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**SOFALA PROVINCE INTEGRATED HEALTH, WATER AND SANITATION
PROJECT**

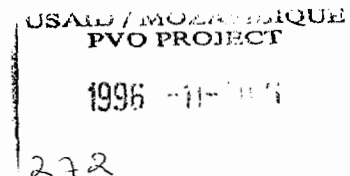
GRANT NUMBER: 656-0217-G-00-3022-00

GRANTEE: AFRICARE

FINAL REPORT

PROJECT PERIOD: JULY 1, 1993 - SEPTEMBER 30, 1996

Under USAID/Mozambique
PVO Support Project, 656-0217



I. EXECUTIVE SUMMARY

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. The purpose of this project was 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.

The design of this project evolved from a request for Technical Assistance from the WASH Project (Water and Sanitation for Health Project) in and around Mozambique's second city of Beira, made in September 1992 by USAID. Based on recommendations from the WASH final report, Africare prepared a funding proposal that targeted public health and sanitation. A critical need was identified to rehabilitate existing wells to provide potable sources of water for the increasing resident city population. Limited health education or promotion services were being provided. Included in this proposal were a series of rehabilitation and training activities to restore basic health services in Chibabava District, one of more war-affected districts in Sofala Province.

In March 1994, a second request was made to the WASH project for technical assistance to "re-direct" the project's implementation strategy and operational priorities. The completion of the WASH re-direction technical assistance (May 1994), coincided with the initial recruitment and training of the local-hire staff and the reception of imported construction materials and a fleet of four-wheel drive vehicles necessary to facilitate transportation in both project sites. Both of these tasks had been pending since the end of 1993. An important result of the WASH redirection exercise was the realization that certain "quantifiable outputs" needed to be reduced and that more financial resources should be channelled to public health education efforts as a critical complement to water and sanitation improvements. A project modification request was submitted to reduce many of the more quantifiable outputs, transfer more funding to support IEC activities and justify the continuation of the previously-approved LOP funding levels.

A continuing constraint during the project period was the lack of participation from government and volunteer agencies, as had been included in the original design. As a consequence of these problems, working relations and support were promoted with those organizations that had the minimal interest and capability to collaborate with Africare. This included the government's low-cost latrine program, the Industrial and Commercial Institute of Beira and the Beira City Council. The level of community organization that was ultimately promoted by the project's IEC component was significantly larger than expected, in part due to the reduced participation from other agencies. During the first half of the project, more than 300 residents in Beira began to support public health promotion activities and conduct non-formal training with their neighbors, supervised by the project's health trainers.

The consensus was that the technical quality of the water points that were developed by Africare was extremely high. Unfortunately, it was also determined that despite high quality construction,

water quality within the wells in particular was often not much improved. Public defecation and improper disposal of garbage continue to pose a serious health challenge to the residents of the city. It is probable that the water table in many parts of the city remains contaminated throughout the year. The solution to this problem lies with public health education, a key activity during implementation.

The development of the project's Health Information System (HIS) was a complicated and time-consuming activity. Despite some methodological weaknesses in questionnaire design and sample sizes, certain specific results of project activities were identified that measured behavioral change within the resident population and provide a clear and important contribution to the current state of health, water and sanitation in both project sites.

This project was in certain ways, a new and different development activity for Africare (specifically the work in and around Beira city). It is also representative of a trend with which Africare, as an international PVO dedicated to improving living conditions in rural Africa, has had to contend: the increase in development needs and opportunities within African countries that are taking place in peri-urban (or peri-rural) environments. The inability of governmental agencies to provide the necessary basic services was the context for this project. A contributing factor was the nature of the residents themselves. "Peri-urban" populations is a highly-understated description of the project's primary target groups. Beira's residents are a heterogeneous mix of rural and urban people, including a large number of refugees, demobilized soldiers, and other dislocated persons from diverse ethnic groups in the central and northern provinces of the country.

Several local organizations were identified who expressed interest in collaborating with the project, including exploring the possibility of continuing activities beyond 1996. The IICB has developed its own funding proposal to continue Water and IEC activities. Africare's IEC staff worked with KULIMA, a Mozambican NGO, during the final three months of implementation to present their staff to the nine different social clubs/community groups created during the final year of the project and train their outreach staff in the educational methodology employed.

Africare staff focused on the theme of "self-reliance" during its final activities with the nine Social Clubs. Contributions from the residents were continually requested during the last half of implementation (especially material). Community residents should not "wait" for agencies such as IICB or KULIMA to work with them. The potential for the long-term sustainability of any support program to emerge from these two local institutions would be strongly enhanced by community groups that were already completing limited activities on their own to improve and maintain their neighborhoods. That is the challenge which has been made by Africare. The decision to take up this challenge lies with the participants themselves.

II. PROJECT BACKGROUND

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 was implemented under USAID's PVO Support Project (656-0217). The original implementation period was to be three years. Because certain "pre-grant expenses" were allowed to be incurred by Africare starting on July 1, 1993, this project was originally scheduled to continue through June 30, 1996. In June 1996, Africare received approval for a ninety-day "No-Cost" extension. The revised Project Activity Completion Date was September 30, 1996.

Total dollar funding for this grant was \$2,448,447. In addition, Africare received in November 1994 a total of 1,082,038,532 Meticaís in local currency (worth approximately \$198,176 on that date) in counterpart funds from the Mozambican Ministry of Finance to support Africare's project activities.

