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INTEGRATED HEALTH, WATER AND SANITATION PROJECT
BEIRA AND CHIBABAVA DISTRICT
SOFALA PROVINCE

FINAL EVALUATION

Prepared for:
Africare Mozambique

USAID/Africare Project No. 656-0217-G-00-3022-00
(Under Mozambique PVO Support Project, 656-0217)

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ACRONYMS AND ABBREVIATIONS

AB	Water of Beira (Águas da Beira)
AR	Rural Water (Água Rural)
ARI's	Acute Respiratory Infections
ADC	Community volunteers (Agentes de Comunidade)
CHAEM	Center for Environmental Health and Medical Exams (Centro de Higiene Ambiental e Examens Medicos)
CIHI	Center for International Health Information
CMR	Child Mortality Rate
CVM	Red Cross of Mozambique
DPS	Provincial Health Directorate of Sofala (Direcçao Provincial de Saúde)
DNA	National Water Directorate (Direcçao Nacional de Água)
DPOPH	Provincial Directorate of Public Works and Housing of Sofala, formerly DPCA (Direcçao Provincial de Obras Públicas e Água)
EPAR	Provincial State Rural Water (Estatal Provincial da Água Rural)
GNP	Gross National Product
HIS	Health Information System
HPC	Health Program Coordinator
IE&C	Information, Education and Communication
IE&CC	Information, Education and Communication Coordinator
IICB	Industrial and Commercial Institute of Beira (Instituto Industrial e Comercial da Beira)
IMR	Infant Mortality Rate
INPF	National Institute of Physical Planning (Instituto Nacional de Planificaçao Fisica)
KAP	Knowledge, Attitudes and Practices
LEB	Life Expectancy at Birth
MCH	Maternal and Child Health
MoH	Ministry of Health
MMR	Maternal Mortality Rate
ORT	Oral Rehydration Therapy
PEC	Community Education Program (Programa de Educaçao Comunitaria)
PHC	Primary Health Care
PLM	Improved Latrine Program (Programa de Letrinas Melhoradas)
PRONAR	National Rural Water Supply Program (Programa Nacional de Água Rural)
PSW	Provincial Supervisor of Works
PVO	Private Volunteer Organization
RENAMO	Mozambique's National Resistance
SOW	Scope of Work
TOT	Trainer of Trainers
UNDP	United Nations Development Program
UNICEF	United Nations Infant and Child Education Fund
USAID	United States Agency for International Development
WASH	Water and Sanitation for Health
WPC	Water Program Coordinator
WST	Water Storage Tanks

EXECUTIVE SUMMARY

On September 1, 1993, Africare received an Operational Program Grant from the USAID Mission in Maputo of $2,450,113, to implement the Sofala Province Integrated Health, Water and Sanitation Project in Beira and Chibabava District, Sofala Province, to end on June 30, 1996.

The purpose of the project is to improve the health status of a selected peri-urban and rural population, through the provision of safe and potable water, and by community mobilization and education. Well rehabilitation, water storage tank construction, latrine construction and development of user-fee system for water points are focused in peri-urban Beira. Health Post rehabilitation is targeted in specific rural communities in Chibabava District. The IE&C activities are implemented in both areas.

After the Mid-Term evaluation, some of the Activity Outputs were amended, reducing the number of wells and WST to be built.

The Final Evaluation was done between 26 March and 5 April 1996 by a Water Development Specialist and a Child Survival, IE&C specialist. The objective was to determine the level of impact and progress towards achieving project purpose and outputs. The methodology included the review of documents, interviews, physical inspection of facilities and community visits. An Environmental impact assessment was performed.

Two different sets of criteria were used to complete the final evaluation: 1) Activity Outputs, and 2) Key questions that focus on Africare's management of the Project and its long-term impact.

During the evaluation it was observed that the field work was geared in two directions: 1) Towards the construction/rehabilitation of wells and health posts, and construction of WST and latrines. The targets for completing the number of facilities was satisfactory, and the construction was of high quality and with care to detail; and 2) health promotion and education at the community level. The work was done following appropriate methods and techniques, and problems encountered dealt with creatively. The IE&C component was cost-effective. The denominator of some outcomes was modified for practicallity, and meets the purpose of the work, however, no sustainability can be guaranteed now, since there is no organization that will follow-up on these activities. In order to achieve sustainability, sufficient time has to be allocated to provide support and monitor an intervention.

The greatest impact of the Project comes from the IE&C activities, however, the amount of time does not allow for evaluating fundamental and sustainable changes, attributed to project interventions, in the living conditions, attitudes and/or practices of participants, in order to improve their quality of life and reduce health risks.

More technical assistance was needed to be provided by Africare, however, the staff felt they were not receiveng sufficient feed-back from the USAID Mission, particularly in the water component of the Project. The numbers of population estimated to be reached and Activity Outputs to be completed were over ambitious and more expatriate staff would have been necessary to achieve them.

The construction/rehabilitation of 3 health posts in Chibabava District provides the population with access to PHC. This has a very big impact on the Public Health benefit to the population.

The impact that the rehabilitation of wells has on the health situation has been very limited. The unfavourable geological and hydrogeological conditions compounded by ubiquitous public defecation around the well sites will not prevent contaminated water from entering the shallow water table and then the wells, even when they were properly rehabilitated. The challenge is to maintain the proper use and care of functioning latrines, which would improve the relationship between water and health. In terms of the unit costs for the rehabilitation of wells, the construction of the WST and latrines have been kept to within acceptable limits.

The project developed a good relationship with the Technical and Commercial Institute that will be advantageous in the sustainability of future projects that will require the constructions of wells, WST and latrines given the involvement of many students in the field during this program. The coordination with Latrinas Melhoradas proved to be a productive venture, increasing the demand and use of the latrines.

Based upon the findings of the evlauation, the following recommendation are presented:

1. That no further rehabilitation of the wells should be carried out.
2. The field work should continue until the the end of June 1996, together with as many WST and latrines as possible.
3. The remaining construction materials, water pumps, equipment and vehicles is recommended to be sold at cost for financial recovery of the funds invested in these.
4. To focus on identifying a sustainable partner organization working on the field doing similar activities (i.e. PLM). This organization would provide the necessary support for making the activities sustainable in the future.
5. A no-cost extension, re-directing the remaining financial resources towards health education is highly recommended as a priority for this program.

I. INTRODUCTION

As part of the conditions set out in the Grant Agreement between Africare and USAID, a final evaluation of the Activity Outputs was required to assess the achievement of the Sofala Province Integrated Health, Water and Sanitation Project, in Beira and Chibabava sites.

Within the limited time available, the Consultants carried out interviews with personnel from Africare and representatives from Government institutions and stakeholders in Beira, visited several of the rehabilitated wells, water storage tanks (WST), the communities of Casa Nova and Goonda in Chibabava District, collected and perused the information contained in the available reports and documentation and prepared this report, which must be read in conjunction with the Midterm Evaluation Report of November 1994, to avoid certain repetitions.

This report deals with the activities developed by Africare over a three year period in Health Education in Beira and Chibabava District; reinitiation of PHC services with re-training and rehabilitation/construction of health posts in Chibabava District; and water aspects of the project, i.e. the location and construction of the rehabilitated wells, the construction of the WST and latrines within the City of Beira. It summarizes the evaluation methodology, compares the results obtained with the proposed outputs and objectives of the project, and presents conclusions and recommendations.

On September 1, 1993 Africare received an Operational Program Grant from the USAID Mission in Maputo, to implement the Sofala Province Integrated Health, Water and Sanitation Project in central Mozambique. This project was written during a time in which the emergency conditions which necessitated the PVO Support Project in 1990 had not been alleviated. Some conditions worsened due to the extended drought. Recognizing this situation USAID expanded the existing categories of intervention to include greater attention to the drought-affected populations' need for water and related sanitation for funding.

A. Project Context

1. Situation in Mozambique

Mozambique is a republic located on the eastern coast of Southern Africa (see Annex 1). It has a population of approximately 16 million inhabitants, and gained its independence from Portugal in 1975, after many years of war. During the 1980's, it suffered a violent civil war which devastated the economy, caused massive population displacement, and resulted in the virtual disappearance of government services in many areas. The health sector suffered extensively from the instability, war and lack of resources. Many health units were destroyed in the rural

areas, and others abandoned due to lack of security, especially in RENAMO controlled areas. Sofala was one of the Provinces where the war played a major role, as the headquarters of RENAMO were established in Maringue, in the NW of the province.

Basic health services coverage did not reach 30% of the general population in the country in 1992. The population in RENAMO controlled areas had no access to health facilities with trained staff, therefore leaving the returning populations to those areas with no health care services available to them.

Mozambique is currently one of the poorest nations in the world. The World Bank indicated that the GNP per person of US$80.00 in 1990, was the world's lowest by a margin of 20% (Table 1).[1] Only about 33% of the adult population are literate and primary school enrollment is low at 58%, placing it among the worst educational indicators in the world.[2] Approximately 85% of the population works in agriculture, much of which is for subsistence. UNICEF has estimated that the daily caloric intake of about 77% of basic requirements in 1988-90 is among the world's lowest.[3]

Health indicators are also among the lowest in the world (Table 1). Life expectancy at birth is approximately 47 years (1992).[4] Infant Mortality Rates (IMR), deaths of children who die before one year of age, and Child Mortality Rates (CMR), children who die before their fifth birthday, per every 1,000 babies who are born alive were reported to be 167 and 287 respectively, per 1,000 live births, which is also very high. The IMR and CMR for countries like the United States for the same period in time were 9 and 10 respectively.[5] Maternal Mortality Rates (MMR) are also very high. This refers to the number of women who die as a result of pregnancy or birth per every 100,000 live births. The MMR in Mozambique is estimated to be between 300-1,000 per 100,000 live births. As with the rest of the countries, it is higher in the rural areas and lower in the cities. The average seems to be around 800. The fertility rate is also very high, at 6.5, an average of the births that are registered for every woman of fertile age (between the ages of 15 and 45 years).[6]

Table 1. How Mozambique Compares: Comparison of Social and Health Indicators[7]

SOCIAL AND HEALTH INDICATORS	MOZAMBIQUE	SUB-SAHARAN AFRICA	LOW-INCOME COUNTRIES
Gross National Product per capita, 1991	$ 80.00	$ 400.00	$ 360.00
Life Expectancy at Birth, 1992 (years)	47	50	52
Infant Mortality Rate, 1993	164	100	96
Child Mortality rate, 1993	280	163	158
Maternal Mortality Rate, 1988	800	700	700
Access to Potable Water	26%	50%	50%

The most common causes of sickness and death in Mozambique are communicable or transmittable diseases, most of which are associated with poor environmental conditions and malnutrition. The most common causes of sickness and death among children are diarrheal diseases, acute respiratory infections (ARI's) such as pneumonia and whooping cough, measles, malaria, parasitic infections, and nutritional deficiencies. The adult population suffers from malaria, ARI's, diarrheal diseases including cholera, tuberculosis, measles, sexually transmitted diseases, and complications that arise from giving birth as the most common causes of sickness and death.

