carrying containers, obviously the community is not following this advise. There is an urgent need for more effective and action oriented education to encourage the proper use and handling of clean water. If this does not occur, the benefits to improved health will not be realized.

In summary, PASMARES will directly address three of the four key components of effective and sustainable water systems which will have the maximum benefit to health. These are WATER SUPPLY, HYGIENE EDUCATION and COMMUNITY MANAGEMENT. The fourth key component - sanitation, i.e. latrine building, is being supported by the National Improved Latrine Project and GTZ/MARRP. PASMARES will assist the DPCA to coordinate this sanitation effort with water supply improvements. See Figure 1.

FIGURE 1

RELATIONSHIP BETWEEN FOUR KEY COMPONENTS OF WATER PROJECTS



(From WASH Technical Report No. 62 - 1990)

B.2.2 GOVERNMENT RESPONSE

The GOM's Ministry of Water and Construction's (Ministerio de Construcao e Aguas MCA) National Water Program (PRONAR) is responding to the above stated problems through its establishment of an extension arm known as PEC - Participation and Education for the Community. This group, recently expanded to cover most provinces, is responsible for mobilizing the community and providing training and hygiene education. In Manica Province there are 3 PEC animators and 1 supervisor. Animators or extensionists are usually women chosen from the Province who received three months of training from PRONAR. They have been functioning in Manica since late 1990. They are supervised by the head animator in the provincial capital of Chimoio. Given such a considerable task with minimal education and few resources, including transport, they have done an admirable job in their work with the communities. However, they need further support and guidance to achieve their goals. Refer to Annex 2 for further details of PEC's roles and functions.

In a meeting in February 1991, PRONAR issued a policy which lays the responsibility of maintenance and repair on the community. This is a very timely decision which is the foundation for the proposed project. GOM's economic situation, similar to most in Africa, dictates the improbability of maintaining water systems without contributions from users. Though many communities are burdened with increasing demands on scarce resources, there appears to be a willingness to contribute to having better access to clean water which is one the communities stated priorities.

Lastly, PRONAR is supporting a national change over to the Village Level Operation and Maintenance pump which will be manufactured in Mozambique.

B.2.3 CARE INTERNATIONAL

CARE has been working in the water sector for more then three decades. They have consistently worked with both communities and governments to realize the full potential and long term sustainability of improved water systems. One of the principal lessons CARE has learned is the importance of concentrated discussions with communities and enabling them to manage their systems. (See Annex 3 - Steps to Enhancing Community Management of Water Systems) Additionally, willingness to pay for water is not an assurance of ability to pay (Yacoob/WASH 1990). Communities need to know the costs, over the long run, and decide which water system option they can afford. One of the main constraints to the actualization of PASMARES is that communities were not involved in the choice of technology which they were "given" and may not, over the long term, be able to keep it running.

CARE Mozambique has also initiated a water project in Inhambane Province. The lessons learned from this project and others such as

Save the Children U.S. in Xai Xai will be incorporated into this project. GTZ's work in the water sector in Manica will also play a critical role in the realization of this project objectives.

C. STRATEGY

C.1 CARE'S ROLE

C.1.1 Introduction

PASMARES's basic strategy is to support and strengthen the three main components of water projects - Community Development, Hygiene Education and Water Supply through the institutional strengthening of the Provincial Department of Construction and Water DPCA. See Figure 2.

C.1.2 Institutional Strengthening

The principle strategy of PASMARES will be to work directly with the Provincial Department of Construction and Water (DPCA) who is responsible for overall planning, coordination, implementation, monitoring and evaluation of improved water supply in the province. PASMARES will work with DPCA to better identify and strengthen their roles and functions as coordinators of water systems. With DPCA, PASMARES will assist the PRONAR extension arm, the PEC program, in implementing the broad guidelines of PRONAR's rural water strategy. PASMARES will strengthen the capacity of these two groups in the application of their work. More specifically this implies a delineation of the necessary steps and training needed to enable the DPCA and PEC to work with the community to manage and maintain their improved water source. While working with EPAR on the water supply side, PASMARES will seek to educate construction staff on the need to emphasize effective community involvement in order to improve the possibilities of sustainable water systems. DPCA/PASMARES will also coordinate with the Provincial Department of Health in aspects related to hygiene education.

Since PASMARES is a pilot effort on how to implement a sustainable community managed water O&M system, all aspects of the project must be focused on enabling GOM implementing ministries to replicate these steps in other areas of the province.