The purpose of this project was 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 was to be done by the provision of safe and potable water and by community mobilization and education. There were 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 took place in the peri-urban areas of Beira. Latrine construction took place primarily in Beira, but was promoted on a limited basis in Chibabava District. Health post rehabilitation took place in specific rural communities in Chibabava District (to the south of Beira). Africare's health education program (Information, Education and Communication -IEC-) was implemented in both Beira and Chibabava District. The project's field staff were divided into three components (Health, Water and IEC). Each component had an expatriate coordinator and national technical and support staff. The overall Project Coordinator was an expatriate, as was the Administrator through the end of Year 2. Appendix A is an organigram of the project, identifying key personnel during the implementation period.

Collaborating institutions during implementation of this grant included the Provincial Directorate of Health (DPS), provincial water authority (within Public Works and Housing), Aguas De Beira (municipal water authority), Latrinas Melhoradas (governmental program of latrine promotion),

the Beira Municipal government, the Industrial and Commercial Institute of Beira (IICB) and other international and national Non-Governmental Organizations (NGO's) working in the area of health, water and sanitation in Sofala Province. Regular liaison was maintained with local government authorities in Chibabava District. The creation of community organizations (neighborhood committees) in both Beira and Chibabava District was promoted to manage the delivery of improved health-related services and education.

III. STATUS OF THE PROJECT AT THE BEGINNING OF THE REPORTING PERIOD

During the second half of 1992, USAID/Mozambique made a request for Technical Assistance from the WASH Project (Water and Sanitation for Health Project) in and around Mozambique's second city of Beira. This request for assistance was made because of serious water shortages and outbreaks of cholera and diarrhea, as a consequence of the 1992 drought that affected the entire Southern Africa region. The December 1992 WASH study, entitled: "**Beira Water Shortage and Resulting Public Health Problems**", included a specific action plan with the following recommendations:

Water Sector:

1. Construct temporary earth dam
2. Dredge intake canal
3. Survey shallow wells in Beira
4. Initiate hygiene education and conservation education programs
5. Design and construct combined storage tanks and stand post units (220)
6. Rehabilitate and construct wells (200)
7. Technical support and equipment
8. Conduct water resources study of Pungwe River

Public Health Sector:

1. Purchase supplies for treatment of cholera
2. Purchase chemicals for water disinfection
3. Provide support to training health workers
4. Purchase supplies for laboratories

Based on these recommendations, Africare prepared a funding proposal that targeted what was seen as a potential public health disaster in the making (since 1992, Africare had been implementing a health education/medication distribution program in Beira, to reduce the incidence of diarrheal diseases). Even though rainfall levels were improving in early 1993, a large influx of Mozambicans was being recorded in and around Beira's "peri-urban" neighborhoods (within fifteen kilometers of the city center). This influx of people was a result of the peace process that ended seventeen years of war in 1992. Many of the people that had fled to neighboring countries during the war (principally Zimbabwe and Malawi) were returning first to Beira prior to returning

to the rural areas, where security conditions were still questionable. It was projected (correctly) that these neighborhoods would receive massive increases in population, with no corresponding increase in basic water, health or sanitation services. Given the low level of acceptable services in and around Beira prior to 1992 peace agreement (as documented by the WASH report), it was indicated that significant increases in population during the first several post-war years would make a "bad situation even worse". The Rural Water Supply Program "PRONAR" and the parastatal municipal water authority "Aguas De Beira" were at best providing minimal water in these peri-urban neighborhoods. A critical need was identified to rehabilitate existing wells to provide potable sources of water for the increasing resident population. In addition, neither the city nor provincial directorates of health were providing health education or promotion services in these same areas. Included in this proposal were a series of rehabilitation and training activities to restore basic health services in Chibabava District, one of more war-affected districts in Sofala Province.

Africare's proposal was submitted in April 1993; the key targets for the outputs in this program were taken directly from the WASH Action Plan. The expatriate team to direct the implementation of this project was assembled in-country by early November 1993 (both the Water Coordinator and Administrator had been living in Beira and supported the project design).

IV. PROGRESS AND ACCOMPLISHMENTS DURING THE PROJECT PERIOD

General:

- Provided a total of 156 person-months of expatriate technical assistance in support of implementation (24 months for Health, 30 months for Information, Education and Communication -IEC-, 36 months for Water Point Development, 30 months for Administration and Financial Management and 36 months for Overall Program Management).
- Designed, implemented and monitored a Health Information System (HIS) for both the peri-urban neighborhoods of Beira (3,557 household interviews) and selected localities of Chibabava District (600 household interviews). Monitored Beira health clinic data about improvements in child and adult diarrhea incidence as an indicator of project impact.

Health Component:

- Constructed one new health post and rehabilitated two existing health posts in Chibabava District.
- Provided regular training and support for governmental and community health workers from six Chibabava District health posts.

- Participated in a provincial-wide EPI program, that vaccinated 16,802 women and children in Chibabava District.

Water Component:

- Recruited and trained a seventeen-member water team to complete all water point development and training activities.
- Working with governmental authorities, surveyed more than 800 existing wells in the peri-urban neighborhoods of Beira, identifying those that have reliable and plentiful water sources.
- Rehabilitated 91 wells in the peri-urban neighborhoods of Beira, including well-protection (well rings, concrete apron and drainage) and pump installation.
- Constructed 10 Water Storage Tanks in Beira connected to either rehabilitated wells or Aguas de Beira standpipes (varying storage quantities from 7,000 - 10,000 liters).
- Constructed 20 school latrines.
- Completed 11 seminars with community residents about hand pump and school latrine maintenance and repair (a total of 240 participants).
- Provided four month practical internships in well rehabilitation for approximately 200 graduating students in civil construction from the Industrial and Commercial Institute of Beira (IICB).