There is very limited access to safe, potable water and adequate sanitation in Mozambique. Potable water and sanitation are among the most important and effective public health measures. UNICEF indicated that in 1991, 22% of the population (44% in urban areas and 17% in rural areas) had access to potable water, and 20% (61% in urban and 11% in rural areas) had access to adequate sanitation.[8]

The health system suffers from poor access, lack of resources, and lack of adequately trained personnel. The Ministry of Health (MoH) is extending the PHC network to increase per capita access, but it is hampered by financial and human resources. The World Bank estimated that in 1990, there was one physician for every 50,000 persons [9] The MoH has trained a large number of health personnel to compensate the lack of physicians, but there is still a significant deficit of adequately trained personnel in the MoH health facilities.[10]

The National Health System provides PHC at the community level through 934 health posts and 224 health centers in 128 districts of 10 Provinces and the city of Maputo [11] The distribution of these does not follow a population proportional distribution, but more a political one. More than half of the physicians and other qualified human resources in the country are based at health units in Maputo, with the bulk at the Central Hospital.

2. The Project Area

The original area of work was defined as Chibabava District and the area encompassing the City of Beira, but later specific barrios within the peri-urban settlements, which have recently developed as a result of population migration, were identified (see Annexes 2&3). The majority of these settlements are situated within the low-lying areas of the estuary of the Pungue River:

- Manga Mascarenha A, B, C and D
- Macurungu
- Loforte A
- Macuti
- Vaz B
- Marocanhe
- Nhaconjo

The Beira Corridor linking the port of Beira with Zimbabwe was probably the only safe major highway in the country, as it was kept open and guarded by the military during the years of the war.

The influx of rural population into the peri-urban areas of the major cities of the country increased exponentially during the war. The disintegration of communities and relocation of families associated with the war, created heterogeneous settlements of population around the peri-urban areas of the cities. The improvement of transportation and developments around the Beira corridor has also been a major attraction for rural populations to relocate in the Beira peri-urban areas.

In Chibabava District, 8 of the 9 previously existing health posts were damaged and/or destroyed during the war. A major part of this district was under the control of RENAMO.

2.1 Social and Economical Conditions

Beira's normal population of about 275,000 was nearly doubled by an inflow of people displaced by the war and drought. This has placed an additional burden on the already insufficient public services.

The inhabitants of the bairros in the peri-urban areas of the City of Beira have come from rural areas mainly in the Provinces of Sofala, Inhambane, Manica, Tete and Zambezia. The main locally spoken languages are Sena and N'dau, however in these bairros there are at least five different languages spoken. Some women were found to speak English and Shona (from Zimbabwe), and Chichewa (from Malawi). These individuals were married to Mozambicans who fled to those countries during the war and returned as part of the new political order in the country.

More than half of the economically active population are unemployed. The informal sector of the economy has grown rapidly as new residents arrive to the area. The mixture of high percentages of unemployment and low buying power of the population with no common group identity has encouraged a sentiment of individuality starved for cash.

The prevailing cultural diversity and lack of group identity has allowed for some loss in cohesion that may have been part of their earlier ethnical communities.

2.2 Water

Parts of Beira are located below sea level, presenting problems specifically of salinity in the water for human consumption, and sewer and storm water drainage. Low water pressure, poor water quality, and frequent disruptions to services are common. Major internationally funded projects are currently underway to increase the capacity of the water treatment, transmission and

distribution systems, to improve the wastewater system, and to strengthen *Aguas da Beira's* (AB) capacity to effectively carry out its responsibilities. These programs had a total value of over US$75 million in 1992, but none of them had effectively addressed either (1) solutions to the emergency conditions at that time, or (2) programs to guarantee Beira a reliable supply of raw water, and (3) the need for sanitation in the peri-urban area.

The combination of record-low flows in the Pungue River, Beira's only surface water supply, and subsequent saline intrusion at the city's raw water intake some 77 km. from the mouth of the estuary, resulted in the closure of Beira's only water treatment plant in two occasions for about seven weeks in Nov. and Dec. 1992.[12,13] At times, however, the water is saline under all tidal conditions, and the intake pumps have to be shut off. During this time the water mains remained dry.

During 1992 the output of the Mutua water treatment plant supplied about 125,000 people in Beira. This represented less than half of the permanent population, and only one-fourth of an estimated total population in excess of 500,000. There were 76 standposts connected to the water supply system to serve people living within the peri-urban areas of the city, but less than half were in working order.[14] Total water produced in 1991 was about two thirds the capacity of the system, and in 1992 it fell to less than half.[15]

Water losses within the water distribution system in the city are estimated on the order of 50 percent, and in 1995 it reached at the most 35% of the permanent population.[16,17] The rest of the people are largely dependent upon shallow wells, as was the case before AB started to supply water in 1954. Due to the existing conditions, salt water intrusion of local shallow wells is common.

The lack of rainfall to recharge the ground water aquifers and the periodic closure of the water system also placed added burdens on the shallow wells used by most of the people. Only one-third of the permanent population is served by sewers, and the poor quality of these contributes to the ground water contamination.[18,19]

2.3 Sanitation

In 1992 the existing sewerage system for Beira covered only one-third of the permanent population, approximately 70,000 people, which accounted for about one-seventh of the total estimated population. The peri-urban areas of the city were essentially without sanitation services; there was an inadequate number of pit latrines and septic tanks. The system which was in extreme state of disrepair was undergoing rehabilitation and extension of the network of sewers with funds from the World Bank. The Netherlands was funding rehabilitation of the wastewater pumping stations. Untreated wastewater was discharged directly to both the sea and the Pungue River.

Wastewater pumps were commonly out of service. Many of the pipe mains were corroded, clogged, or collapsed. Discharge to the environment (courtyards, streets and the subsurface) were common.[20]

2.4 Geology

These areas are underlain by soil conditions varying from clayey to sandy clayey horizons characteristic of the alluvial environment from which they were deposited. This broad geological sequence was confirmed by the reported soil types encountered during the well rehabilitation program.

The thickness of these layers in unknown but from the limited well data, these deposits are likely to be in excess of 5m. Inspection of sand samples around the wells indicate that the sand is fine grained, quartzitic and well rounded.

2.5 Hydrogeology

The depositional history of the clayey and sand layers would indicate that ground water within exploitable aquifers is transmitted via primary permeability.

Water table conditions are present, with the elevation of the water table varying from surface to approximately 4m. below ground level. Due to the permeable nature of the surface sandy deposits, the fluctuations in water table are closely associated to rainfall events as evidenced by the reported lowering of the water table to below the bottom of many wells during the drought period and the sudden rise in water table during the rainy season. In some cases , perched water table conditions could be found due to the presence of clayey horizons.

The drawdown in the wells, i.e. the difference between the water table and the position of the pump, is therefore controlled by the seasonal rise and fall of the water table.

Within these depositional environments variation in water quality are expected especially within areas where salt water intrusion due to tidal fluctuations occurs. A deterioration in the water quality locally could also be ascribed to the presence of saline formation water trapped within the clayey horizons.

B. Project Description

On September 1, 1993 Africare received an Operational Program Grant from the USAID Mission in Maputo, to implement the Sofala Province Integrated Health, Water and Sanitation Project in central Mozambique. Funds were specifically provided for technical assistance; wells, water storage tanks and latrine construction; health post rehabilitation; community mobilization and education; and limited commodities and support costs. This project has been implemented under

USAID's PVO Support Project (656-0217). Because certain "pre-grant expenses" were allowed to be incurred by Africare starting on July 1, 1993, the three year implementation of this project will end on June 30, 1996.

Total estimated dollar funding for this grant is $2,450,113. In addition, Africare received in November 1994 a total of 1,134,660,276 Meticais in local currency (worth approximately US$207,815 on that date) in counterpart funds from the Mozambican Ministry of Finance to support Africare's project activities.

C. Purpose, Goals and Objectives

The purpose of the project is to improve the health status of a selected peri-urban and rural population in Beira and Chibabava District, Sofala Province, with the reduction and control of water-borne and other diarrheal diseases, through the provision of safe and potable water, and by community mobilization and education.

1. Activity Outputs and Objectives

There are six principal areas of activity which were considered as Activity Objectives:

1. Hand-dug well rehabilitation/construction.
2. Water Storage Tank construction.
3. Development of a user-fee system for water points.
4. Improved pit latrine construction.
5. Health Post rehabilitation and reinstitution of basic health services.
6. Health Education.

Well rehabilitation, water storage tank construction, latrine construction and the development of user-fee systems for water points are focused in peri-urban Beira. Health Post rehabilitation is targeted in specific rural communities in Chibabava District. The IE&C activities are implemented in both, Beira and Chibabava District. (see Annex 4).

D. Grant Amendment

The findings of the Midterm Evaluation Report indicated that at that time the rate of progress would not have allowed for the Activity Outputs to be fulfilled. Africare subsequently formally requested a reduction in the number of facilities to be constructed.

1. Amendments

The reduction in numbers granted by USAID is presented as a summary below:

Table 2. Variation in Activity Outputs[21]

ITEM	ORIGINAL OUTPUT	AMENDED OUTPUT	VARIANCE
Wells	200	90	45%
WST	250	20	8%
Latrines	50	110	+45%

2. Implementation changes

The IE&C activities planned under the water component also were modified. Committees were formed at the section level of a bairro (shanty town), and not for every well rehabilitated, as stated in the grant agreement. This modification responds to practicality and the need to have control of the work. The high population density of the bairros has made imperative the sub-divisions into sections, which are more manageable

The project confronted strong pressure from the community members who demanded a salary for their work when the activities were started. This changed the "volunteer" status of the agentes de comunidad (ADC) into a particular arrangement of part-time workers receiving some kind of "incentive" for their community outputs. These incentives were monetary at first, shifting to "food for work", and to set funds (a one-time-only bank deposit) to be used in a communal manner by the members of the committees (investing part of the capital in purchasing products to sell at the community level, then dividing the profits and reinvesting the capital).

1. World Bank: World Development Report, New York, Oxford University Press, 1993.
2. UNICEF: State of the Worlds Children, New York, Oxford University Press, 1994.
3. Center for International Health Information: Mozambique, Country Health Profile, 1995.
4. United Nations Development Program: Human Development Report, 1994.
5. UNICEF, op.cit.
6. ibid.
7. CIHI, op.cit.
8. UNICEF, op.cit.
9. World Bank, op.cit.
10. CIHI, op.cit.
11. Gish, O & Pavignani, E: Health Manpower Development Plan, 1992-2000, MoH, 1991.
12. WASH Report #432, 1992
13. WASH Report #389, 1992
14. WASH #389, op.cit.
15. WASH #432, op.cit.
16. WASH #389, op.cit.
17. Personal communication from the head of CHAEM
18. WASH #389, op.cit.
19. WASH #432, op.cit.
20. WASH #389, op.cit.
21. USAID Grant amendment

II. EVALUATION DESIGN

The evaluation was done between 26 March and 5 April, 1996. The evaluators traveled to Sofala Province to perform the evaluation. At the end of the evaluation Dr. Tarragó spent an additional week in Maputo to finalize the teams' report and prepare a presentation for USAID.

A. Purpose of the Evaluation

The objective of the evaluation is to determine the level of impact, and progress towards achieving project purpose and outputs. The Scope of Work (SOW) is presented in Annex 4.