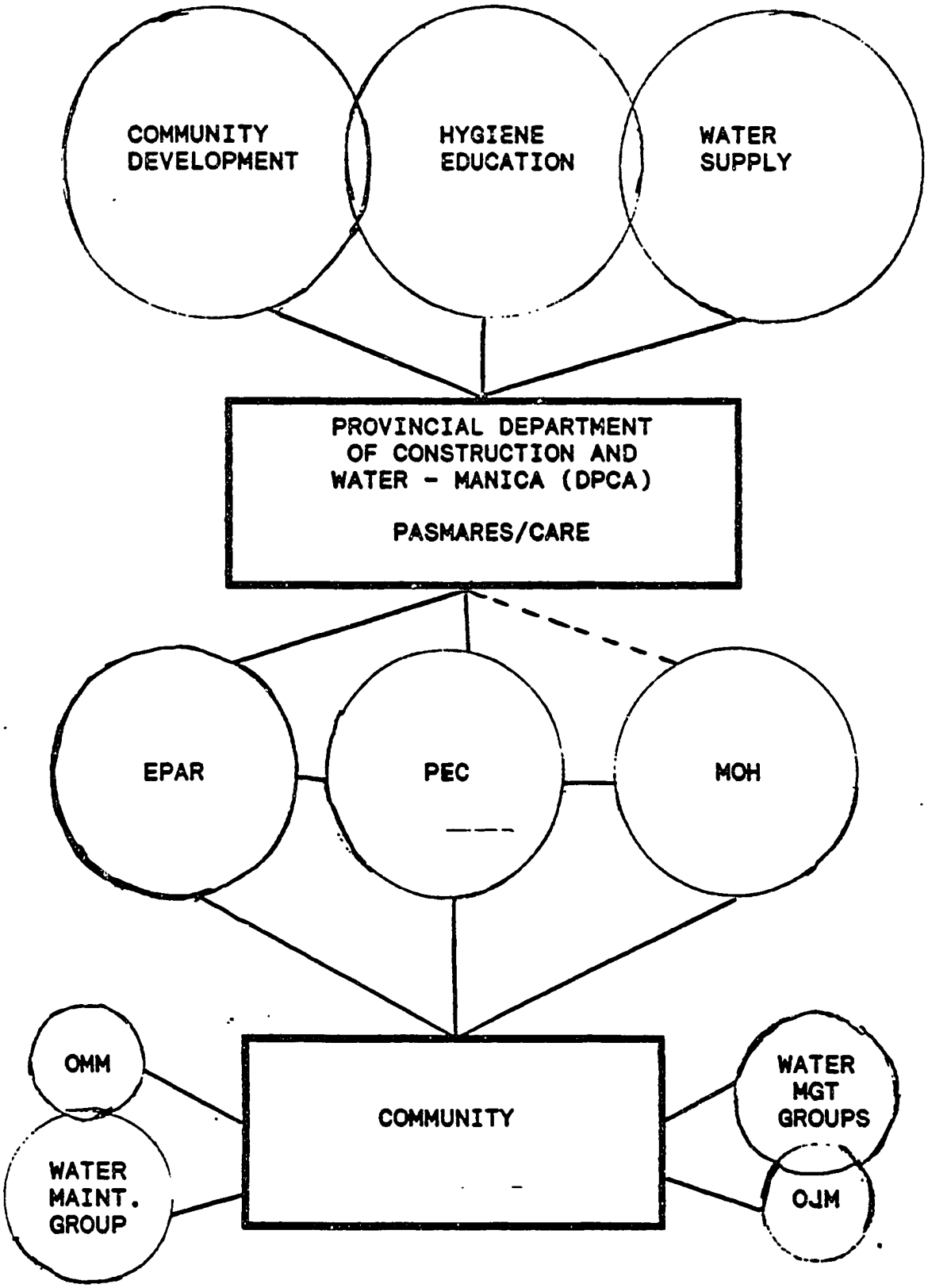
C.1.3 Water Supply

PASMARES will support (sub-contract) EPAR to implement the technical aspects of the project. This is the same manner in which the DPCA at the provincial level contracts EPAR to do construction and rehabilitation of water systems. Supported by necessary technical expertise from PRONAR Maputo and other outside support as necessary, EPAR will be responsible for the rehabilitation of water systems and the substitution of handpumps from the existing India Mark II to the AfriDev/Tara VLOM pumps. PASMARES will import VLOM pumps, following PRONAR specifications, to be piloted in this

FIGURE 2

PASMARES

PROJECT STRATEGY SCHEMATIC



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project. Spare parts for a minimum of 3 years will be supported through PASMARES. This 3 year period will give time for the national manufacturing of spare parts for the VLOM pumps.

The construction/technical staff will be directed by DPCA/PEC in when and how to enter the communities. Only after PEC has worked with the communities following established steps, will construction/rehabilitation be allowed to begin. (See Annex 3 - Steps to Enhancing Community Ownership)

C.1.4 Community Development

C.1.4.1 Water and Health Groups

Following PRONAR guidelines (see Annex 2 for further details), Water and Health Groups, known as Grupo A, will be formed and or strengthened in each community. These groups will be involved in all aspects of PASMARES. An important first step in the process will be to review with the community the types of water systems available to them and the cost of each of these. For the project area, the system types that are technically feasible are protected open wells with buckets, protected wells or boreholes with hand pumps and perhaps roof catchment in certain areas. Communities need to know the long term recurrent costs of maintaining these systems and make a choice as to which they can afford. The systems option review ladder reviews the key steps which gives a reasonable chance for system success. PASMARES will take this into consideration and seek alternative water systems where appropriate. (see Annex 4 - Systems Option Review)

The Water and Health Group will be targeted for management training in such areas as roles and functions of the group, how to hold an effective meeting, collection of fees, meeting records, hygiene education, water systems monitoring etc.

C.1.4.2 Maintenance Groups

Community Maintenance Groups (Grupo Chave) will also be formed and/or strengthened again following PRONAR guidelines. This group will be trained on operations and maintenance of the new VLOM pumps. O&M training courses will be held at the village level and appropriate manuals produced as reference guides.

C.1.4.3 Locational Water/Maintenance Group

PASMARES will look into the possibility of forming a locational wide Water/Maintenance Group. Depending on the outcome of intensive discussion with community representatives, PASMARES could assist in establishing this location water group, which would have representation from each community. This group would come together on a routine basis (suggested quarterly) to discuss issues of common interest. This type group has worked in other countries

(e.g. Kenya, Rwanda) but its feasibility in the Mozambican context needs to be further examined.

C.1.4.4 Community Financing

Since the community will now pay for spare parts, a community defined system of fund collection needs to be established. The cost of repair and maintenance of the AfriDev/Tara pumps has been established in other countries and is being done on a pilot basis in Mozambique. Actual costs are not available at this time but PRONAR staff have stated that the costs are affordable by the community. This must be verified by the project. In addition the project will have first hand experience with the AfriDev pumps and along with DPCA/EPAR will need to closely monitor pump functioning.

Once maintenance costs for the pumps is known, the community will use this information to establish "user fees" or other systems for paying for spare parts. PASMARES will assist, through PEC, in establishing and monitoring this system. Training of treasurers in simple accounting skills will be done. DPCA/PRONAR will need to decide the guidelines for this activity. Is the community expected to pay for long term over hauls and replacement of pump heads? If this is the case, the community will need to start "saving" for long term repair. This will be a new concept for communities and considerable discussion needs to take place at that level so that appropriate structures and systems are in established. This entire system should be totally separated from other administrative structures of the community.

C.1.4.5 Spare Part Supply System

It is the intention of PRONAR to commercialize the spare parts for the AfriDev/Tara pumps over the long term when the local manufacturer is up and running (anticipated 1993-4). Since PASMARES will initially be responsible for purchasing a "buffer" supply of spare parts, a system for how these parts will be distributed/stocked needs to be defined. Taking into consideration a period of some form of guarantee (12 months ?), where the system should be repaired by the executing agency (EPAR), after this point the community would be responsible. Some of the options for how PASMARES could deal with this issue are: 1) give the spare parts to the community or the Locational Committee to manage, 2) sell spare parts to the community and bank the proceeds for the community's future repair needs, 3) sell the spares to a local commercial enterprise 4)others. The decision on how this should be done will need to be made as a result of other pilot projects' experience and jointly with the DPCA/PRONAR and the community. An external consultant from the small enterprise sector may be needed to assess the commercial viability of this approach.

C.1.5 Hygiene Education

Improved hygiene education will be accomplished through strengthening of government cadres' (PEC and MOH) ability to conduct more effective action oriented health/hygiene education. Community groups such as OMM, OJM will be targeted. PASMARES will coordinate with the existing sanitation/latrine improvement project to prepare more effective information, education and communication (IEC) materials. Groups of community residents will be mobilized to act a activists for improved sanitation and hygiene education.

More study needs to be done on the effectiveness of the Water and Health Group and Maintenance Group as community educators. In the current PRONAR guidelines, these two groups have educational functions. If this is to continue, then they will need intensive training on performing this role. Educational materials/aides will need to be furnished to them if they are to act as educators in the community.