IEC Component:

- Recruited and trained a cadre of "TOT's" (Trainers of Trainers) responsible to develop and implement a non-formal knowledge transfer methodology at the level of community residents (a total of 11 TOT's were trained during the project).
- Trained and monitored approximately 300 Community Development Agents (ADC's) in both Beira and Chibabava District in how to present a series of sixteen messages about hygiene, sanitation and nutrition to their neighbors to improve public health in these communities. Included in this training was a simple method by which the ADC's measure if the message recipients are applying these messages in their daily behavior.
- Supported the formation of three committees (health, water and sanitation) in nine Beira neighborhoods (each committee had between 10-30 members). These committees formed the basis for the nine "Learning By Doing" social clubs that were created during the final phase of the project as a separate community-based (and driven) organization.

- Working with the Water Component, supported the establishment of "User-Fee" systems at each of the rehabilitated wells (i.e. pump repair and maintenance funds). At the end of the project, approximately 66% of the wells were successfully implementing user-fee systems.
- In collaboration with "Latrinas Melhoradas", promoted the construction of 40 community latrines in Beira and 30 community latrines in Goonda, Chibabava District.
- Organized a series of promotional and information dissemination seminars about the relationship between community health, water and sanitation for more than 600 community residents, governmental representatives and development agency field workers during the life of the project.

Appendix B is a timeline presentation of field activities from September 1993 - September 1996. Appendix C is a detailed presentation of key activities and results accomplished during the project period, divided by Component (Health, Water and IEC) and geographical area (Beira, Chibabava District). Appendix D is a presentation of health and water activities, per the "activity outputs" included in Africare's grant agreement with USAID/Mozambique.

V. ANALYSIS OF CONSTRAINTS/PROBLEMS AND RECOMMENDATIONS

During the first six months that the Africare team was in-country, it was determined that it would be difficult to achieve many of the activity outputs included in the grant agreement. The reasons for this determination are discussed below. In March 1994, a request was made to the WASH project for technical assistance to "re-direct" the project's implementation strategy and operational priorities. The result of this technical assistance activity was a better-defined implementation methodology. Africare staff would approach health, water and sanitation activities in an integrated manner, beginning with the presentation of the project to community residents. This integrated approach was to be used in both peri-urban Beira and Chibabava District (recognizing that water point development was not a principal activity in Chibabava).

The completion of the WASH re-direction technical assistance (May 1994), coincided with the initial recruitment and training of the local-hire staff (both technical and administrative) and the reception of imported construction materials (for water point development and health post construction) and a fleet of four-wheel drive vehicles necessary to facilitate transportation in both project sites. Both of these tasks had been pending since the end of 1993.

During the initial six month period (through February 1994) potential local-hire staff that were identified possessed, at best, minimal technical abilities. An intensive period for staff training was required for both the water team (to be able to coordinate activities in as many as five sites simultaneously on a daily basis) and the IEC health trainers (to learn a non-formal knowledge transfer methodology). In addition, Africare completed, starting in December 1993, an initial 400 household survey in Beira, that required both the health and IEC component staff.

Procurement had been completed in September-October 1993 for all needed construction materials and vehicles, per Africare's project proposal. Unfortunately, delays were encountered from the South African vendors who provided these goods and from within the Mozambican Government to provide the necessary import duty exemptions. The result was that the first project vehicle was not received until March 1994. The remaining importations were received during the next two months. Upon approval of the project from USAID, Africare was in the unenviable position of attempting to initiate a large and diverse project without adequate transportation, equipment or materials. It was only as of May 1994 that Africare was able to seriously expand its field activities within the three components, as outlined in the original project proposal, and possess the necessary human resource base, material and transportation support and a realistic operational methodology.

An important result of the WASH redirection exercise was the realization that certain "quantifiable outputs" needed to be reduced and that more financial resources should be channelled to public health education efforts as a critical complement to water and sanitation improvements. The initial experience with water point development in Beira indicated that each well rehabilitation and Water Storage Tank (WST) construction was going to be significantly more time-consuming than had been included in the original design. It was projected (correctly) that even upon the project's water team successfully "learning" their technical responsibilities to the best of their abilities, it would be impossible for Africare to rehabilitate the number of wells and construct the number of WST's included in the original proposal (and WASH's Action Plan) during the three year implementation period.

The enhancement of the role to be played by the IEC component was also an identified need. This included the allocation of more resources for health education and promotion, to facilitate this staff's activities as a complement to the water team. The initial experience with the IEC team was to have them work ½ days in the same neighborhoods as the water team. Subsequently, it was recognized that their efforts were critical to ensuring that local residents would assume "ownership" for the water points that were being rehabilitated by the project (the TOT's worked full time during the second half of the project). Most of the dialogue maintained with community leaders about the project's objectives, problems related to access to water at a given well or the identification of suitable areas for future activities was completed by the IEC component (in addition to limited activities completed in Chibabava District during the second half of the implementation period).

In September 1994, a project modification request was submitted by Africare to USAID/Mozambique. This document proposed significant reductions in many of the more quantifiable outputs in both Beira and Chibabava District, the transfer of more funding to support IEC activities and justification for the continuation of the previously-approved LOP funding levels despite the proposed reduction in many of the original activity outputs. An official response to this submission was postponed until after the project's mid-term evaluation, conducted in November 1994. During the review of the evaluation at USAID/Mozambique in December 1994, an oral request was made for a revised budget submission, incorporating the changes proposed

earlier by Africare, prior to the processing of remaining grant funds (approximately 55% of the total estimated funding had been allocated to Africare in September 1993; this funding had been exhausted as of September 1994). The mid-term evaluation supported Africare's proposed project modifications, citing that they were more realistic with the conditions and delays encountered during the first half of implementation.