B. Evaluation Team

The evaluation team consisted of two people:

Oscar E. Tarragó, MD, MPH, team leader, was responsible for the evaluation of the health, and IE&C components of the project. He worked as the Training Advisor based in Zambezia with the Primary Health Care Support Project in Mozambique for the past two years. He is specialized in International Health and Health Promotion and Education, with experience in Child Survival activities, Health Training, and living and working within Angola, Namibia, South Africa and Mozambique.

The evaluation of the water input to the project was undertaken by Mr Giorgio L. Martinelli, M.Sc., Consulting Hydrogeologist, during the week of 1 to 5 April 1996. He is the resident partner of E. Martinelli and Associates in Zimbabwe, a firm of consulting hydrogeologists based in South Africa. His main field of experience is the implementation and execution of rural water supply and sanitation projects. He has over 15 years of experience living and working within South Africa, Zambia, Zimbabwe, Swaziland, Lesotho and Botswana.

The Sanitation component was reviewed by both evaluators.

C. Evaluation Methodology

The methodologies utilized for this evaluation included the following:

- Review and familiarisation of all documents pertaining to the project (Annex 5).
- Review and analysis of the HIS report.

- Interviews with representatives of various organizations, governmental institutions and stakeholders (Annex 6).
- Interviews and round table discussions with Africare IE&C staff and community committees.
- Physical inspection of 25 rehabilitated wells, 6 WST and 18 latrines.
- Site visits to the constructed/renovated health posts in Casa Nova and Goonda.

Meetings and interviews were conducted as required in Portuguese. In the case of the rehabilitated well and latrine surveys, questionnaires were designed and completed during the field inspection. Although the limited time available allowed only for the inspection of representative facilities, the coverage provides a reliable indicator of the efficiency and quality of construction of the rehabilitated wells and latrines.

D. Evaluation Criteria

Two different sets of criteria were used by the team to complete the final evaluation of this project. The first set is taken directly from the Activity Outputs, as included in the Grant Program Description. The second set of criteria is a series of key questions that focus on Africare's management of the project and its long-term impact. (see Annex 4)

E. Environmental Impact

As per the Grant Agreement, environmental issues will be one of the key items addressed during monitoring and evaluation. As specified: for evaluation of environmental impact each well and water storage tank will be subject to PRONAR/AR approval and evaluation; each latrine will be subject to INPF approval and evaluation; and each reconstructed health post will be subject to MoH approval and evaluation. Thus, Africare was requested to address and minimise the impacts on the environment that could be brought about by the following aspects:

1. The abstraction of ground water from wells and its effect on aquifer pollution
2. The construction of WST and health posts, and its aesthetic impact on its surroundings
3. The effect of the latrines on aquifer contamination.

- Interviews with representatives of various organizations, governmental institutions and stakeholders (Annex 6).
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Two different sets of criteria were used by the team to complete the final evaluation of this project. The first set is taken directly from the Activity Outputs, as included in the Grant Program Description. The second set of criteria is a series of key questions that focus on Africare's management of the project and its long-term impact. (see Annex 4)

E. Environmental Impact

As per the Grant Agreement, environmental issues will be one of the key items addressed during monitoring and evaluation. As specified: for evaluation of environmental impact each well and water storage tank will be subject to PRONAR/AR approval and evaluation; each latrine will be subject to INPF approval and evaluation; and each reconstructed health post will be subject to MoH approval and evaluation. Thus, Africare was requested to address and minimise the impacts on the environment that could be brought about by the following aspects:

1. The abstraction of ground water from wells and its effect on aquifer pollution
2. The construction of WST and health posts, and its aesthetic impact on its surroundings
3. The effect of the latrines on aquifer contamination.

III FINDINGS

The findings of this evaluation are listed by project component, and by area of work, as presented in the Grant Agreement: Water, IE&C and Health; Peri-Urban Beira and Chibabava District.

During the evaluation the following facilities were surveyed:

- 2 health posts at Goonda and Casa Nova, Chibabava District
- 25 rehabilitated wells (i.e. an approximate 32% sample), City of Beira
- 6 WST (i.e. an approximate 75% sample), City of Beira
- 18 latrines (i.e. an approximate 100% sample), City of Beira

A. Interviews

In general the responses noted during the interviews, especially with the officials of the various Government organisations, to quantify the effectiveness and usefulness of the project, were positive. They all agreed that the technical impact that Africare has had during the implementation of the project have been beneficial and that co-operation and liaison with each institution was always maintained.

Both representatives of Obras Publicas and Aquas de Beira expressed their concerns to the practical limitations that the WST would have at times of water shortages should the main water supply be disrupted for more than 1 week.

Africare's staff had a feeling that the USAID Mission, could have had a greater input by providing them with more feedback, specially on the technical issues of the Water component of the Project.

All of the personnel interviewed would have liked to see the continuity and sustainability of the project.

B. Activity Outputs

1. Beira/Water

1.1. The Existing Well Survey

In accordance with the Activity Outputs, the survey of existing wells was to have been

conducted by DPOPH with assistance from Africare. To date more than 800 existing wells have been visited. The following major deficiencies are noted:

1. The area of demarcation of the project is somewhat vague given the extent of the City and its surroundings. At the time of the presentation of the Mid-term Evaluation report, the areas of Manga Mascarenha A, B, C and D, Macurungu, Macuti and Nhaconjo around the City had been chosen. These areas continue to grow as more people are continuously moving in, therefore making the limits difficult to identify.

2. Data concerning each existing well that was visited included, amongst other information, the conditions of the well, name of the owner, depth of the well and the regular measurements of conductivity, and temperature and water level. The conductivity measurements indicated a range of values between 110 and 3300 mS/m. The lower values indicate fresh water conditions whereas the higher values indicate the presence of brackish water.

3. The quality of the data collected is considered satisfactory but has not been recorded in a questionnaire format, which would make entry into a computer for future retrieval more effective. It is reported by Africare staff that information concerning a few hundred (<300) of the surveyed existing wells are already stored in a computer. However, it would seem difficult to have all of the outstanding data processed as the completion date for the project draws near.

4. The position of each individual well were neither marked in the field nor recorded on a map. The areal distribution of the wells, besides constituting a working base for the planning of field activities, would have been particularly useful, for example, in delineating areas of poor (saline) water quality and for constructing water table maps.

Due to the lack of clarity of exact limits at the bairros, and the continuous influx of new population, the well survey has not been completed.

1.2. Water Storage Tank Construction

The present number of completed WST (8) falls short at 40% of the amended output. Although the same comments apply to the delay in the commencement of the work as mentioned for the rehabilitated wells, the poor rate of progress can also be ascribed to the inadequate number of skilled construction personnel in the field.

During the field checking a total of 6 (75%) constructed WST were visited. These WST were constructed next to standpipes and wells to provide temporary storage (depending on the number of users) for periods of prolonged disruption in the main water supply and droughts.

The only construction fault that was noted with two WST are insignificant leaks. These can be repaired at little cost. Besides these minor defects, the WST were constructed and finished off to a high professional standard.

The Midterm Evaluation report expressed their reservations to the purpose of having constructed these tanks within the context of a peri-urban environment. During this evaluation the usefulness of these WST could not again be proven as no water shortages were experienced.

1.3. Rehabilitated Hand Dug Wells

The representatives of the Provincial Directorate of Public Works and Housing (DPOPH) said that they would have preferred the installation of the standard AFRIDEV pump instead of the Zimbabwe made E-Z flow pumps, mainly due to difficulty in purchasing spare parts and the perception that the E-Z flow pump needs more maintenance and attention. However, it is noted that Africare had previously given their justification for the purchase of the E-Z flow pumps, which was accepted by this Authority.

Both, the representatives of DPOPH and AB expressed their concerns to the practical limitations that the WST would have at times of water shortages should the main water supply be disrupted for more than 1 week.

After the Mid-term Evaluation, a total of 90 wells were required to be constructed or rehabilitated. A total of 78 rehabilitated wells were completed at the time of writing this evaluation (87%), and given the present rate of progress of 5-7 wells per month, it is feasible that the estimated 90 wells, 100% of the expected output will be constructed by the end of the project, 30 June 1996. The delay in the commencement of the construction work (approximately 1 year after the start of the project) has been attributed to the late arrival of materials and vehicles to undertake the work.

Project staff reported that the positions of the rehabilitated wells are reported on a map, however, the map could not be located at the time of the visit of the evaluation team.

The main criteria for choosing the well sites for rehabilitation was based on the information given by the owner on the reliability of the well and the measured amount of water in the well at the time of the survey. There were no considerations regarding the geological (the

presence of sand horizons) or hydrogeological (grain size and thickness of any sand layer) conditions prior to the rehabilitation of each of the sites.

A total of 25 rehabilitated wells were visited (32%) in the bairros of Inhaconjo, Macurungu, Macuti, and Manga Mascarenha A, B, C and D. The limited field evaluation of the rehabilitated facilities yielded the following results:

1. Only one of these wells had not been completed as during digging significant sand inflows hindered rehabilitation and it was decided to temporarily abandon the site

2. Seven (28%) were found not to be working, mainly because of missing handles. These handles were being kept by the respective owners. Only one well was not in working order due to missing leather cuffs that the owner was not able to replace.

3. All of the wells have been fitted with an E-Z flow pump model.

4. Community members reported that two of the wells (8%) reported poor quality water (saline) immediately after rain. The colour of the water is in all cases good.

5. Six (24%) of the wells have spillage water ponding and a total of seven (28%) are located in depressions with the potential of flooding and associated contamination.

6. The indicator "distance to latrines" in all cases cannot be quantified, due to the high population density and limited spaces. Therefore, widespread public defecation occurs within 50m of the wells.

7. Only two of the wells require minor rehabilitation of the apron.

8. Maintenance of the hand pumps is probably the single most important aspect of any Water Supply and Sanitation component. It is noted that although the majority of the visited wells were less than one year old, almost all of the pumps have had problems relating to maintenance in one form or another as in the case of badly worn rack teeth and tightening of the gland nut.

In the case of a breakdown, the project has promoted a user-fee system whereby the owner of the well collects money from the community using the wells and procures the necessary materials. The effectiveness of this system is discussed under Findings: User-fee system.

In general, based on the quality of the materials and finish of the work carried out, the rehabilitated wells have been completed to a high standard.

Water Quality

The Project Purpose is "to improve the health status....through the reduction and control of water-borne and other diarrheal diseases. This will be done by the provision of safe and potable water and by community mobilisation and education". A total of 32 water samples were submitted to the Laboratorio Provincial de Aguas de Sofala for bacteriological analyses for total count and faecal coliform count. The laboratory reported that 7 samples (22%) were considered to be suitable for human consumption, ten (31%) were defined as suspect while the remaining 15 (47%) samples were reported as been unsuitable for human consumption. This high percentage in unsuitable samples would indicate widespread contamination of the ground water.

Any quantification on the improvement in the sanitation status of all the rehabilitated wells is not possible as a sample was not collected and analysed prior to the well been rehabilitated to be compared with the water quality results recently obtained.

The high percentage of samples contaminated by faecal pathogens are most likely a result of the permeable soils, shallow water table and widespread public defecation taking place in the peri-urban areas. The mentioned unfavourable conditions will always permit the contamination of the ground water system, regardless of the design and construction of the wells. Due to this situation, the emphasis should be placed on the treatment of the water for human consumption (i.e. boiling).