In order to upgrade the educational skills of the Ministry of Health staff based in the project pilot zone, PASMARES will support 3 continuing education courses. Neighboring district and provincial staff will be included in this update. Courses will target improved management of water related diseases (diarrhoea, malaria, scabies, bilharzia) as well as improved techniques for educating the community in which they serve. Courses will be held at the recently completed UNICEF supported Health Training Center in Manica. Development of course curriculum and follow up will be done with the District and Provincial level Health staff.

C.2 GOALS AND INDICATORS

FINAL GOAL

The final goal of the Manica Water Project (PASMARES) is to improve the health status of 20,000 people living in 15 villages in Manica Province gradually over the period 1991-1993 and permanently thereafter.

PASMARES will not measure this final goal as it is both complicated and costly. Other projects have already measured the impact of water and hygiene interventions on improved health status. (WASH)

INTERMEDIATE GOALS

IG 1 Safe water is used in greater quantities year round by 70% of families in the pilot zone 1994.

INDICATORS

* % increase in the number of liters of water used by households on a seasonal basis.
* % decrease in the colliforms in water samples tested using simple techniques. (Woodhouse 1990)

IG 2 To increase by 50% the number of families in the pilot zone practicing improved hygiene behaviors on a routine basis by 1994.

INDICATORS

* % increase in behaviors at the household level
  - carrying of water in clean containers
  - water in home clean and protected
  - presence and use of soap for handwashing
  - use and maintenance of latrines
  - reduction in negative environmental practices
  - proper storage of foods
  - ability to prepare ORT/ORS correctly
* Increase in the number of people (MOH/PEC/OMM) who can give effective hygiene education lessons.

IG 3 An effective community managed operations and maintenance system is functioning in pilot zone which can be replicated province-wide by 1994.

INDICATORS

* % decrease in the amount of time pumps are down
* % increase in the communities with functioning water and maintenance groups. (functioning to be defined in monitoring checklist See Annex 5)
* # of communities who have raised adequate funds for maintenance and repair.

IG 4 Provincial and district counterparts effectively mobilize/train communities to ensure community management of water system in the pilot zone by 1994.

INDICATORS

* DPCA (DDCA/PEC) workplans follow step by step approach to water system installation and rehabilitation.
* Decrease in the number of communities where construction activities take place without community development.
* Commercial supply points established.

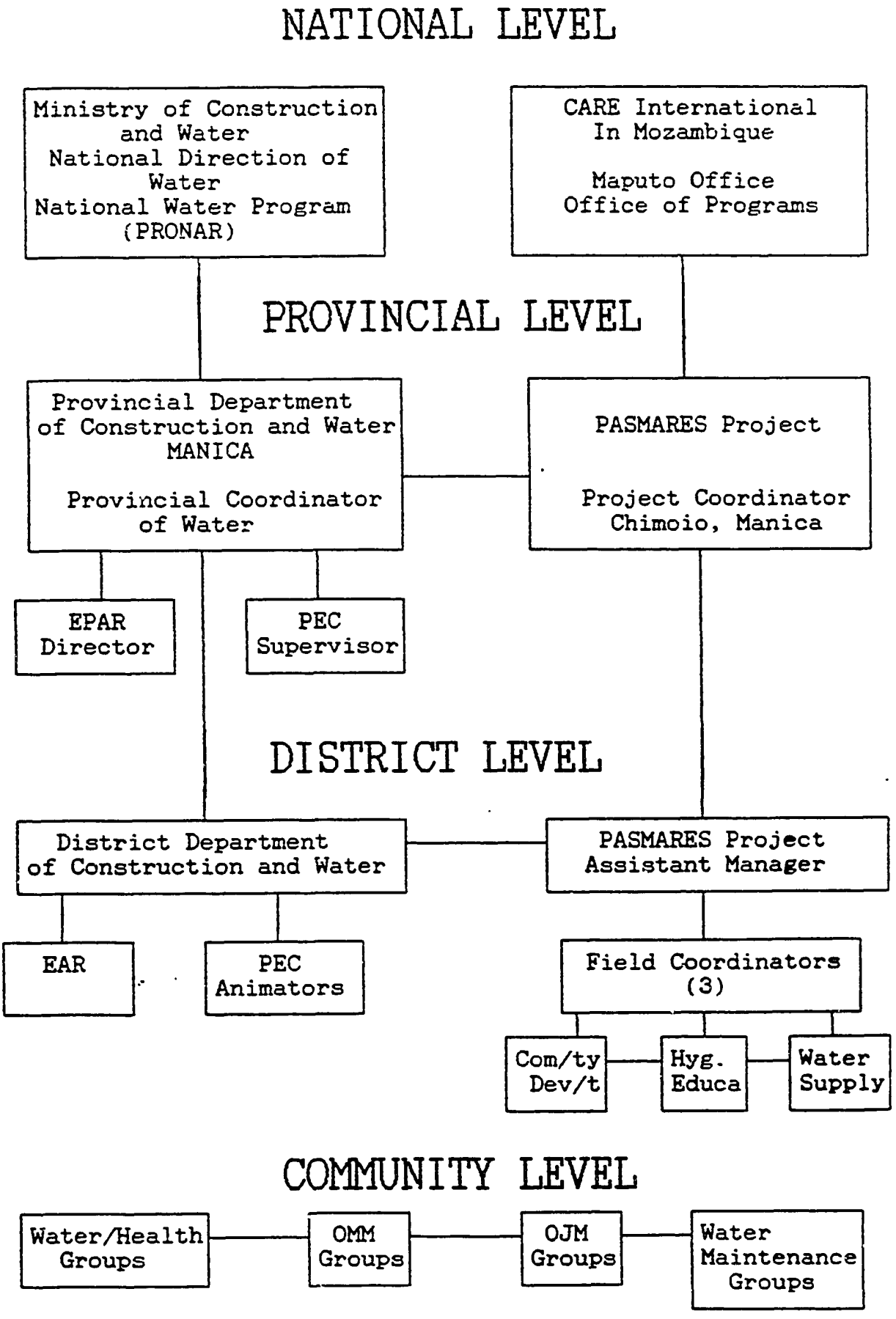
C.3 PROJECT ACTIVITIES

C.3.1 Overview

The specific project outputs and activities relating to the major project components and the stated intermediate goals are fully depicted in the project schematic in Annex 6.

In summary the project hypothesis is that the four main project intermediate goals are hierarchical in structure. Starting with #4 - this goal refers to the institutional strengthening that needs to occur with project partners, specifically DPCA and PEC, in order the goals above it to be achieved and sustained. Guided by PASMARES/CARE, the provincial/district implementors of the project will work with community groups to realize IG #3 - community O&M system. Simultaneously, PASMARES support to PEC/MOH and affiliated community based groups will lead to achievement of IG #2 - improved hygiene behaviors at the community. Combined with rehabilitation of water sources thus increasing reliability of safe potable water (IG #1), the final goal can be achieved - that is decrease in water

PASMARES
ORGANIZATIONAL CHART



related diseases and improved he lth. In other words, IG 1 - can not be achieved unless the IG 2-4 are in place. All of them together leads to the final goal.