A revised budget submission was sent to USAID/Mozambique in early February 1995. During the next six months, continued communication with USAID did not result in the processing of the project's second incremental funding. At no point was Africare told officially that the recommendations of the mid-term evaluation (to release the remaining funding) were not accepted nor that the requested modifications were unacceptable. Written justification of these reductions in outputs were submitted by Africare at several points during this period. The second incremental funding was only received in August 1995. At that point, Africare had "forward-funded" this project approximately \$500,000. Ironically, it was during this period that the implementation of field activities increased significantly, reflecting the successful implementation of the WASH redirection recommendations and a more-integrated field methodology.

A continuing constraint during the project period was the lack of participation from government and volunteer agencies, as had been included in the original design. Many of the volunteers were to have come from the Red Cross. With the exception of minimal support during the initial household survey, Red Cross Volunteers did not participate in any further project activities. One consequence of this reality was an increased focus on the role of volunteers at the community level (taken from the pool of project beneficiaries), who would eventually become members of health, water or sanitation committees.

Working relations were established with all of the governmental agencies included in the original proposal. The level of support provided to the water component was extremely limited during the first half of the project. The municipal water authority and provincial water directorate were not interested in the improvement of peri-urban water. It was only after a governmental re-organization in late 1994, that placed the water directorate within the Public Works and Housing ministry, that collaboration increased significantly (weekly well surveys with project staff).

The Ministry of Health supported health post construction activities and training/support to rural health technicians in Chibabava. However, material support for these efforts (including field visits from key Beira-based staff and equipment) were difficult to organize, despite Africare's repeated offers of transportation support. District health officials rarely worked with Africare staff in the health posts, because none of these posts (supported by Africare) were in the district capital. Limited interest was expressed in the general area of health education and/or preventative health care in the peri-urban areas of Beira. This is best indicated by the fact that of the five health clinics in the city (not including the regional hospital) only one clinic serves the peri-urban population (estimated to be 300,000 people) for primary health care needs.

The governmental Low Cost latrine program worked with the IEC component for approximately 50% of the project period (due to funding constraints, it ceased to operate for more than one year). As a consequence of these problems, working relations and support were promoted with those organizations that had the minimal interest and capability to collaborate with Africare. This included Latrinas Melhoradas (when it was operating), the Industrial and Commercial Institute of Beira and the Beira City Council.

The level of community organization that was ultimately promoted by the project's IEC component was significantly larger than expected, in part due to the reduced participation from other agencies. During the first half of the project, more than 300 residents in Beira began to support public health promotion activities and conduct non-formal training with their neighbors, supervised by the project's health trainers. The decision was made to provide food "incentives" to these people (ADC's) in exchange for their effort. The Mozambican experience in the "Emergency Period" (through the beginning of the project) strongly indicated that community "participation" would simply not be forthcoming if there was no material motivation provided, that went beyond the educational and health benefits of living in a cleaner neighborhood. The amount of food distributed to each resident was smaller than the typical WFP ration and this distribution was only begun three months after beginning to collaborate with the project. In addition, the incentives were normally discontinued after three months. It was felt that this system would identify those residents most interested in participating in the improvement of their neighborhoods.

In mid-1995, a large number of the ADC's communicated their desire for a change in the type and levels of support provided by the project. Some requested that they be treated as employees and refused to continue to collaborate if monetary support was not provided. Project staff decided to radically alter the type of support that could be made available for these community groups. An amount of money (equivalent to three months worth of food rations) was provided to each group to open an activity fund. The amount was, in many senses, symbolic, but these funds were transferred to each group to be used as they judged most appropriate. Food distributions were ended. More than 50% of the ADC's that had been collaborating with the project ended their participation. The remaining ADC's/residents eventually became the basis for the formation of nine "Learning By Doing" Social Clubs (one for each of the nine neighborhoods where the project worked). This experience resulted in the identification of a smaller, but better trained and motivated, group of ADC's willing to continue promotional activities in the medium term.

The establishment of user fee systems for rehabilitated wells was an important activity output in the grant agreement. This activity required the joint efforts of both the water and IEC component staff. The success of this activity was influenced partly by the fact that all of the rehabilitated wells were on private property (not "public" wells as had been included in the original design). This meant that as part of the initial preparation to work at a well, the owner was obligated to sign a letter and state in public that access to the water from this well would not be disrupted. Despite these safeguards, there were instances where a well owner took advantage of the situation for his own personal gain and project staff were forced to remove the pump and close the well.

In the majority of cases, well owners collaborated with the project and took responsibility to ensure that the wells were properly maintained. The initial experience with user-fee systems during the first half of the project was mixed. A family's decision to buy water was influenced by several factors, including water levels in other wells (regardless of whether they were protected or not), the cost of the water (normally no more than 5,000 Meticaís per family per month) and the level of participation with IEC activities, that highlighted the importance of drinking water from a protected well (i.e. enhancing its value). Other problems included the belief, within certain communities, that water should not be sold and/or an inability to decide to whom payments should be made (i.e. to whom financial accountability should be vested).

The IEC staff revised its strategy in mid-1995, to promote the community's contribution to "pump maintenance funds", rather than "buying water". It became readily apparent that this concept was more easily accepted, especially since by that point, many of the rehabilitated wells had been functioning long enough to experience minor pump problems requiring repair and/or spare parts. Africare's research on the issue of user fee systems in Beira indicates that "willingness to pay" will be influenced by water levels at alternative sites and that due to the diverse ethnic nature of the resident population in these neighborhoods (discussed in more detail below), it is impossible to implement a user-fee system that will be accepted in 100% of these areas. At the end of the project, approximately 66% of the functioning wells were receiving payments from the community (during what was the "wettest" year in recent history in central Mozambique).