1.4. WST Construction Workers trained

Five WST construction workers were trained and used by Africare in WST construction. Thus achieving 100% of the expected output.

1.5. Community water technicians training

In August 1995, 65 people from the Bairro of Manga Mascarenhas, sections A, B, C and D were trained in hand-pump maintenance/repair for well owners and community. This is 72% of the output designated for this activity.

1.6. Beneficiaries of Rehabilitated Wells

There are 9,319 beneficiaries from the wells, which is a 42% of the output. This number is not likely to significantly increase with the completion of the 12 remaining wells. If the percentage of wells to be completed is applied to the percentage of beneficiaries, the output could be expected to reach 55% at the end of the project, however, it is important to mention

that the activity output for well rehabilitation will reach 100% as amended.

1.7. Latrines

The original Activity Outputs require a total of 50 latrines within schools to be completed and functioning by the end of the project, whereas the amended outputs called for the construction of 110 latrines. To date the evaluation was able to confirm the near completion of a battery of 8 single latrines (at Escola Modelo) and a battery of 10 fully operational latrines (at Escola Josina Machel). The latrines at the Escola Josina Machel have been in operation for approximately one month.

The proposed new target cannot not be achieved at the present rate of progress. The percentage of completed latrines to the amended number is 16%.

These latrines were constructed according to the Ventilated Pit Latrine (VIP) design which has been widely accepted in Zimbabwe as been successful in minimising the presence of flies, mosquitoes and to reduce foul odours since the proposed design of Latrinas Melhoradas does not incorporate any ventilation mechanism.

The 18 visited latrines comprise a 100% sample of the completed facilities. Of the 56% of the latrines that were fully complete, 100% were being used.

The reasons for incompleteness (or construction components still outstanding) were:

a. Roof not fitted 25%
b. Ventilation chimneys not fitted 50%
c. The squat holes, in three latrines they were not properly positioned.

Actual standards for construction can be seen from a number of indicators: All the pits have been dug to adequate depths to cope with the intended amount of waste. However, it was reported flooding of the latrines at the Escola Josina Machel due to rain prior to the visit. The flooding would indicate that the geological (clayey soils) and hydrogeological conditions at the site (high water table) are not favourable.

2. Beira/IE&C

2.1. Written Agreements

All of the 76 wells completed or under construction had a signed agreement with the owners of the wells, in order to guarantee public access (Annex 7). It is expected that by the end of the contract 100% of the goal will be achieved.

2.2. Water Committees

The activities in this component have modified the activity outcome, shifting the attention from large numbers of well committees to a smaller, more manageable number based at the bairro section. Since there may be many wells in a single section within a reasonable distance from each other, a committee is responsible for the inhabitants of that specific section. Each committee has three sub-committees: health, water and sanitation. The members of the committees (ADC) were trained at the beginning of the activities in each section of the bairros where the project is active (Table 3). The start point in each section of the communities was dependent upon the initiation of construction of the wells. All the members received comprehensive training on issues related to water management, sanitation and health (emphasizing on diarrhoea and the use of ORT).

The IE&C Coordinator (IE&CC) and his staff of trainers of trainers (TOT) held meetings with the community leaders to explain their purposes and objectives. Volunteers were requested, with an enormous turn out. This situation made it difficult for the IE&C staff to turn down any individual, since they believed those individuals were truly motivated volunteers. After several sessions of training, the volunteers started to request salaries, since they had complied with the trainers schedules and activities. This situation placed a great amount of pressure and created confusion with the Africare team, who decided to initiate an "incentive" program to compensate for the time the volunteers provided to the project. This changed the "volunteer" status of the ADC into a particular arrangement of part-time workers receiving a symbolic salary for their community outputs. Realising that this method was not going to work and could not be sustained, they switched to "food for work" for several months. This system of incentives was terminated in September 1995.

Later the IE&C team decided to implement a system of clubs, which they felt was more sustainable. Each committee is a club, where all the ADC are the members at the same level. A one-time-only bank deposit with a set amount was provided to three clubs. Three signatures are required to withdraw any amount from the account, to be invested in consumables sold at their communities. The profits are then divided and the capital can be reinvested.

After those 3 deposits were made to club accounts, the banks refused to take more. It is not clear why. Africare has those funds to be made available to the members of the other clubs. The Africare staff intend to have this situation corrected before the end of the contract.

There are 9 Committees (clubs) overall, with their respective sub-committees: health, water and sanitation. The ADC visit the households on a periodic basis, supervised by a TOT

responsible for that section. Each TOT has 2 sections to supervise.

A simple health education monitoring system was developed to measure the impact of their household visits and the training they give. A matrix is used, which contains a column for every house visited. Each line represents a different health message (see Annex 8). These messages are depicted in the form of pictures to facilitate the procedure with the ADC, some of whom are illiterate. They make a check or cross mark in each column to indicate whether a particular message has been accepted/implemented by a specific household. The ADC, in conjunction with the TOT define the strategy to determine which households should be visited again and which messages need to be reinforced during the follow-up visits. After approximately 3 months the ADC do a comprehensive assessment of the degree to which the health messages have started to modify household practices.

The average of members per committee is 13.5, with an interval that goes from 7 to 22 members. The original number of ADC recruited was 734, with committees as large as 82 members. After the incentives were removed in Sept. 95, the drop-out rate accounted for 71.7% of the ADC. Some committees had losses of 88% of their members, as was the case of Alta Manga (Table 3)

Table 3. Community Committees and Drop-Out Rates[22]

SECTION:	DATE CREATED:	INITIAL NO. VOLUNTEERS:	ACTUAL VOLUNTEERS:	DROP-OUT RATE (%):
Manga A	06/94	72	14	80
Manga B	04/94	82	12	85
Manga C	08/94	46	9	79
Manga D	08/94	42	10	76
Manga Loforte	06/95	33	14	38
Alto Manga	01/96	25	22	12
Inhaconje	09/95	33	12	64
Vaz	08/94	70	22	69
Macuti	06/95	33	7	79
AVERAGE:		48.5	13.5	71.7

Considering the social structure of the communities, proximity of the rehabilitated wells, and less than expected voluntary support, the modification to less, more manageable committees based at the section level of a community is a very adequate choice. Each committee can work with an estimated 500 households, with an average of 5 persons per household, or 2,500

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people. This allows for periodic visits to reinforce the activities and to monitor behavioral changes overtime as part of the ADC work.

The existing committees have an active role in the community. One of them reaches out to as many as 10,429 people or 2,040 households, as is the case in Manga Mascarenhas section A (Table 4).

There are no population census, nor accurate approximations of the population of the peri-urban areas of Beira. Manga Mascarenhas is the only bairro where there is a demographic indicator, since the baseline survey performed by Africare in 1993 reached the total population in the area, however, there was no data available regarding committee coverage for section Manga Mascarenhas D, to calculate the coverage of the whole bairro. There were only data for Manga A, B, C and Vaz (see Table 4). The population coverage in the other bairros could not be calculated due to the lack of demographic figures.

Table 4. Community Coverage by Bairro[23]

SECTION	NO OF HOUSES	NO. OF PEOPLE
Manga A	2,040	10,429
Manga B	757	3,831
Manga C	771	3,849
Vaz	519	2,519

The established output of reaching 50% of the population at the communities is unreal, however, the numbers of households reached by the ADC at the committees is an acceptable and manageable number.

The Africare staff took special care to avoid extending too much and loosing control of the ADC, which could jeopardize the quality of the work. These activities require a considerable amount of support from the TOT, and as it is known, behavioral changes take place over extended periods of time. As it is the case with education, that has to be seen as a long term investment.

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2.3. User-Fee System

All the wells have a user-fee system, which in it's own way is considered to be functional by the users. As it was described under the well construction/rehabilitation section, some wells were found not to have the wooden lever to obtain the water. Further explanations described this was the way some of the owners/person responsible controlled the use of these wells. It is difficult to accurately quantify the number of wells that do not have a functional system, since conditions vary at each well.

The majority of the wells have a system of collecting a fixed monthly fee that ranges from 1,000 to 2,500 Meticais, to pay for repairs and/or purchasing of parts when needed. This responsibility lays predominantly on the owners of the wells. Some of them have expressed pressure and frustration, since the user-fee system depends on the collaboration he/she receives from the community users. Some wells have a different person than the owner collecting the money, easing the burden.

The system used at other wells is to ask for a collection of money once the pump needs repair. The former system allows for a more prompt response to reinstate the use of the well, without an additional economical burden felt by the users. The latter system shows that two things may happen: 1) the users will go to another near-by well (even wells not rehabilitated) to collect water until their primary source of water is repaired, or worse 2) will open the well to collect water by hand with a bucket, thus contaminating the well.

Considering that the modified output is to rehabilitate 90 wells, and 50 should have a functioning user-fee system which covers 100% of the recurrent costs of the water point, the outcome has exceeded this figure by at least 50%.

2.4. Latrine Committees at Schools

A total of 95 people were trained in a seminar for teachers and students to form their latrine committees between May and July 1995 at the Josina Machel, Modelo and Mauve I. Schools. The latrines at the Josina Machel school have been in use for more than a month. This output has been achieved by 100%.

2.5. Latrines

On 28 April 1995 an agreement was made with Programa de Letrinas Melhoradas (PLM) to build improved latrines in Manga Mascarenha with assistance from Africare. The assistance was provided in three different ways: 1)transporting materials to the construction sites, 2) providing a subsidy for 39 latrines and 3) providing community hygiene education on the use

of the latrines. At the time of the evaluation, the staff at PLM expressed that 125 latrines had been constructed in the areas where Africare is working. This is 86.3% of the expected output.

2.6. Volunteers Trained

This point is covered by the ADC at the Community Committee above.

3. Beira/Chibabava Health

3.1. Community Health Profile

Nine community surveys were conducted between December 1993 and January 1996. The data collected makes a valuable contribution towards a better understanding of the health situation in peri-urban Beira, an area for which there is almost no information available. The information from the surveys was mainly used for planning, monitoring and evaluating the interventions.

Basically there were three types of surveys:

1. Situational analysis
2. The baseline surveys at the beginning of the intervention to determine needs, and
3. Knowledge, Attitudes and Practices (KAP) surveys conducted at regular intervals after baseline surveys, to monitor changes and determine modifications in the intervention.

The sample size in the different surveys was determined using a sampling formula and practical considerations such as costs, manpower constraints, and time. The analysis of the surveys was done with EPI-INFO version 5.

The situational analysis of the area provides very important information on the composition and characteristics of the population of peri-urban Beira, information that is not available anywhere else. The survey and sampling methods were generally sound. Epidemiological mapping was used to number all the houses in the communities, and listing them for sampling, thus ensuring the sample was based on actual population figures. However, data was not presented in a gender-age stratification. The two biggest methodological weaknesses found are:

1. weak reliability due to lack of consistency on the construction of the questionnaires.

2. sample design (size of sample).

There is no doubt that the staff was very committed to progressively increase reliability and accuracy in the design and collection of the information. The work developed met the established output.