C.3.2 Project Field Operations

The project will be based at the Provincial Office of the Ministry of Construction and Water in Chimoio, provincial capital of Manica. The PASMARES project manager will be a counterpart to the Coordinator of the Department of Water section who reports to the Director of the Provincial Department of Constructions and Water. (See Organizational Chart). Field operations for the pilot zone will be based at the district level.

C.3.3 Project Constraints

Besides the usual security problems that affect all development programming in Mozambique, an additional constraint will be procuring VLOM pumps from Malawi or India. Delays have occurred. Also the pumps specifications must follow Mozambican standards. PRONAR has had some experience with this and CARE will learn from them. Since pumps substitution will not occur until the year 2 of the project, enough time is allotted for procurement of these pumps.

D. EVALUATION

D.1 APPROACH AND TIMING

PASMARES will work with the DPCA in the planning of all evaluations. All project players including community members will be involved in monitoring and evaluation of specific indicators. PASMARES will support water surveys in three areas which will result in district action plans. These surveys, mostly directed to assessing the status of existing handpumps, will be used as baseline information. Additionally, as the pilot zone initiates work in a phased approach with communities, baseline surveys will be conducted jointly with PEC and the community.

PASMARES will conduct a participatory internal process evaluation at mid-term. This evaluation will include representatives from the National level as well as other NGOs supporting the water sector in the country. A final evaluation will be conducted towards the end of year three. External technical assistance from CARE's Regional Technical Advisory Team (RTAT) will be involved in this final evaluation. WASH - Water and Sanitation for Health staff should also be included.

D.2 INFORMATION SOUGHT

The evaluation questions to be addressed relate directly to the intermediate goals. Specifically,

1. Institutional Strengthening
   a) Does DPCA staff have the necessary skills to replicate a effective community management maintenance system in other areas of the province?

b) Do construction related staff understand and practice skills which foster community development?

2. Community Development
   a) Are community groups able to manage the operations and maintenance of their water points?
   b) Are communities able to afford the technology?
   c) Are communities able to maximize the benefits of their potable water supply?

3. Hygiene Education
   a) Have behaviors changed? If not, why not?
   b) Are animators, health staff, community activists effective communicators of hygiene messages?

4. Water Supply
   a) What are the costs to maintaining VLOM pumps?
   b) Are water maintenance groups properly trained to perform their tasks?
   c) Are commercial supply points for spare parts functioning and viable.

5. Sanitation
   a) What success has DPCA/PASMARES had in coordinating with other projects supporting improved latrines?

D.3 EVALUATION MANAGEMENT AND REPORTING

CARE staff with DPCA counterparts will be responsible for conducting the evaluations. PRONAR assistance will be needed. The evaluation results will be disseminated to other agencies working in the water sector in Mozambique. The results will also be used to determine CARE's future role in supporting this and other projects in the water sector.

D.4 BASELINE DATA COLLECTION

A baseline survey will be done in each group of 4-5 villages as the intervention activities begin. Using a system of monitoring of indicators, similar to the checklists found in Annex 5, each community will be reviewed at baseline, after 6 months and again at 12 months. Community groups along with PEC/PASMARES field workers will be responsible for implementing these checklists.

E. RESOURCE REQUIREMENTS

E.1 STAFFING AND ORGANIZATION

PASMARES will be staffed by a Project Coordinator, an Assistant Project Coordinator and three field coordinators. Support staff requirements are will be determined with DPCA. DPCA support staff could be assigned to PASMARES if adequate staffing exists.

Project Coordinator will have experience in community development

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and rural water supplies projects. The PC should also have skills in planning and management, participatory rural appraisal, training, and health education.

The Assistant Project Coordinator will have a community development background, with strong communication and management skills. S/he should speak the local language of the pilot zone. Preferable have a valid drivers license.

Three field coordinators will be hired from the pilot zone one for each of the three main components - community development, hygiene education and water supply. They must speak the local language.

E.2 PHYSICAL REQUIREMENTS

The project will purchase two four wheel drive vehicles. One to be used by the Project Coordinator at the provincial level and one at the district level. Six motorcyles will be needed for the district field operations. Bicycles will also be purchased and used by staff when possible to cut done on expense.

The main purchase will be for imported 40 Afri/Dev handpumps following the PRONAR specifications with a three year supply of spare parts. Necessary tools for maintenance will be purchased for each pump.

PASMARES will purchases office related equipment - computer and printer, photocopier, some furniture if needed.

F. FINANCIAL PLAN

	YEAR 1	YEAR 2	YEAR 3	TOTAL
I. CASE BUDGET				
A. International Personnel				
B. National Personnel				
C. Project Operations				
D. Material & Equipment				
E. Vehicles				
F. Evaluation				
G. Training				
H. Contingency				
SUBTOTAL				
OVERHEAD				
CASH TOTAL				
II. IN-KIND BUDGET				
III. DISTRIBUTION OF CASH FUNDING BY SOURCE				
A. USAID PVO Grant				
B. CARE				
CASH TOTAL				