One of the principal justifications for Africare's project was the high potential and significant public health risk of water table contamination in and around Beira. This is what occurred during the 1992 drought, when the municipal water system shut down for more than one month, forcing all residents to draw water from existing hand-dug wells. Public defecation has been a problem in Beira for several years, and was exacerbated by the increase in population that began in the early 1990's. The city is located in a low-lying, swampy area, filled with sandy and clay soils that easily allow contamination to pass through to the water table (which is usually no more than 4 meters below the surface). This situation created the conditions for outbreaks of Cholera and other diarrheal diseases prior to Africare's project.

The consensus was that the technical quality of the water points that were developed by Africare was extremely high. Unfortunately, it was also determined that despite high quality construction, water quality within the wells in particular was often not much improved. The reasons for this lie with the situation described above. Public defecation and improper disposal of garbage continue to pose a serious health challenge to the residents of the city. It is probable that the water table in many parts of the city remains contaminated throughout the year. Under these conditions, rehabilitated wells of high quality will only provide non-contaminated water for a limited period of time after their completion (the final step in the project's rehabilitation process was chlorination of the well prior to its closing and exclusive use of the pump for water removal). This observation was confirmed during the project's final evaluation, when more than 50% of the rehabilitated wells that were sampled were judged unfit for human consumption.

The solution to this problem lies with public health education, a key activity during implementation. (One of the principal messages transmitted by the project's IEC team was to always boil drinking water, even if it came from a pump). However, the level of education needed to change behavior throughout all the peri-urban neighborhoods was significantly beyond Africare's funded resource levels (although several other organizations have initiated basic urban services projects during 1996). There is a large need to continue public health efforts in these neighborhoods (discussed below).

Periodic short-term technical assistance was required to support on-going field activities (in addition to the WASH re-direction). One issue that was raised during the discussions concerning Africare's project modification was the quality of the long-term technical assistance being provided by Africare in the water component. It was suggested unofficially that the project's Water Coordinator lacked many of the necessary skills for this position (principally because he was not an engineer). The problems related to well rehabilitation and WST construction in Beira have been discussed above, including the extremely difficult geological and sociological conditions confronting the water component staff.

At four different points during implementation, engineers were contracted to review, advise and make recommendations about the water point development work being completed by the project. In February 1995, two engineers with the National Directorate of Water (one Mozambican, one expatriate) completed an appraisal of the work that had been completed and issued a report **"Relatório da Visita Ao Projecto de Água da Africare nos Bairros Per-Urbanos da Cidade de Beira"**. The general conclusion of this report was that given Beira's extremely difficult conditions (perhaps one of the most difficult in the world), the quality and amount of work completed was generally positive. Specific recommendations were made about well rehabilitation and WST construction methodology, but these were considered minor. In November 1995, an expatriate engineer was contracted to review structural problems encountered with the first block of school latrines. His report, **"Advice On Construction Of Pit Latrines For Schools"**, concluded that the shifting soils common to these neighborhoods created cracks in the support system that could not have been foreseen. Specific recommendations were made to overcome this obstacle and the latrines were successfully completed. Expatriate engineers were included in both the mid-term evaluation (November 1994) and the final evaluation (March-April 1996). The general conclusions from both evaluations were positive, and highlighted the technical challenges that were undertaken by Africare with this project..

The quality of the health posts constructed and/or rehabilitated was judged superior, despite the fact that neither the Health Coordinator, nor his assistant, were engineers (although the assistant had significant experience with rural construction projects with the Red Cross prior to joining Africare). All health construction completed in Chibabava District was officially "turned-over" to the Provincial Health Directorate in late 1995. This was due to the fact that there had not been a Provincial Inspector assigned to Sofala Province from mid-1994 through the end of 1995. With the exception of several minor repairs, these facilities were officially accepted in December 1995.

The development of the project's Health Information System (HIS) was a complicated and time-consuming activity. The importance of designing this system was recognized at the beginning of the project, because there was no health or sanitation data available about peri-urban Beira nor Chibabava District. Unfortunately, the information that was collected during the different surveys in 1994 and 1995 was often not consistent and become difficult to agglomerate. The Health Coordinator, who had primary responsibility for the HIS, designed questionnaires that were either overly cumbersome and detailed or too general and superficial. The changes in questionnaire design resulted in data that was extremely difficult to analyze on a time-series basis.

Recognizing this difficulty and the importance of having minimally-consistent data from which to draw conclusions about health and sanitation in the project area, an expatriate health statistician was contracted to "re-analyze" the project's existing data-base (through November 1995) and to support the questionnaire design for the final series of surveys to be completed during January-February 1996. Her report, "**HIS Final Data Analysis, Interpretation and Findings**" was released in March 1996 and reviewed as part of the final evaluation. Despite the methodological weaknesses discussed above, this report was able to identify specific results of certain project activities, measure behavioral change within the resident population and provide a clear and important contribution to the current state of health, water and sanitation in both project sites.