3.2 Behavioral changes at the end of the activity.

The stated behavioral outputs can not be achieved in a realistic manner over a short period of time (less than two years). Absolute percentages are artificial, and commonly unattainable.

The objective of Health Education is a fundamental and sustainable change, attributed to project imterventions in the living conditions, attitudes and/or practices of participants. Therefore, improving their quality of life and reducing health risks.

In order to evaluate the impact of an intervention, the percentage of change should be measured to reflect a realistic picture. However, there was not a KAP survey done for all the geographical areas at the end of the project.

The HIS report shows important data that provide a good picture of the community after Africare implented its' project. The following information was extracted regarding Diarrhoea:

1. The sections of Manga Loforte, Vaz and Manga Mascarenhas, where the project has been working for more than 6 months, more than 90% of the mothers know that ORT is used to treat diarrhoea.

2. In Manga Mascarenhas, the first bairro where the project started working in 1994, 50% of the mothers reported to use ORT when a member of the family has diarrhoea, compared with only 28% in Manga Laforte, where the activities have not been implemented for much more than 6 months. Unfortunately we do not know what was the level of usage before the intervention, to be able to compare a change overtime.

3. There was a significant reduction in the number of children taken to the health posts in Africare's target areas.

4. The average number of diarrhoea cases diagnoses at the health posts per month dropped from 1994 to 1995.

5. During the same period of time, the average number of cases reported per month increased in other comparable health posts.

way to evaluate the impact of this kind of activities is way to evaluate the impact of this kind of activities is This reduction in the number of cases can be attributred to Africare's implementation of their health education activities, and may reflect an actual reduction in the incidence of dearrhoea, as well as an increased ability to treat it at home. However, the reduction of attendence to the health posts may also have played a role in the reduction of cases, for which we have no control. This may even be that care takers of the children are taking them to other health posts.

In any case, only by analysing the trends of incidence over time (several years) and comparing them with similar areas, it can be concluded that theproposed implementation has had an impact on the population served.

4. Beira/Chibabava IE&C

4.1. Volunteer Training

There was IE&C training at the community with the TOT for 3 months, however no further support or monitoring was provided. Eleven women from the district attended a seminar for Traditional Birth Attendants at the District seat In July 1995. The Mozambican Red Cross (CVM) does not operate in Chibabava.

Due to the limited amount of time that the trainers could spend in that district, the possibility to provide continued support, monitoring activities and follow-up was very remote. The follow-up activities were turned on to MOLIVS, an Italian PVO doing MCH in-service training in the area. This activity output was not achieved.

4.2. Training of Trainers

During 1994, eleven TOT were trained by the IE&CC, with some assistance from the Health Coordinator in the following areas:

- Contacting and Organizing Communities
- Organizing and Training Committees (ADC)
- Survey Methods
- Learning how to Teach
- Education and Communication Techniques

- Epidemiological mapping
- IE&C Strategies and Monitoring of Health Posts
- Development of Strategies of Education for Health and Communication
- IE&C Implementation Strategies

The training methodology used was well suited for the required work, the trainees and their audience. The materials developed for the training sessions were appropriate and well developed for the needs. However, the cost-effectiveness was greatly hampered by the significant reduction in the number of TOT, thus reducing the opportunities for increasing the community coverage.

It was not well understood by the evaluator why the project only kept 6 TOT after the training was completed. It was to be expected that not all of them would stay on board, but letting 45% of them go after completing training seems like a preventable situation.

More than the expected output of TOT were trained, but at the time the evaluation was made, only 6 TOT had been working, which is 60% of the output. This is a high quality low output.

4.3. Health Messages Centered on Hygiene and Health Practices to Prevent Diarrhoea.

The messages developed by the IE&C staff were well done, with excellent supportive materials and a good use of community education techniques. The training Manual developed by the IE&C team, Vamos Limpar A Nossa Comunidade, is a very practical, straight forward, low-cost, well designed instructional guide for the ADC and the committees work. These activities exceed by more than 100% the output in this area.

5. Chibabava Health

5.1. Health Post Rehabilitation

A Health Post was constructed in Goonda and two were rehabilitated: one in Tronga and the other in Casa Nova. The construction component of the project was finished in time.

As per the discussion with the engineer who is the Provincial Supervisor of Works (PSW) at the DPS, he explained that he monitored the construction/rehabilitation work performed by Africare for the last year, since he arrived in that position.

The MoH requires that the construction/rehabilitation of health units be done only with permanent materials to guarantee a long life of the buildings and reduce maintenance. There are centrally defined floor plans with well established specifications, including materials for

the construction of new health units, however, no MoH guidelines exist for rehabilitation. Upon approval by the DPS to construct/rehabilitate a health unit, the PSW follows up on the works, providing technical assistance and supervising the quality. When a building is completed, he must issue a Certificate of acceptance (terms of delivery), if the building complies with the standards set by them.

Health Post Construction in Goonda

A large, five room health post was constructed in Goonda with conventional materials, following the MoH's established plans and standards. This is a very nice building, where care was placed to detail. It meets all the criteria established by the MoH. The PSW praised Africare's work at this location.

Health Post Rehabilitation in Casa Nova

This building was the center of a dispute with the police, who occupied the building some time during the war, and hindered its completion once its' renovation was almost finished, claiming the right to occupation. This incident did not make an obstacle to complete the work within the time frame.

The engineer praised the good cosmetic work done to this building, but regretted the low quality of the wood work (beams and doors), which started cracking and bending soon after Africare completed the work. At the same time, only 4 doors were provided and installed in the already existing frames, basically the ones to the outside of the building. This leaves 5 frames without doors that they would like to see provided and placed in position. The Africare staff agreed to install these doors with wood of better quality.

Health Post Rehabilitation in Tronga

The PSW suggests that a study of the ground and the foundation of the building was not performed before the rehabilitation of the building. Thus, already existing structural flaws and negative ground conditions were not identified. This building was unattended without a roof for many years, which he explained worsened its condition. There are visible cracks in the walls of the building due to what he referred as the "lack of technical knowledge". He continued to point out that the quality of the materials used was very poor, emphasizing the wood beams and doors, which suffer from the same problem than the health post in Casa Nova.

His recommendation is that the building is usable, but not completely appropriate since it could suffer severe damage with a storm like the one that affected the northern part of the

country at the end of last year. He suggested that a new health post should be built (by another donor) and this building be used for the nurses quarters. He regrets that he was not present during the beginning of the project, since his input could have avoided the technical problems encountered here.

The three buildings were, however accepted by the DPS. The PSW provided further comments on his position, understanding Africare's frustration due to the lack of assistance provided by his predecessor and absence of MoH guidelines for rehabilitation.

The three health posts resumed services upon completion with DPS appointed staff. They are totally functional, but seem to lack support from the DPS to provide them with tables or work materials.

5.2. In-Service Training in Preventive Health Care

During a year, 10 health staff, including the nurses assigned to the rehabilitated/constructed posts attended in-service continuing education training on preventive care with the Africare Health Coordinator. This output was exceeded from 25-66%, as it was required to train 6-8 health staff.

The reporting sheets of the nurses in Casa Nova and Goonda were reviewed and their knowledge questioned during the visits, showing they had a good command of their work. Diagnosis seemed to be accurate and treatments well executed. However, the disorganization was blatant in the consultation rooms and the pharmacies. Medication and kidney trays with used needles and syringes were found on the floor at the pharmacies and bathroom due to "lack of tables". A recommendation to use large medication boxes in the meantime was well accepted, but there is no guarantee that this practice will be consistently used in the future.

The staff explained that they had reported these situations in the past to their supervisor, the District Director of Health, with no response.

The center in Casa Nova seems to have a big attendance, mainly mothers with infants. Weight monitoring was done at the time we arrived, with more than 10 mothers waiting for consultation. There is a former RENAMO health auxiliary who provides voluntary services at the health post after having undergone basic health training.

Goonda does not seem to have the same response from the community, notwithstanding that it is a much larger health post and last year it had 3 nurses (2 provided by the MoH and one paid by UNICEF) to meet the demands at the time. During the visit, there were no patients waiting to be seen. Discussions with the Africare staff indicate that poor quality service by

the nurse may discourage use of the health post by the community.

5.3. Preventive Health Agents

This point was covered under Beira/Chibabava IE&C point No 1: Volunteer Training.

6. Chibabava IE&C

6.1. Latrines

Completion of 30 latrines functioning and in use, 100% of the output, was reported. There are 27 private latrines in Goonda, and one at each health posts. The latrines at the health posts in Goonda and Casa Nova were visited. The upper part of the latrines was constructed with local materials. The proposed design of Latrinas Melhoradas was used, which does not incorporate any ventilation mechanism. The construction materials and finish of the latrines in Chibabava District are considered to be of a satisfactory standard.

6.2. Fifty Per-cent of Families will receive IE&C.

Discussed in previous sections. Unrealistic output.

C. Environmental Impact

It is evident that great care was taken during the execution of each activity. The limited time available has only allowed for the following qualitative comments to be made on the environmental impact of the various facilities constructed:

1. The rehabilitated wells have been constructed and completed to a very high standard and with great care to detail. The immediate vicinity of the well, if kept clean and free from erosion, will prevent surface contamination to be discharged directly into the well for a considerable time.

2. The requirement for the well to be sited at a safe distance from latrines could not be, in many cases, fulfilled due to high population density and the widespread human defecation taking place.

3. The rehabilitated wells have a positive environmental impact on their surroundings.

4. The WST are large structures whose imposing form cannot be hidden underground. They are, aesthetically, likely to be accepted by the community, as they will be gathering points for social interaction during times when the WST will be used.

5. Given the weight and height of these tanks, they would not pose any danger of collapsing on the population as the structural design was overseen by a professional engineer.

6. The role that the latrines play in minimising aquifer contamination depends largely on the positioning of the latrines with regards to soil and water table conditions.

8. The noted flooding of the latrines at Escola Josina Machel will certainly be an environmental hazard due to surface spillage of the waste, but at the same time the clayey nature of the soil would contain the spread of contaground waterundwater within a short distance from the latrines.

9. The latrines will have a negative environmental impact if prone to flooding. Nevertheless the procedure of concentrating and containing human waste to a particular site will have an overall positive environmental effects in the future.

D. Water Construction Costs per Unit

It is a difficult task to quantify the cost per unit due to the lack of tangible information. The only data available is the estimated costs for the materials and labour, as of June 1995. The unit costs seem to be within acceptable limits (i.e. $680 for rehabilitating a well, $200 for the construction of a latrine and $1,316 for the construction of a WST), including labour. The total of approximately $200,000 (8% of the budget) was estimated for the completion of the revised number of facilities, given an allocated budget of $800,000 (60 % of the overall budget).

The available information did not allow for calculating project expenditures by component. The Project Financial Report showed that there were approximately $240,000 left in the budge as of March 31, 1996.

E. Materials in the Warehouse

The WPC explained that there are approximately $40,000 worth of construction materials at the project warehouse, including about 100 water pumps and spare parts.