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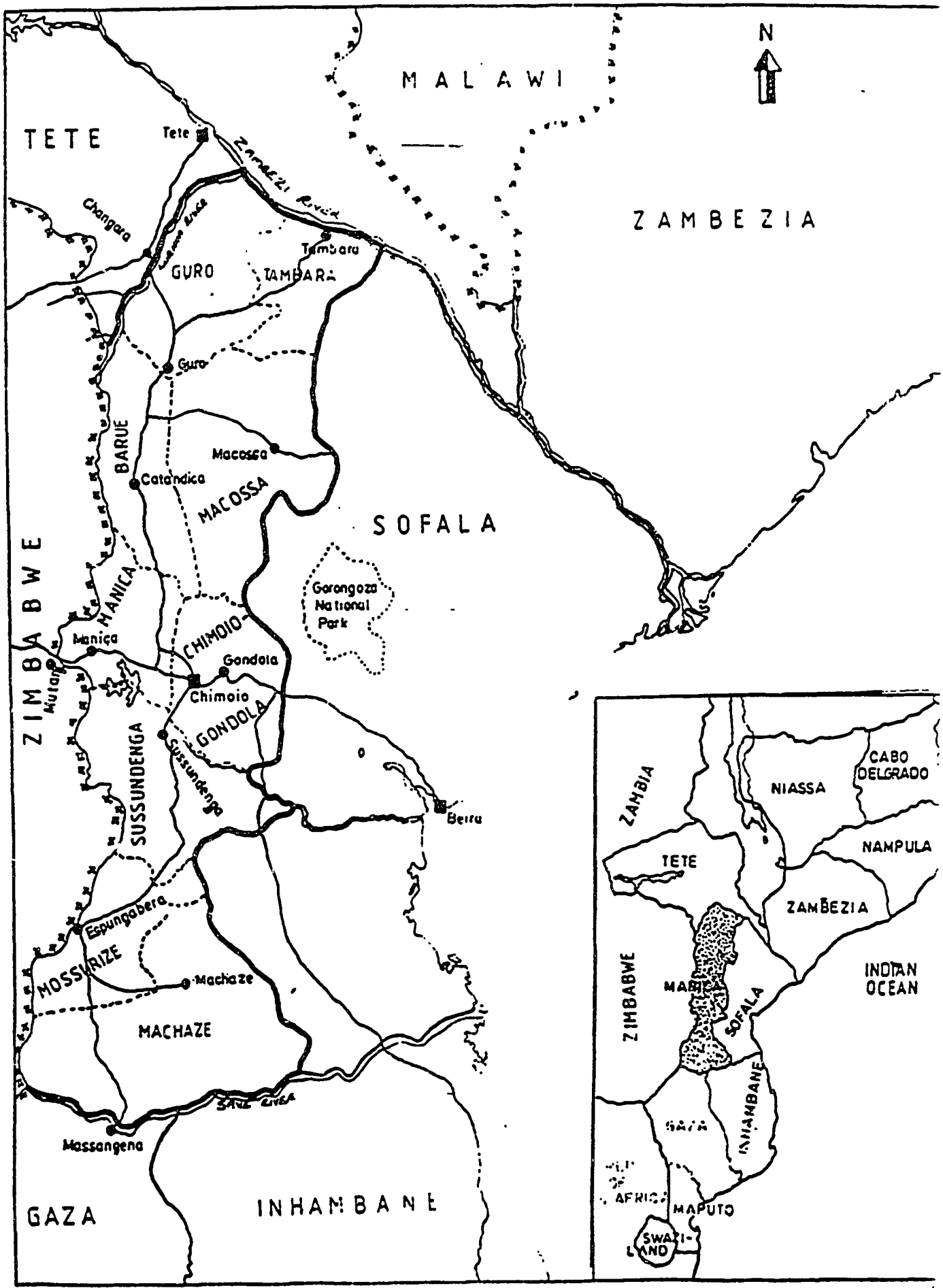
ANNEXES

ANNEX 1

FIGURE 1- LOCATION MAP



ANNEX 2

NATIONAL RURAL WATER PROGRAM
Programa National de Agua Rural (PRONAP)

COMMUNITY EDUCATION AND PARTICIPATION
Participation e Educacao Communitaria (PEC)

RESULTS OF A WORKSHOP ON PEC AND MAINTENANCE OF HAND PUMPS
FEBRUARY 1991

Synopsis of a Document Produced by PRONAR
(Ref:388/DNA/PRONAR/91 - Maputo 19.03.91)

INTRODUCTION

The results of this workshop set forward important policy decisions that will effect the implementation of rural water supply programs in Mozambique. Primary among these, is the step to transfer ownership of rural water sources with hand pumps to the community. This indicates that communities are now responsible for maintaining these protected water sources after DPCA/EPAR finishes the initial installation. The precise mechanisms of how these new maintenance system will function are not defined, however there is support to creating commercial points for distribution of spare parts for hand pumps.

B. GENERAL INFORMATION ABOUT PEC

B.1 Objectives of PEC

PEC is the extension arm of the EPAR which is responsible for community mobilization for improving water resources in rural areas. Specifically the objectives of PEC are:

a. Create mass social and economic support and participation from the community for the installation and maintenance of improved water sources.

b. Provide hygiene/health education to the community which stresses the relationship between water and health

c. Promote active participation of women in water initiatives.

d. Reduce the incidence of diseases directly or indirectly related to water such as diarrhoea, bilharzia, scabies, malaria.

B.2 Intersectoral Collaboration

PEC is based on the foundation of collaboration with other groups principally: Ministry of Health, OMM, OJM, Ministry of Education's Adult Education Program, Ministry of Information's Social Communication Program, and War Veterans.

B.3 Structure and Training of PEC Staff

PEC, at the Provincial Level has one supervisor who has overall responsibilities for water extension activities in the Province. At the district level there are PEC animators. These are mostly women who receive a three month training. The training

curriculum of 370 hours includes the following topics: Introduction to PEC, Communication, Health Education, Water Sources, Organization and Administration of Mozambique, Basic Sanitation, Mathematics and Portuguese. There is 60 hours of field work.

To date there are over 100 trained animators in seven provinces.

B.4 Roles and Responsibilities of the PEC Animators

The following are the principle functions of PEC animators:

1. Mobilization and education of the population which leads to the correct utilization of water sources and hand pumps.

2. Organize Maintenance Groups for each well and support this group to do preventive maintenance of water sources.

3. Organize Water and Health Groups and support them in managing water points.

4. Clarify for the community the roles and responsibilities of PRONAR concerning community obligations towards water point development and the issues surrounding supply points for spare parts and pumps.

5. Study the community appropriate methods for paying fees for maintenance.

6. Keep EPAR informed of the situation vis a vis commercialization of spare parts in every region.

B.6 Structure and Functions of Water and Health Groups

The community should elect members to the W/H Group which should have a representative members from all Maintenance Groups. The W/H Group reports to the aldeia authorities. No remuneration is expected for the W/H committee members.

Before Construction

* Give support to the Animators
* Organize the community to provide lodging and food for the construction team.
* Organize community members to assist in construction
* Participate in investigations of local conditions and needs.
* Give health education lessons.
* Give support to the Maintenance Group

After Construction

* Follow up of activities for community mobilization for health education.
* Monitor the correct utilization and conservation of the new water points.
* Act as a contact point between the PEC animators and the population.
* Promote activities to ensure the quality of water used by the population.
* Supervise the work of the Maintenance Group.
* Supervise the acquisition of spare parts for maintenance of pumps.

* Act as a link between the aldeia and the supply point for spare parts.

B.5 Structure and Roles of the Maintenance Group (Grupo Chave)

The Maintenance Groups should be formed of a minimum of 2 people who reside near the water point. They should be elected by the people living in the area serviced by the pump. In principle, the work of the Grupo Chave should be volunteer however, the W/H Group can decide to suggest certain incentives when the pumps are repaired.

The following are the functions of the Grupo Chave:

* Educate the population about messages concerning hygiene, water drawing, carrying and storage.
* Mobilize the community to correctly use the hand pump.
* Mobilize the community to clean the area surrounding the water point.
* Perform simple maintenance of the pump. (oiling, tightening screws etc.)
* Perform simple repairs of the pumps as instructed.
* Mobilize and organize the population to acquire spare parts.