Estimates of the percentages of participating peri-urban Beira residents that received and incorporated the principal IEC messages are presented below:

1.	Storing water in closed containers	87%
2.	Mosquito habitat control (cutting of tall grasses/water drainage)	82%
3.	General cleanliness of home/surrounding environ	81%
4.	Preparation and use of oral rehydration solution	77%
5.	Personal hygiene (average of 4 messages)	77%
6.	Proper disposal of waste	68%
7.	Storage of dirty crockery above the ground or in basins	68%
8.	Defecation in latrines or burying of feces	64%
9.	Vaccination of children under five years old	57%
10.	Vaccination of women of childbearing age	50%
11.	Keeping livestock outside of the house	48%
12.	Correct use and maintenance of wells	45%

An additional part of the HIS was the collection and monitoring of health statistics at local clinics, to identify trends and/or positive changes within the target population. In Chibabava District, this activity was included in the regular technical assistance provided to rural nurses and first aid workers (i.e. to correctly record the types of health problems treated ect.). In the case of peri-urban Beira, this data-collection was completed for the five clinics in and around the city, focusing on recorded cases of diarrhea among children and adults. The number of cases were aggregated on a quarterly basis in both 1994 and 1995 and compared, for both age groups, for each of the five clinics. As was stated above, the only clinic that serves the peri-urban population is the

"Aeroporto" clinic; the other four are significantly farther away from these neighborhoods. The assumption was that this clinic would receive most of the requests for primary health care assistance from the target neighborhoods. It was only in this clinic that the recorded incidences of diarrhea in both children and adults was reduced from 1994 to 1995. This reduction remained constant for all three quarters. Given that this information was not recorded by Africare staff at the time of each request for health assistance, the level of accuracy is suspect. However, the trend is clear: diarrhea incidences as recorded in the health clinic most likely to receive residents from the project's target neighborhoods were consistently reduced during similar time periods from 1994-95. Similar data from the other clinics (i.e. collected with the same likelihood of less than 100% accuracy) do not indicate this trend. A summary is included in Appendix E.

Presented below is an estimate of the direct beneficiaries from project activities:

<u>Activity</u>	<u># Of Benef.</u>	<u>How Benefitted</u>
Health Post Const./Rehab.	45,000	Estimate of number of people living in areas of Chibabava District served by the four health posts (3 USAID-funded and 1 GTZ-funded) completed during implementation.
Health Worker Training	50	Estimate of nurses/first aid workers that received training and field support in health post management, vaccination promotion, including Traditional Birth Attendants.
Vaccination Campaign	16,802	Result of Africare's participation in provincial-wide UNICEF/DPS program, managed in Chibabava District.
Public Health Training And Promotion	1,485	297 ADC's in Beira x average 5 family members/ADC that promoted the project's health, nutrition and sanitation messages within their own homes.
"	1,485	Estimate of 5 neighbors/ADC in Beira that received regular non-formal training in health, nutrition and sanitation.
"	55	11 ADC's in Goonda, Chibabava District x average 5 family members/ADC that promoted the project's health, nutrition and sanitation messages within their own homes.

<u>Activity</u>	<u># Of Benef.</u>	<u>How Benefitted</u>
"	55	Estimate of 5 neighbors/ADC in Goonda, Chibabava District that received regular non-formal training in health, nutrition and sanitation.
Latrine Promotion	1,000	Estimate of student population at three institutions that received latrines (2 primary schools and 1 training institute).
"	200	40 families in Beira (5 members/family) that installed improved community latrines.
"	150	30 families in Goonda, Chibabava District (5 members/family) that installed improved community latrines.
Water Point Development	5,000	Estimate of 100 families (5 members/family) that receive water from the 10 Water Storage Tanks constructed.
"	44,650	Estimate of 135 families (5 members/family) that receive water from 66 rehabilitated wells (not including wells constructed at institutions, those with removed pumps and simple wells - rehabilitated w/o pumps).
Training in Water Point Development And Main.	200	IICB student interns that worked on project water crews (four months/internship)
	240	Estimate of community residents that attended training in hand pump repair and maintenance.

The Sofala Province Integrated Health, Water and Sanitation Project was in certain ways, a new and different development activity for Africare (specifically the work in and around Beira city). It is also representative of a trend with which Africare, as an international PVO dedicated to improving living conditions in rural Africa, has had to contend: the increase in development needs and opportunities within African countries that are taking place in peri-urban (or peri-rural) environments. The reasons for this trend vary from one country to the next, but are representative of changes in African societies that promote large migrations toward principal cities.

The circumstances in and around Beira have been presented above. The inability of governmental agencies to provide the necessary basic services was the context for this project. A contributing factor was the nature of the residents themselves. "Peri-urban" populations is a highly-understated description of the project's primary target groups. Beira's residents are a heterogeneous mix of rural and urban people, including a large number of refugees, demobilized soldiers, and other dislocated persons from diverse ethnic groups in the central and northern provinces of the country. Portuguese was usually the second language of the participants. The vast majority of residents remain extremely poor, with few prospects for improvement or employment in the near future. An important lesson learned by Africare was that more research into the socio-economic circumstances of the target population would have facilitated field activities. There was an expectation on the part of residents that improved services would be forthcoming, specifically because they were living near a large city (as opposed to an isolated rural village).

A significant amount of time was required for the training of local staff, especially in the water and IEC components. This was due to the fact that post-independent Mozambique always a possessed poorly-trained human resource base (greatly exacerbated by the war and migration) and that those people possessing some abilities had never worked in a peri-urban environment. More time for staff training will be incorporated into future Africare programming.

The operational methodology used by the project (that incorporated WASH's recommendations) was developed from Africare's 20+ years of working in rural water, sanitation and health education projects. Modifications in this methodology were necessary, because of being in a municipality and different operating constraints (e.g. more rigorous regulations concerning construction activities). In addition to the myriad of needs of this growing post-war population, often returning to Mozambique for the first time in more than ten years with little more than the "clothes on their back", the levels of distrust and insecurity made community acceptance of the project extremely important (and time-consuming) to acquire. It was necessary to allow for significant time to pass (as compared to a non-war situation) before community residents began to readily collaborate with project staff. Despite this precaution, there were several instances of certain neighborhoods that declined to participate in the project, after having been presented with the methodology and objectives.