D. Vehicles

The Project has 7 vehicles under Africare's name as follows:

1 Isuzu 7 ton. truck

4 Toyota Hilux double cabin pick-up trucks

1 Toyota Land Cruiser pick-up truck

1 Toyota Land Cruiser II truck

V. GENERAL PROJECT CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

This project was developed following specific conditions after the drought of 1992, and some how as a response to an emergency situation. It was developed with a positive attitude on a very difficult problem: Health, Water and Sanitation in a swampy overcrowded, underserved peri-urban area. It was over ambitious, and therefore some of the Activity Outputs stated in the Grant Agreement unattainable, at least with the amount of time provided or with the resources allocated.

Overall the technical teams are to be congratulated for their tenacity shown in overcoming the site problems encountered: for the high level of attention to details during construction, and for their patience, perseverance and understanding of the difficulties associated with working with peri-urban populations. Despite unrealistic targets, the project was implemented with the limited time and available staff.

The findings of this evaluation report can be presented by answering the second set of criteria which was put forward as a series of questions in the Scope of Work for Final Evaluation.

Has the expatriate technical assistance by Africare been sufficient and effective? If not, why?

The project was designed and implemented with the aim to provide safe drinking water to the peri-urban population, which is presently relying on its water supplies from unprotected sources and is therefore exposed to health risks.

The field work was directed in two directions: 1) towards the construction and/or rehabilitation of wells, construction of WST and latrines. The targets for completing the number of facilities as originally detailed in the work plan of the Grant Agreement were not met at the time of writing this report but will definitely be satisfied by completing some of the amended numbers; and 2) health promotion and education at the community level, thus aiming at reducing health risks with behavioural changes. The denominator of some of the outcomes was modified, but will satisfy the work demanded.

The Water Program Coordinator, was assigned to oversee the implementation of all the field activities of the water component of the project. Setting aside the motivational and effectiveness of the trained construction workers, the responsibility to oversee a project of this magnitude should not have been given to one person only, even with the help of an assistant, as evidenced

by the rate of completed works. Since it is difficult to employ technically able personnel in Mozambique, and since training of personnel is time consuming, it would have been more advantageous to the project to have had additional expatriate staff.

The technical know-how of the water staff at the inception of the project was sound. However, a lack in the knowledge of local geological and hydrogeological conditions have probably exacerbated the problems encountered on site.

The development of the HIS was considered to be a vital measurement for project monitoring and final evaluation. The know-how of survey techniques and epidemiological mapping were sound, but the difficulties encountered in sampling methods and questionnaire construction could have been avoided by providing additional technical assistance in the development of the surveys to increase the reliability

Has the management of project funds supported the achievement of the project purpose?

It would seem that the project has not been able to spend some of the allocated funds due to the reduction in the number of outputs in construction. From the limited information available on the financial standing of the project, it would seem that the water aspect of the field work, in terms of the unit costs for the rehabilitation of wells and the construction of the WST and latrines have been kept to within acceptable limits. The IE&C component seem to have been cost-effective, even though there was an additional unscheduled expenditure associated with incentives for the ADC.

Has Africare's Health Information System documented other positive impacts related to project activities that were not included in the original design of field activities?

The development of the HIS was a major enterprise, that required a great deal of organization and extensive field work. It gathered very useful and diverse information, however, with additional technical assistance its benefit could have been greater.

How has Africare's project contributed to improvements in public health in the peri-urban neighbourhoods of Beira?

The greatest impact that can be expected is the result of the IE&C activities, as a fundamental and sustainable change, attributed to project interventions, in the living conditions, attitudes and/or practices of participants. Therefore, improving their quality of life and reducing health risks. However, this impact can only be measured after observing that a sustained practice is shown over time.

The impact that the rehabilitation of wells in particular has had on the health situation has been very limited. The unfavourable geological (sandy soils) and hydrogeological (shallow water table) conditions compounded by ubiquitous public defecation around the well sites will not prevent contaminated water from entering the shallow water table and then the well especially in times of rain, even if the well has been successfully rehabilitated. This conclusion is supported by the high number of rehabilitated wells showing a very high number Faecal Coliforms.

The challenge is to maintain the proper use and care of functioning latrines, which would improve the relationship between water and the health

To what degree have the improvements been managed by Mozambican institutions and what is the perspective for sustainability of these improvements?

1. The relationship that the project has established with the Institution Industrial e Commercial will be advantageous in the sustainability of future projects that will require the constructions of wells, WST and latrines given the involvement of many students in the field during this program. It is hoped that the acquired knowledge of these technical students will be transmitted to other institutions.

2. The health posts are fully operational and managed by the DPS.

3. The coordination with Latrinas Melhoradas proved to be a productive venture, increasing the demand and use of the latrines where the project operated. The staff at PLM showed a great interest in the work the ADC are doing to train the population in the bairros. They have 2 trainers who specifically work training people on how to use and care for the latrines, and see the work done by Africare as an example to follow.

4. The other governmental institutions, e.g. AB, DPOPH, etc., did not actively participate to the implementation of this project, mainly due to lack of manpower or interest. Their role in the management of the water facilities is unknown at this stage, but their comments on the sustainability of the project were positive.

Has Africare intervention contributed to improved environmental management?

The concept that improved water quality from wells, provision of stored water in the WST and containment of human waste through latrines will results in proper environmental management is valid. However, it would seem that the project has had, in terms of the procurement of safe water by rehabilitating wells in particular, little impact on the quality of the water from a great percentage of wells. The implementation of a suitable environmental management programme with regard to the conditions on site should be directed at this stage towards health education first

and not water.

The IE&C component of this project is contributing to the improvement of environmental management, as it can be seen in the community of Vaz, where open air fecalism was significantly reduced after the project started working there, even though the available data does not show a reduction on the health effect.

What has been the level of community participation in the planning and implementation of project activities?

The IE&C staff involved some community members in the planning of their activities (i.e. developing materials and activities to guarantee these would be appropriate and adequate). The training component was very well developed and showed positive results in practice. Both, the methods and the Techniques were well planned and implemented. However, the strategy chosen for the community created confusion probably associated with difficulty understanding the social make-up of peri-urban populations. More community involvement in this aspect of the planning could have probably made a difference.

We cannot comment on Chibabava, since the visit did not provide with enough time to assess this situation.

To what degree has Africare's project contributed to the restoration and sustainability of basic health services throughout the district?

The construction/rehabilitation of the 3 health posts provides the population of those communities with access to Primary Health Care. The sustainability depends totally on the DPS.

B. Recommendations

1. Based on the observed unfavourable site conditions, it is recommended that no further rehabilitation of the wells should be carried out, as the geological and hydrogeological setting would make any further development unsuitable and fruitless.

2. The field work should continue until the 90 wells are completed by the end of June 1996, together with as many WST and latrines as possible.

3. The remaining construction materials, water pumps, equipment and vehicles is recommended to be sold at cost for financial recovery of the funds invested in these.

4. To focus on identifying a sustainable partner organization working on the field doing similar activities (i.e. PLM). This organization would provide the necessary support for making the activities sustainable in the future.

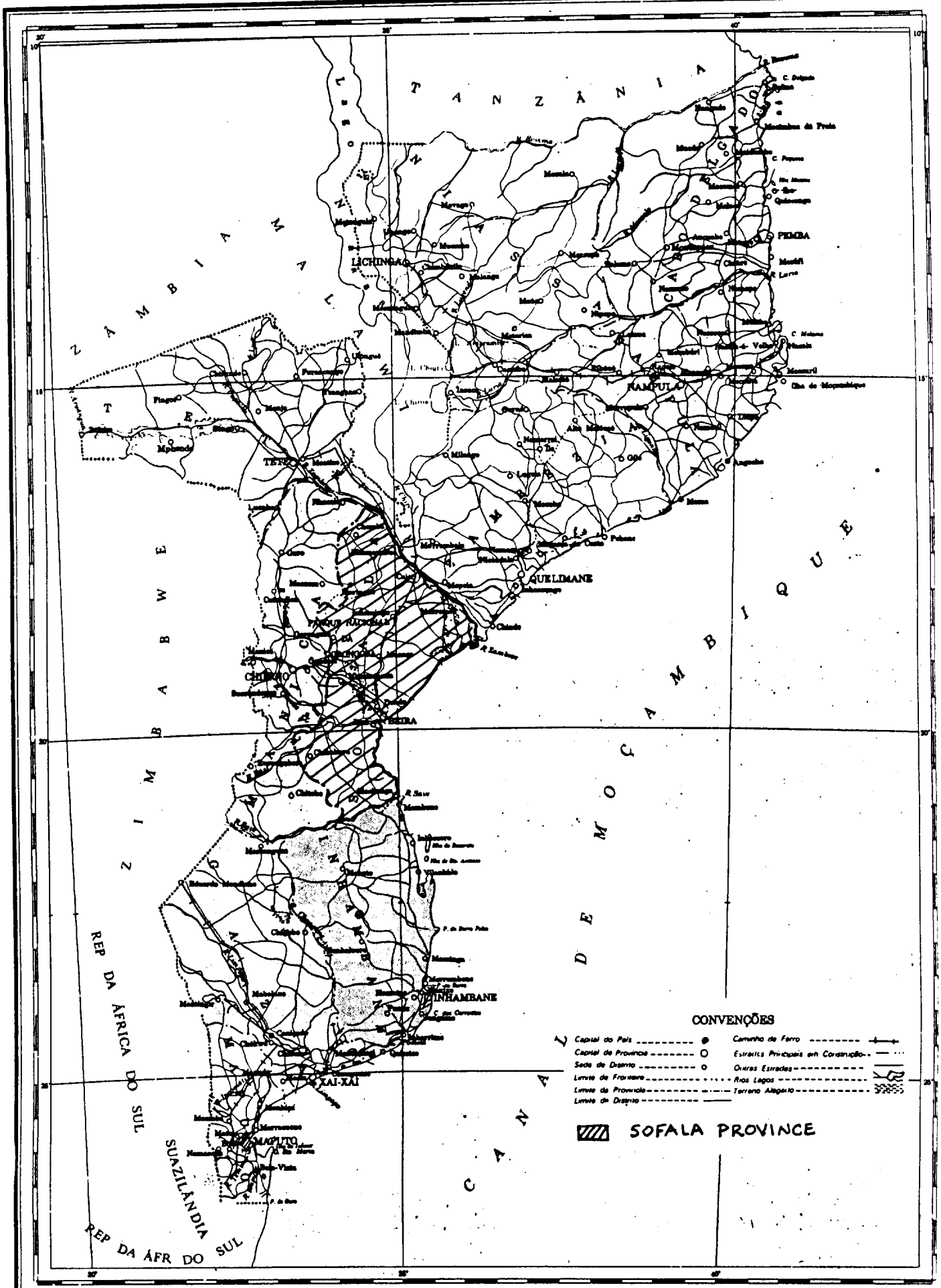
5. A no-cost extension, re-directing the remaining financial resources towards health education is highly recommended as a priority for this program.

V. LESSONS LEARNED

- Developing strong relationships with many people and organisations facilitated the work.
- Lacking in the knowledge of more in-depth technical issues exacerbate the problems encountered on the field.
- Specialized advice should be seen as an investment and sought when dealing with purely technical issues such as building construction and ground water. This investment could have reduced the frustration trying to complete the work and saved valuable limited financial resources.
- The importance of choosing a community strategy with the community.
- The transfer of technical expertise to the students who were involved and trained is a great contribution to society that showed to have provided mutual benefits.
- When designing a project, feasible, attainable and realistic outputs must be set in order to achieve them.