C. LINKAGES BETWEEN PEC AND MAINTENANCE

During the PRONAR/PEC seminar held in February 1991, the following decisions were made concerning the maintenance of hand pumps.

1. PRONAR plans to implement a decentralized system of maintenance for hand pumps.
2. Maintenance tasks that were once the responsibility of EPAR will now be transferred to the community.
3. The community is now the owner and responsible for newly installed water systems.
4. The government guarantees the necessary support to implement a decentralized system of maintenance.
5. PEC animators are now responsible in assisting the population in establishing a system for payment of maintenance.

D. SPARE PART SUPPLY SYSTEM

PRONAR plans to establish selling points (postos de venda) for spare parts. These supply points will be set up in each area depending on the location and number of hand pumps to be served. PEC animators will play a role in setting up this system which links the community with EPAR, but it is not clear how this spare part supply system will function.

STEPS TO ENHANCING COMMUNITY OWNERSHIP

Workshop participants outlined the following steps as necessary to enhancing community ownership in CARE assisted water supply and sanitation improvements. These steps are not necessarily in chronological order. A total consensus was not reached nor was it anticipated. These steps are meant to serve as an outline allowing for flexibility in meeting local conditions.

The starting point for describing these steps, for this exercise, is just after that point where specific communities have been selected to receive assistance in improving their water source. Since site selection varies from country to country and is often dictated by host governments, this session focused on the subsequent contacts between the community and CARE for the purpose of improving a water source.

STEPS TO ENHANCING COMMUNITY OWNERSHIP IN WATER AND SANITATION IMPROVEMENTS

STEP 1 Organize meeting(s) of all parties for the purpose of awareness raising, introduction and confirmation of the need for water as a high priority for the community.

STEP 2 Analysis of the characteristics of the water problem. (Problem Analysis) Why is water a need? By who is this need felt? What are the reasons for water being a problem? Use QARQ (Quantity, Access, Reliability, Quality) to describe water need. Community is involved in collecting information.

STEP 3 Identification and/or organization of a community group with whom CARE will work. This group should

- be representative of the larger community
- have established mechanisms for informing the community at large
- have established rules by which to govern themselves

STEP 4 Information collected in Step 2 is reviewed by working group.

STEP 5 CARE and community conduct a feasibility study to determine the type of technology that can be accommodated in the geographical area. (Technical people work with community at this stage along with the extensionists).

STEP 6 Systems Options Review. CARE works with the community in explaining the various technical options that can be used in their community. This review takes place even if project staff and/or governments have pre determined what type of technology is to be employed. (Refer to Section III Part C for further explanation)

STEP 7 Water system option selected by the community

STEP 8 Site selection done (for physical placement of system)

STEP 9 Understanding and confirmation of commitment by all parties

STEP 10 Identification of inputs needed for the project.

STEP 11 Duration of water project defined. CARE states its eventual withdrawal from the community from the start.

STEP 12 Contract or Agreement signed

STEP 13 Implementation plan developed. This plan includes time line for completion of certain activities and the people responsible for each action.

STEP 14 Monitoring and evaluation points and criteria chosen and agreed upon by all parties. Community takes an active role in deciding on their own monitoring and evaluation plan.

STEP 15 Organization and mobilization of inputs. All parties produce the inputs promised in the contract.

STEP 16 Community involved in identification of training needs of the various groups in the project and training begins....

STEP 17 Ground breaking ceremony

STEP 18 Implementation of plan with regular monitoring points agreed upon above.

STEP 19 Inauguration after construction completed

STEP 20 Evaluation by all parties as agreed upon above.

The notable emphasis of these steps is that the majority - up to STEP 17 - take place prior to construction or ground breaking. There are many implications of this approach to CARE's planning and implementation of project activities. The most striking implication is the time that will be needed in the pre construction phase, to carry out these steps to enhance the communities' ownership of an improved water and sanitation system.

C. SYSTEMS OPTION REVIEW

What is a systems option review (SOR)?

> A process whereby a community is exposed to technologies suitable for resolution of their particular problem and where they retain a full understanding of the implications of a given choice and their responsibilities over the long term.

The group agreed that a water system option review was a required step in enhancing community ownership. This is true even in cases where only one type of technology has been identified as possible by the project, government and/or community. The workshop participants agreed that a SOR was all the more crucial in cases of limited choice because the community needs to "buy into" the option and know why it is the only feasible solution for their community. SOR is also an obvious step when two or more options are considered. It is also a logical point for introducing communities to a new technology.

In considering the SOR step, participants noted that the previous pre construction community ownership steps had been implemented, i.e. data collected for needs assessment, as required for their project. This equipped the staff with some key information required to follow through with the Systems Option Review.

Examples of information needed before conducting the SOR included:

* population numbers and distribution,
* available water resources and distribution,
* all existing and discarded technologies,
* any potential new technologies,
* local and government policy for water,
* economic benefits/costs of all solutions,
* economic conditions of target community,
* available community resources (material, human, economic)
* public health concerns,
* environmental impact,
* availability and costs of spare parts

Having water project technicians present the SOR to the extension teams was considered important. In this way, staff could test their preparedness for real community contact. Practicing an SOR would also familiarize all project staff with the importance of the exercise.

Some ideas for the meeting(s) with communities were presented and discussed by the group:

* Verify that those who are present adequately represent the intended service area,
* Build a common framework at the meeting for exactly how the option(s) will be judged by the community (Q.A.R.Q, model)
* Have participants list their ideas for problem solution,
* Introduce new options,
* Prior to a final selection of an option, community leaders could visit other villages and discuss with the residents the pros and cons of various systems. The group pointed out that CARE could facilitate these visits to both functioning and non-functioning systems.
* Explain each option in reference to the decision ladder steps as applicable (See Decision ladder and technology worksheet on following pages)