Another factor that influenced the project's implementation was the rapid changes within Mozambican society as a consequence of the successful peace process. In 1993, civil conflict within the country was in an uneasy "holding pattern", the emergency/relief needs of the country were enormous and it was not known if the situation would remain stable, deteriorate or improve. By the end of the project, multi-party elections had been completed successfully and positive signs of economic growth (at the national level) were being recorded. The government had declared the "Emergency Period" being over and the preferred focus of development initiatives was on sustainability, local capacity-building and growth-promotion. In short, in the three years of implementation, Mozambique had "graduated" from an emergency nightmare to a development challenge. The modifications made within the project design in 1994 did not include a change to promote local-capacity building per-se. Responsibility for the completion of the quantifiable

outputs in the water and health components remained principally with Africare (rather than transferring capability to a local institution). The speed with which operational priorities can change in a post-war society was not incorporated into Africare's project design (nor was this rapid change expected by USAID in 1992). Flexibility in the design of a project's implementation methodology in a fluctuating post-war environment has been a critical lesson for Africare.

The importance of peri-urban populations is only now beginning to be appreciated by Mozambican governmental agencies. Beira is not the only city to have a growing peri-urban population. It is unfortunate that little interest was shown by collaborating ministries until the latter period of implementation; no other organization was involved in water point development and IEC services in peri-urban environments at a level similar to Africare in any Mozambican city during the implementation period. One indicator that this level of interest is changing concerns a large World Bank project currently under formulation for the water sector. Included will be a component for peri-urban water delivery, to be implemented by governmental agencies. Africare's project was visited by World Bank and governmental staff during 1995-96. It is hoped that Africare's experience will improve the implementation of this important future activity.

Besides the obvious improvements in water availability and health conditions, as outlined in the WASH Action Plan, an unexpected lesson from this activity for USAID concerns the role of municipal government. It was stated above that of all governmental agencies, the Beira City Council was by far the most collaborative and supportive of activities in peri-urban neighborhoods. This type of project, designed in a slightly different way, could significantly enhance the abilities of municipal government (an important part of USAID/Mozambique's Democracy programming). Unfortunately, working within the city of Beira and in the technical areas of water and sanitation is no longer within the mission's Country Program Strategy.

Beginning in mid-1995, several local organizations were identified who expressed interest in collaborating with the project, including exploring the possibility of continuing activities beyond 1996. Contacts made with the Industrial and Commercial Institute of Beira (IICB) were initiated to satisfy needs of both parties: IICB was searching for practical internships for its graduating students in civil construction and plumbing and Africare was attempting to identify organizations that could contribute to field activities (especially in-kind participation) to increase productivity. Two different groups of interns worked on Africare's water crews during the last half of the project. As a result of this inter-action, a common interest was identified for both organizations to jointly explore continued collaboration with funding to expand water and IEC services (the integrated approach to water and health education employed by Africare was endorsed by IICB).

In January 1996, a concept paper was submitted by both organizations to USAID/Mozambique, soliciting support for a new activity in peri-urban Beira that would 1) expand the level of water and IEC services in the peri-urban neighborhoods and 2) create an indigenous capacity within IICB to offer these services in the medium term (including cost recovery). This type of proposal (working with and strengthening local institutions to provide effective services) is indicative of the changing working environment in which Africare's current project was implemented during 1994-

95. Unfortunately, this concept paper was not accepted by USAID/Mozambique, principally because of changes in the mission's geographical priorities (excluding Beira city) and technical priorities (focusing exclusively on "Child Survival" activities, for which water and sanitation cannot be classified).

Based in part on this response, Africare's program in Sofala Province was phased out to coincide with the end of this project (September 1996). Preparations have begun to initiate a new multi-year development activity in Manica Province, starting in FY'97. Despite this set back, the IICB has developed its own funding proposal to continue Water and IEC activities. Africare's former Water Coordinator has joined the IICB staff and is supporting the effort to contact prospective donors. A stock of spare parts for the hand pumps that were installed by the project has been transferred to IICB, and is available for purchase by community water committees as needed.

In May 1996, Africare submitted a request for a "Ninety-Day No-Cost" extension of the project. This request was approved by USAID in June 1996. The principal activity to be included during this extension period was an explicit effort to work with one local NGO to assume responsibility to continue to work with the community groups that had been formed in the peri-urban neighborhoods. In addition, the project's health trainers provided limited follow-up training and repairs of hand pumps.

Africare's IEC staff met with KULIMA, one of the larger Mozambican NGO's (that has been working in Sofala Province for more than five years), throughout this period to present their staff to the nine different social clubs (one per neighborhood). In addition, Africare's working methodology and training materials were presented to KULIMA staff. One of the reasons why the decision was made to work with KULIMA is that this NGO is implementing several projects in the peri-urban areas (i.e. Food For Work), including the improvement of basic urban services.

There is a sincere desire from the perspective of KULIMA to continue to support these community institutions. However, the lack of readily-visible funding to support outreach activities will probably mean that support will be haphazard at best (until separate funding is secured).

VI. SUMMARY OF PROJECT STATUS AT THE END OF THE END OF THE PERIOD

Africare's field activities had made a significant contribution to improvements in health, water and sanitation in both the peri-urban neighborhoods of Beira and Chibabava District. The health delivery services available in Chibabava had been "re-established" as a result of Africare activities (besides the three health posts that were rehabilitated and/or constructed with project funds, a fourth rural facility was completed during the project period with non-USAID funds). The result is that primary health care services (including facilities, minimally-trained health workers and limited equipment) had been re-instituted for a large portion of Chibabava's population.