MAP OF THE REPUBLIC OF MOZAMBIQUE

MAPA DE MOÇAMBIQUE



Ministério da Agricultura
DIRECÇÃO NACIONAL DE GEOGRAFIA E CADASTRO
Ano de Publicação 1988

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Projecção policónica – Meridiano central 36° Este de Greenwich
Elipsoide de Clarke (1866)
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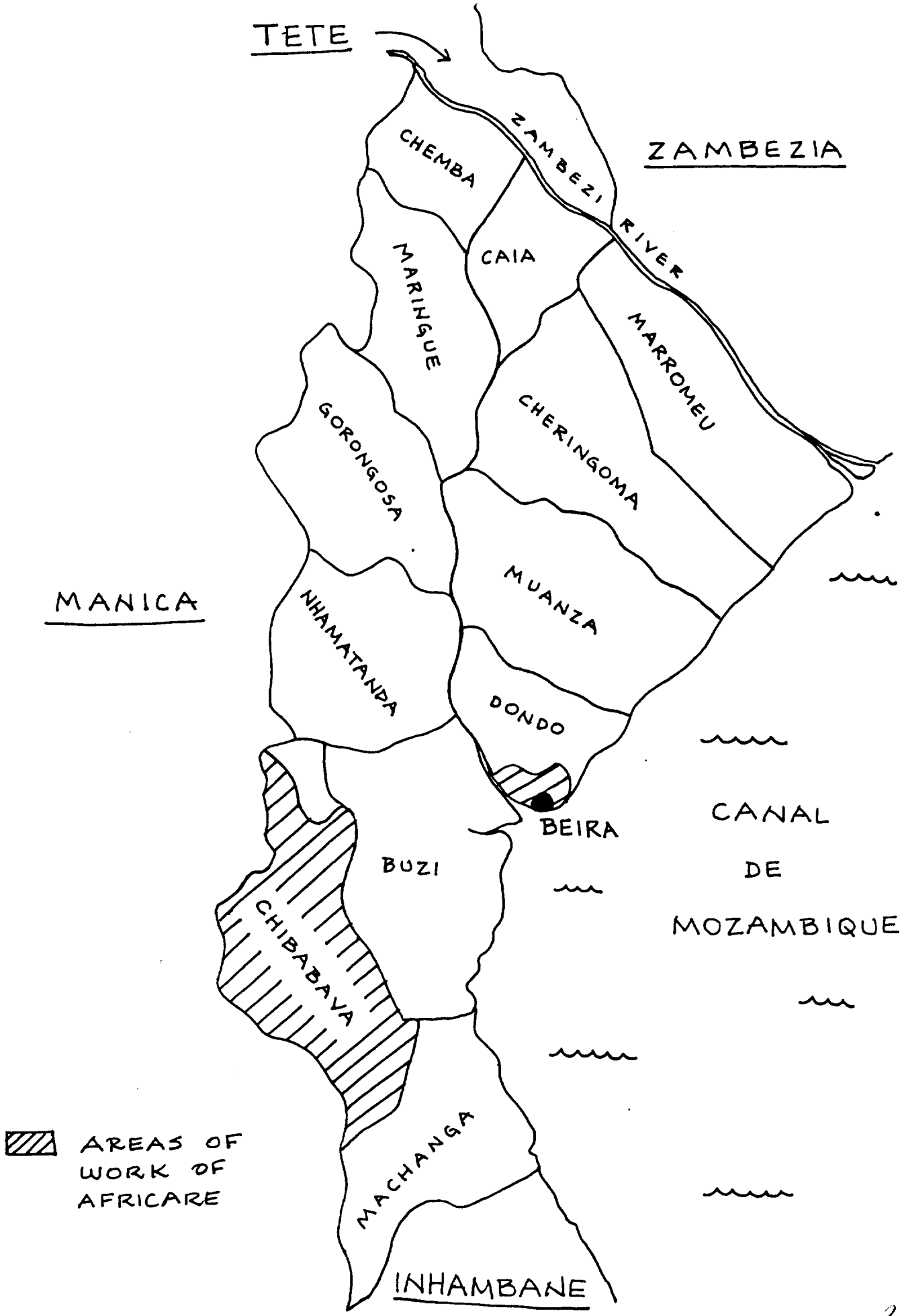
MAP OF SOFALA PROVINCE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DONDO
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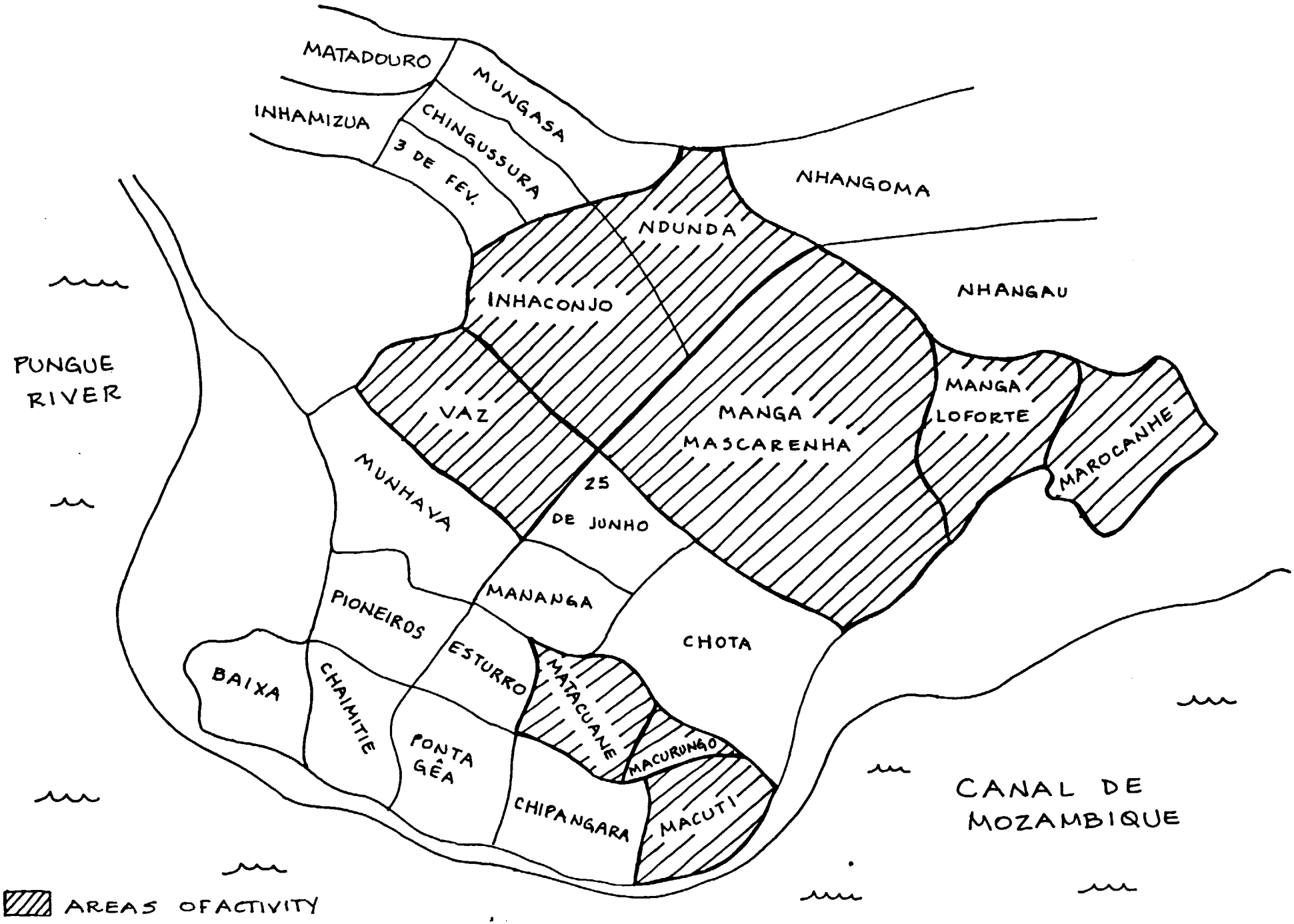
AREAS OF WORK OF AFRICARE

MAP OF THE CITY OF BEIRA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PIONEIROS
CHOTA
ESTURRO
MATACUANE
BAIXA
CHAIMITE
PONTA GÊA
MACURUNGO
CHIPANGARA
MACUTI
CANAL DE MOZAMBIQUE
AREAS OF ACTIVITY

SCOPE OF WORK OF THE EVALUATION

Africare/Mozambique

Scope of Work For Final Evaluation:
Sofala Province Integrated Health, Water and Sanitation Project
Proposed Dates: March 26 - April 5, 1996

Participating Institutions

_____, Water Development Specialist (Team Leader): To Be Identified
_____, Child Survival Specialist, To Be Identified
Representative From USAID/Mozambique
Representative From Sofala Provincial Directorate of Health
Representative From Sofala Provincial Directorate of Public Works And Housing
Representative From Executive Council of Beira

Objective

On September 1, 1993 Africare received an Operational Program Grant (OPG) from the United States Agency for International Development (USAID) mission in Maputo, Mozambique to implement the Sofala Province Integrated Health, Water and Sanitation Project in central Mozambique. This project has been implemented under USAID's PVO Support Project (656-0217). Because certain "pre-grant expenses" were allowed to be incurred by Africare starting on July 1, 1993, the three year implementation of this project will end on June 30, 1996.

Total estimated dollar funding for this grant is $2,450,113. In addition, Africare received in November 1994 a total of 1,134,660,276 Meticais in local currency (worth approximately $207,815 on that date) in counterpart funds from the Mozambican Ministry of Finance to support Africare's project activities.

The purpose of this project is to improve the health status of a selected peri-urban and rural population in Beira and Chibabava District, Sofala Province, through the reduction and control of water-borne and other diarrheal diseases. This will be done by the provision of safe and potable water and by community mobilization and education. There are six principal areas of activity:

1) Hand-dug Well Rehabilitation/Construction
2) Water Storage Tank Construction
3) Development of a User-Fee System For Water Points
4) Improved Pit Latrine Construction
5) Health Post Rehabilitation and Reinstitution of Basic Health Services
6) Health Education

Well rehabilitation, water storage tank construction and the development of user-fee systems for water points takes place in peri-urban areas of Beira. Latrine construction takes place primarily in Beira, but has been promoted on a limited basis in Chibabava District. Health post rehabilitation takes place in specific rural communities in Chibabava District (to the south of Beira). Africare's health education program (Information, Education and Communication -IEC-) takes place in both Beira and Chibabava District.

The objective of this Scope of Work is to determine the level of impact and measure the success of Africare's intervention to achieve the project purpose and complete the areas of activities listed above. The evaluation team will identify and analyze the constraints to the implementation of Africare's activities, both in the field and vis-a-vis the management of the program. The experience and recommendations of the mid-term evaluation, conducted in November 1994, will be reviewed during this final evaluation.

Statement of Work

The evaluation team will complete the following tasks to achieve the objective of this assignment:

1) Review all pertinent documentation about Africare's project and the health/water situation in peri-urban Beira and Chibabava District.