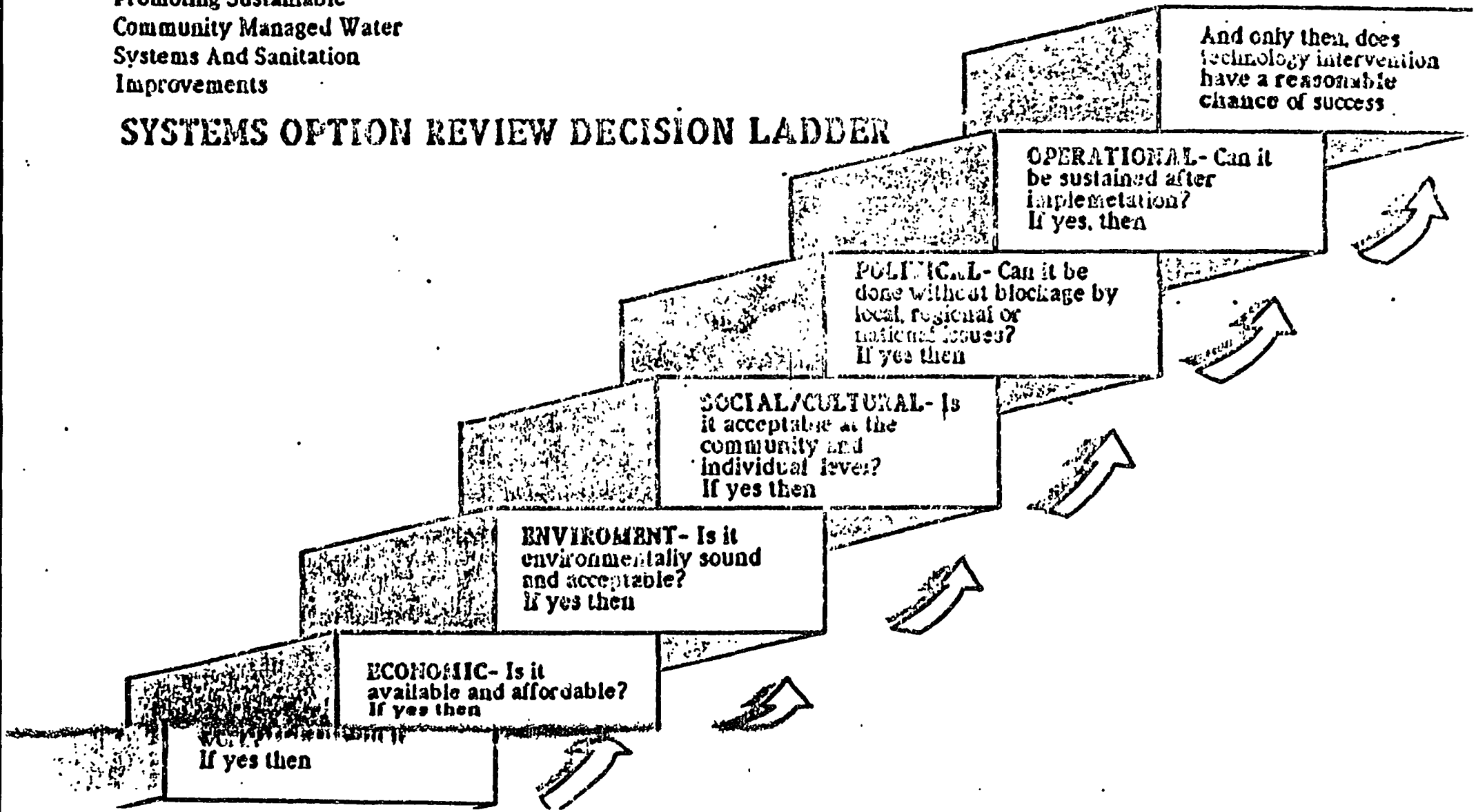
Some techniques for facilitating the meeting include:

* Scale models
* Demonstrations
* Basic economic analysis
* Inviting leaders from other communities who have gone through this review
* Presentation of technical documents
* Visual aids.

Systems option review can also be used for choice of waste disposal (latrines, etc.) systems to be used in a particular community, or, in effect, for any new technology to be introduced.

FINAL WOKKSHOP REPORT
Promoting Sustainable
Community Managed Water
Systems And Sanitation
Improvements

SYSTEMS OPTION REVIEW DECISION LADDER



ANNEX 5

Manica Water Project
HOUSEHOLD MONITORING CHECKLIST FOR HYGIENE PRATICES

COMMUNITY NAME: _____ HH# _____ INTV. NAME _____.

INDICATORS DATE:	BASELINE	AFTER 6 MOS	AFTER 12 MOS
1.Water carrying container clean			
2.Water storage container - clean			
- has proper lid			
- has special dipper			
3.Family has improved latrine - latrine is clean			
- has proper fitting lid			
- latrine is being used			
4.Disposal of childrens feces - observation of feces in compound			
- children use latrines			
5.Handwashing - soap observed in household			
- special place for handwashing			
- leaky tin or tiptop observed			
6.Small animals are away from house			
7.Food storage/handling - place to keep food protected			
- signs of standiing food			
8.Observation of standing water			
9.Others - Water quality (sample)			
- incidence of diarrhoea in children during the last week			
- caretakers can correctly give proper messages on care and tx of diarrhoea in the home. (Preparation of ORT/ORS, early referral, signs of dehydration)			

4/0

Manica Water Project
VILLAGE TABULATION FORM
FOR
MONITORING HOUSEHOLD HYGIENE PRACTICES

COMMUNITY NAME: _____ #HH _____ INTV. NAME _____

INDICATORS DATE:	BASELINE	AFTER 6 MOS	AFTER 12 MOS
1.Water carrying container clean			
2.Water storage container - clean			
- has proper lid			
- has special dipper			
3.Family has improved latrine - latrine is clean			
- has proper fitting lid			
- latrine is being used			
4.Disposal of childrens feces - observation of feces in compound			
- children use latrines			
5.Handwashing - soap observed in household			
- special place for handwashing			
- leaky tin or tiptop observed			
6.Small animals are away from house			
7.Food storage/handling - place to keep food protected			
- signs of standing food			
8.Observation of standing water			
9.Others - Water quality (sample)			
- incidence of diarrhoea in children during the last week			
- caretakers can correctly give proper messages on care and tx of diarrhoea in the home. (Preparation of ORT/ORS, early referral, signs of dehydration)			

Manica Water Project
VILLAGE MONITORING FORM
FOR
OPERATIONS AND MAINTENANCE

NAME OF VILLAGE: _____ INTERV. NAME _____

INDICATORS DATE:	BASELINE	AFTER 6 MOS	AFTER 12 MOS
1.Community Water Mgt Group Formed(A)			
- Members able to state roles			
- Group has held regular meetings			
- Minutes/records of mtgs. present			
- Includes members of each system			
2.Water Point Maint. Groups Formed			
- Members able to state roles			
- Records of maintenance present			
- Tools present and in good order			
3.Status of Community Contributions			
- Record keeping effective			
- Funds exist for necessary O&M			
- Bank account open/records present			
-			
4.Status of Water Points			
- System functioning			
- A goood seal between base & head			
- Well head in good condition			
- Apron in good condition			
- Good spillway and drainage			
- Good fennch around well			
- No latrines or animal feces near			
- A good overall appearance			
- Amount of time pump out in last three months			