2) Conduct interviews with the following: Africare project staff (Beira and Maputo), representatives from community groups in peri-urban Beira (neighborhood committees) and Chibabava District (Goonda, Tronga and Casa Nova), Aguas de Beira (parastatal municipal water authority), Chibabava District health officials and other organizations to be identified that are involved in water, health and sanitation projects.

3) Complete field visits in each of the neighborhoods of peri-urban Beira where the project has worked (Manga Mascarenha "A", "B", "C", "D", Vaz "B", Manga LoForte, Macuti, Ndunda, Inhaconjo, Marocanhe) and to the Chibabava localities of Casa Nova, Tronga and Goonda.

4) Review the data presented in the final report and interpretation of the project's "Health Information System", designed to document positive changes in health practices, access to potable water and other key primary health care indicators.

5) Complete and present a draft evaluation report to the Africare/Mozambique staff, including a summary of principal findings, conclusions and recommendations.

The Team Leader will have responsibility for the final draft of the evaluation report. This will be submitted in hard copy and computer diskette to Africare/Mozambique ten days after the end of the evaluation team's field activities. The final report will be presented to USAID/Mozambique by Africare. If necessary, the team leader will be available to participate in this presentation.

Evaluation Criteria

Two different sets of criteria will be used by the team to complete the final evaluation of this project. The first set of evaluation criteria is taken directly from Africare's "Activity Outputs", as included in its Grant Program Description. Many of these activity outputs include specific quantifiable indicators. These are presented by project component (Health, Water or IEC) and physical location of the activity (Peri-Urban Beira or Chibabava District):

Beira/Water:

- A survey of existing wells in Beira City will be completed by DOPH (Public Works)) with assistance from Africare, which includes a determination of wells requiring rehabilitation, sites requiring new wells and a list of priorities for well construction/rehabilitation.

- 20 Ferro-Cement WST's will be constructed and operating at standpipes or hand-dug wells in/around Beira City, providing potable water. Each WST will have a capacity between 7,000 and 15,000 liters.

- 90 hand-dug wells will be constructed/rehabilitated in Beira City, fitted with operating hand-pumps on a scale well head with a cement apron and drain.

- A team of 5 private WST construction workers will be trained and used by Africare in WST construction and basic sanitary education.

- 90 community water technicians ("guardas") will be trained for hand pump use and water point maintenance.

- 22,000 people each will receive at least 20 liters of potable water per day.

- 110 improved latrines will be constructed, clean, functioning and being used at 11 primary schools and technical institutions in Beira City.

Beira/IEC:

- A written agreement with the owner of each privately-held well will be signed prior to construction/rehabilitation will be signed which guarantees public access to the well.

- A water committee will be created and functioning for each rehabilitated/constructed well. Each committee and 50% of the families in the community will receive water and hygiene education which includes information on the safe transport and storage of water; the connection between clean water, good hygiene and good health; between diarrhea prevention and ORT; the reasons for and the correct use of pumps, WST's and wells; and the correct disposal of garbage.

- 50 community water committees will have a functioning user-fee system which covers 100% of the recurrent costs of the water point.

- Latrine committees will be formed at each of the primary schools where the improved latrines are constructed.

- Approximately 150 community latrines will be constructed.

- A team of 5 latrine construction workers will be trained and used by Africare in basic sanitation issues, latrine construction and maintenance.

- 20 community volunteers (probably mothers within the community) will be selected and trained in key diarrhea and water, sanitation and health messages who retransmit these key health messages to 80% of the mothers in their neighborhoods.

Beira/Chibabava Health:

- A Community Health Profile (KAP) will be completed for 3-4 communities in Chibabava District and for the Beira City water and sanitation beneficiaries.

- Africare's health education campaigns will result in behavior change by the target populations whereby at the end of the activity:

  a. 70% of mothers will practice ORT
  b. 60% of mothers will use ORT in diarrhea management
  c. Diarrheal management is children under 3 will be decreased by 10%.
  d. 85% of diarrheal cases reported at health facilities in Chibabava will be treated with ORT.

Beira/Chibabava IEC:

- 15 rural and 20 urban Mozambican Red Cross (CVM) volunteers will be trained (refresher courses) and working as community mobilizers in health, water and sanitation.

- 10 trainers will be trained in health, water and sanitation IEC methods. These trainers will be organized and carry out community health, water and sanitation training for community leaders and activity beneficiaries in Chibabava and Beira.

- A minimum of 6 key health messages will be developed, tested and delivered to health centers, activity beneficiaries and participants. These health campaign messages will be centered on hygiene and health practices to prevent and treat diarrhea in Beira and Chibabava.

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Chibabava Health:

- 3 rural health posts will be rehabilitated/constructed, equipped, staffed and operating in Chibabava District (equipped and provisioned through DPS/UNICEF). Each health post will have a clean and functioning latrine.
- 6-8 MOH staff will be trained/retrained in preventative health care to serve at the 3 rehabilitated health posts in Chibabava District.
- 3 preventative health agents will be recruited, trained and used by Africare as links between the health posts and communities (1 per health post) and as community organizers for health, water and sanitation issues.

Chibabava IEC:

- 30 latrines will be constructed, clean, functioning and being used at 30 households and/or public institutions in Chibabava District.
- 50% of the families in 4 to 5 communities in Chibabava District will receive health education, including the benefits of handwashing.

The second set of criteria is a series of key questions that focus on Africare's management of the project and its long-term impact:

General:

1) Has the expatriate technical assistance provided by Africare been sufficient and effective? If not, why?

2) Has the management of project funds supported the achievement of the project purpose?

3) Has Africare's Health Information System documented other positive impacts related to project activities that were not included in the original design of field activities?

Peri-Urban Beira:

1) How has Africare's project contributed to improvements in public health in the peri-urban neighborhoods of Beira?

2) To what degree have these improvements been managed by Mozambican institutions and what is the perspective for sustainability of these improvements?

3) Has Africare's intervention contributed to improved environmental management ?

4) What has been the level of community participation in the planning and implementation of project activities?

Chibabava:

1) Has Africare's intervention contributed to improved environmental management ?

2) To what degree has Africare's project contributed to the restoration and sustainability of basic health services throughout the district?

3) What has been the level of community participation in the planning and implementation of project activities?

Documents To Be Reviewed

- •• Original Project Proposal and Grant Agreement (Especially the Revised Program Description with amendment dated August 1995)
- • Quarterly Project Reports (#1-#10)
- •• Water And Sanitation For Health (WASH) Report #442: Redirection Plan For the Health Water And Sanitation Project, Mozambique. (April 1994).
- •• Mid-Term Evaluation Report (November 1994)
- • Data Analysis and Interpretation For Health Information System, including baseline and follow-up surveys completed during the period December 1993-February 1996.
- •• Presentation of IEC Training Of Trainer's Curriculum, including the series of health messages promoted by the project.

Draft Schedule

Day 1: Evaluation team is assembled in Beira, confirm workplan and begin document review and analysis.

Day 2: Interview Africare project staff, including Health, Water and IEC Assistant Coordinators. Complete initial field visit in peri-urban Beira (water points and neighborhood committees). IEC trainers present Africare's program of health messages, including training methodology.

Day 3: Interview Africare Program, IEC and Water Expatriate Coordinators. Second visit to peri-urban Beira to interview representatives from health, water and sanitation committees (Community Health Workers).

Day 4: Visit Industrial and Commercial Institute of Beira (including latrines, Water Storage Tanks and wells completed on site). Interview IICB trainers and directors about internship program with Africare water component and proposed future involvement. Third visit to peri-urban Beira, to visit selected water points and interview well-owners and review pump maintenance and repair capabilities.

Day 5: Presentation and discussion of Health Information System final report. Interview representative of "Aguas De Beira" (parastatal water authority) about Africare's water point development activities.

Day 6: If necessary, additional field visit to peri-urban Beira. Rest of day available for team to meet separately.

Day 7: No activity scheduled.

Day 8: Depart Beira for Chibabava District. Visit health posts in Revue (GTZ-funded), Goonda, Tronga And Casa Nova. Interview health workers in each locality. In Goonda, IEC staff will present activities completed in that locality. Continue to Chibabava Center for overnight lodging.

Day 9: Interview district health officials about Africare's health post construction and personnel training activities. Return to Beira.

Day 10: Meet with Provincial Director of Health and representative of Governor's office to discuss global impact of Africare's project. Team begins to work on first draft of evaluation report.

Day 11: Team meets separately to work on first draft. Follow-up meetings with different organizations and individuals can be organized as needed.

Day 12: Team meets separately to work on first draft. Follow-up meetings with different organizations and individuals can be organized as needed.

Day 13: First draft of evaluation report is presented to Africare/Mozambique staff and analyzed.

Day 14: Team members not from Beira depart. Responsibility for final draft is turned over to team leader.

Support To Be Provided

Africare/Mozambique will provide the following for the evaluation team:

- All local transportation to visit field sites and interview people identified above, throughout Beira and to Chibabava District.
- Logistical support for the field trip to Chibabava, including food.
- The Africare/Beira conference room will be made available as needed. It is expected that certain meetings wi be held outside of the Africare office.
- Lodging arrangements will be made for those team members that do not reside in Beira.

NAMES OF PERSONS VISITED AND INTERVIEWED

Africare Beira:
Ricardo Duenez, Program Coordinator
John Swett, Water Project Coordinator
Manuel Picardo, Water Project assistant
Aniceto Sequeira, Program Coordinator assistant
Arminda Prost, RN., IE&C Coordinator
Elizabeth Roque, MCH Nurse, IE&C assistant
Trainer of Trainers: Estrela, Ernesto,
Maduje, Alex, Sulemane
Margarida Santos, Administrator
Isabella Schmidt, HIS consultant

Africare Maputo:
William Noble, Country Representative

Community Committees in Beira:
Manga Mascarenha A
Manga Mascarenha B
Manga Mascarenha D
Alto da Manga

Directorate of Health of the City of Beira:
Armando Cunguara, Director

Government of the City of Beira:
Lucas Renço, Municipal President

Improved Latrines Program:
Carlos Jeque, Provincial Coordinator
Augusto Machavana, Civil Engineer
Paulo Pangaia, Activist
Helena Domingos, Activist

Industrial and Commercial Institute of Beira:
A. Junior, P.Olof-Bergman & Inga

Ministry of Health, Provincial Directorate of Health of Sofala:
Celia Herrera, MD, M.Sc., Epidemiologist, Community Health
Lucas Maparagem, Health Engineer, Provincial Supervisor of construction
Marcelino Lucas, Head of CHAEM

Provincial Directorate of Construction and Water of Sofala:
Inocentes Vembana, Civil Engineer, Director
Abel Florencio, Head of the Dept. of Water and Sanitation
Manuel Francisco, Technician

USAID Maputo:
Ricky Weiss, Program Officer

Water of Beira:
G. Waya

AGREEMENT FOR PUBLIC USE OF WELLS

DECLARAÇÃO

Eu Abdul Suleiman residente no Bairro Manga-Mascarenhas Unidade A, Q 3, sou proprietário(a) de um dos poços nesta unidade.

Declaro que autorizo o meu poço reconstruido pela AFRICARE possa ser utilizado pela população desta unidade.

Assinatura

Beira, aos 11 de Março de 1995