ANNEX 6

PROJECT SCHEMETIC - MANICA WATER PROJECT

GOALS	INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
FINAL GOAL - To improve the health status of 20,000 people residing Manica Province - Mozambique by decreasing water related illnesses gradually through the period 1991 - 1994 and permanently thereafter.	x% reduction in the incidence of excreta and water related diseases in the project population.	Not to be measured by the project	
INTERMEDICATE GOAL 1 - Safe water is used in greater quanities year round by 60% of families in the project area by 1994.	IG 1 - % increase in the number of liters of water used by households on a seasonal basis - quality of water improved at home level.	surveys water analysis	1.1 Droughts do not occur influencing the availability of water in the area.
INTERMEDIATE GOAL 2 - To increase to 50% the number of families in the project area practicing improved hygiene behaviors on a routine basis by 1993.	IG 2 - % increase in beehaviours - carrying of water from clean sources - protection of water in the home - presence of soap and hand washing facilities - use and maintenance of latrines - disposal of children's feces	routine monitoring & checklist	2.1 Water sources with pumps are functioning year round and provides adequate quanity of water. 2.2 Assumes that the collaborative GTZ/MARRP latrine project achieves necessay coverage.
INTERMEDIATE GOAL 3 - An effective community managed operations and maintenance system is functioning in the province by 1994	IG 3 - 1. % decrease in the amount time pumps are not properly functioning. 2. % of communities with functioning water management groups. (functioning to be defined by checklist) 3. % of communities who have raised adequate funds for maintenance and repair.	Monitoring records Project checklists Bank account records	3.1 Government water sector makes available needed sparts on at least a provincial level. 3.2 Spare parts exist for repair of partcular hand pump.
INTERMEDIATE GOAL 4 - Provincial and District counterparts effectively mobilise & educate communities to ensure ownership and maintenance of water systems by 1994.	IG 4 - 1. Prov/Dist counterparts (DPCA/PEC) workplans follow step-by-step approach to water system installation and rehabilitation. 2. Decrease in number of communities where construction activities take place without community development.	Monthly workplans Work orders	4.1 Adequate counterpart staff are available for extension activities. 4.2 Construction contracts stipulated the need to have community involvement before construction.

OUTPUTS	RELATED ACTIVITIES	MEANS OF VERIFICATION
1. 40 of water systems rehabilitated and VLOM placed	- Conduct survey of needed repairs of existing 40 pumps - Conduct survey of new systems needed	reports, monitoring checklists
2. # of new water sources constructed	- Establish written contract with community citing roles and responsibilities of all parties.	
3. # of water assessment surveys	- 3 district action plans prepared	
4. 15 of communities trained in management and financial skills.	- curriculum developed - proceedures for banking determined - accounting systems for community fees set up	reports, monitoring checklists
	- 5 members from each of 15 communities	training lists
5. x # of spare part supply points established	- spare part flow chart designed - maintenance repair costs developed - maintenance and repair roles defined	
6. 40 community maintenance groups trained	- curriculum developed - manual revised - community tools procurred - community established cost for community maintenance - conduct training for 2 people from each water point = 2x40.	project reports
6. Various cadres trained in 15 villages providing effective hygiene education	- curriculum developed for cadres - MOH/MOE/OMH/PHC - education materials developed with collaborators. - conduct training for 60 MOH staff - conduct training for 10 PHC/DPCA staff - conduct training for 100 OMH/OJH staff - checklist for monitoring hygiene behaviors is developed and used for monitoring by all trained staff	materials

MANICA WATER PROJECT - PASM[illegible]S

BUDGET	YEAR 1	YEAR 2	YEAR 3	TOTAL
A. INTERNATIONAL STAFF				
- Project Coordinator/Benefits	60,000	63,000	66,150	189,150
- Program Manager (15% of time)				
- Projects Officer (20% of time)				
Consultants				
- Small Enterprise (500/day x 10 days)		5,000		5,000
- IEC specialists (500/day x 15)		7,500		7,500
B. NATIONAL STAFF				
- Assistant Project Manager	8,400	8,820	9,261	26,481
- Field Coordinators (3)	3,750	3,938	4,134	11,822
- Support Staff (2) Admin/Driver	3,400	3,570	3,749	10,719
C. PROJECT OPERATIONS				
- Contracts for 40 well rehabilitations (EPAR)		20,000	20,000	40,000
- Office Supplies	5,000	5,250	5,513	15,763
- Education Materials Production		5,000	5,000	10,000
- Vehicle/Motorcycle Operations/Repair	5,000	5,250	5,513	15,763
- Local Travel/per diem/air charter	15,000	15,750	16,538	47,288
- Office Operations (Communications/furniture)	1,500	1,575	1,654	4,729
D. MATERIALS AND EQUIPMENT				
- Afri/Dev Pumps (25) @ $500 ea	12,500			12,500
- Tara pumps (20) @ $ 400 ea	8,000			8,000
- Spare Parts	2,000			2,000
- Tools for Community	1,500			1,500
- Motorcycles (8) 2,250 ea.	18,000			18,000
- Bicycles 10)	3,000			3,000
- Computer/printer/software	6,000			6,000
E. VEHICLES				
- Four wheel drive vehicles (2) + spares	41,800			41,800
F. EVALUATION				
- Water Supply Assessment (local expenses)	2,000			2,000
- Midterm (local expenses)		4,000		4,000
- Final Evaluation = Consultant + local costs			14,000	14,000
G. TRAINING				
- PRA Training for DPCA/PEC/PASMARES (10)	12,000			12,000
- Community Group Training (15)	1,000	1,000	1,000	3,000
- Community Maintenance Group Training (40)		1,000	2,000	3,000
- Activista Training (20x15 communities)	1,000	1,500	2,000	4,500
- Health Worker Training 20 people x 3 courses		3,000	3,000	6,000
H. CONTINGENCY (10%)	21,085	15,515	15,951	52,551
SUBTOTAL	231,935	170,668	175,461	578,064
OVERHEAD 8%	18,555	13,653	14,037	46,245
GRANDTOTAL	250,490	184,321	189,498	624,309

ANNEX 8

LIST OF REFERENCES

1. Ministerio da Construcao e Agua/PRONAR - Circulation Ref 388/DNA/91 - Participation and Education for the Community in PRONAR - Results of Seminar on PEC and Maintenance of Handpumps.

2. An Initial Evaluation of Health, Nutrition and Dietary Constraints in the Machipanda Area. Anderson N./MARRP GTZ 1990.

3. Evaluation of Handpump Installations in Machipanda Area with Emphasis on Maintenance and Sustainability. MARRP/GTZ October 1990.

4. CARE African Water Workshop, Final Report - Promoting Sustainable Community Managed Water Supply and Sanitation Improvements. Kenya 1988.

5. TECH PACK: Steps for Implementing Rural Water Supply and Sanitation Projects. WASH Technical Report No. 62 August 1990.

6. Consumer involvement in bacteriological testing of well water in Kibwezi, Kenya Melvin Woodhouse, Waterlines Vol.8 No.4