The integrated activities of the Water/IEC components in Beira took place in approximately 40% of the existing peri-urban neighborhoods. The majority of the resident populations in these nine

"bairros" received and/or participated in project-sponsored activities. A local institution (IICB) is attempting to secure additional funding that will expand services throughout these neighborhoods, modeled after Africare's program. Limited non-formal training and promotion in community health will be provided by KULIMA, although the actual amount of support is not known, due to this organization's own funding restrictions.

During the last three months of implementation, Africare staff focused on the theme of "self-reliance" when dealing with the members of the nine "Learning By Doing" Social Clubs. Contributions from the residents themselves were continually requested during the last half of implementation (especially material). This was extremely difficult to identify, because of Mozambique's "Emergency/Donation" mentality that is the anti-thesis of self-help. Project staff began to note some changes in outlook among the remaining community participants about the amount and type of resources that could be provided by the community itself. Africare's experiences in every country where it has worked has made clear that the largest strength of a community are the members themselves. If a continued desire to improve themselves is the only accomplishment of a project, but it is a desire that is strongly pursued after Africare's withdraw, then the project will always be judged as a success.

It was clearly communicated to the community residents that they should not "wait" for agencies such as IICB or KULIMA to work with them. Their participation and support is important, but it was not guaranteed as of the end of Africare's project. In any event, the potential for the long-term sustainability of any support program to emerge from these two local institutions would be strongly enhanced by community groups that were already completing limited activities on their own to improve and maintain their neighborhoods. That is the challenge which has been made by Africare. The decision to take up this challenge lies with the participants themselves.

VII. APPENDICES

Appendix A: Project Organigram

Appendix B: Timeline Presentation of Field Activities

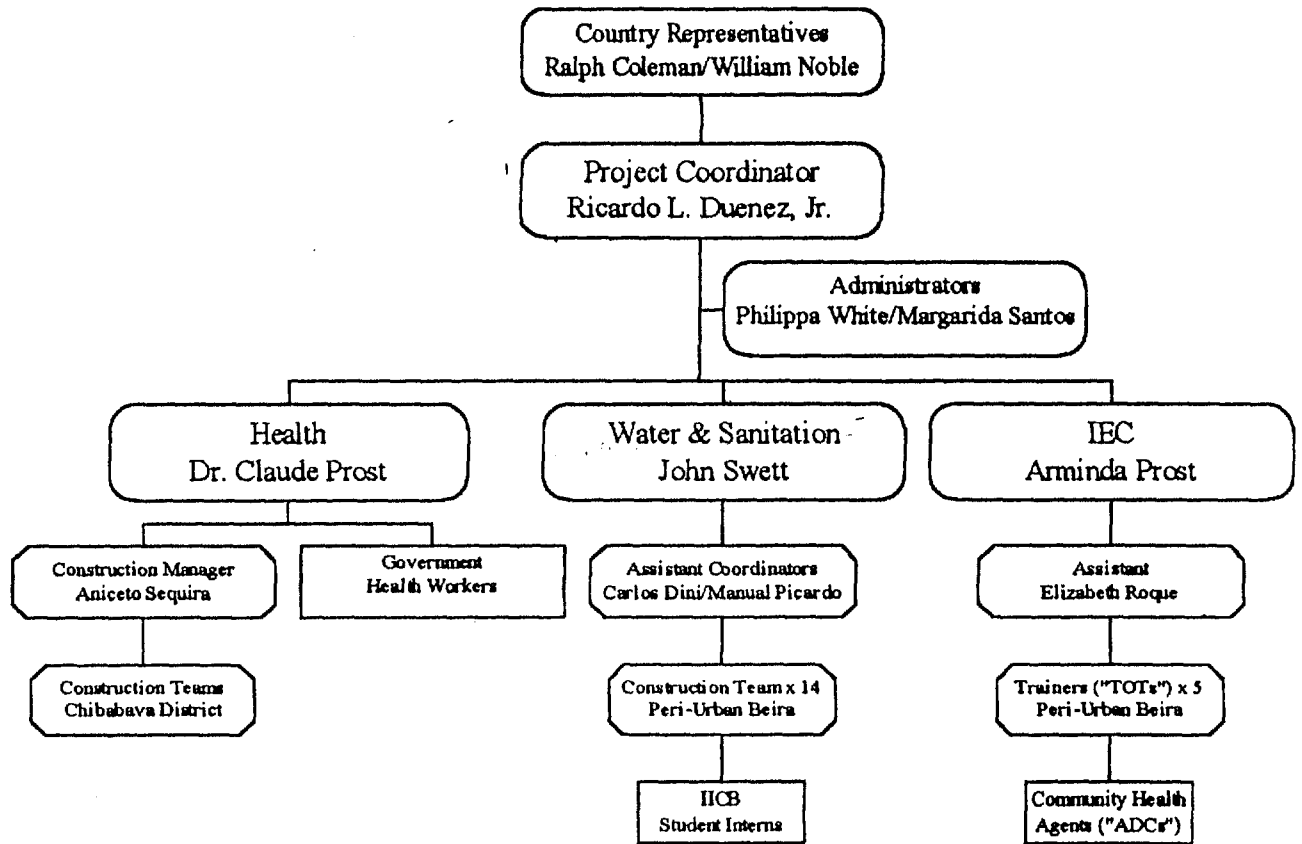
Appendix C: Project Activities and Results, divided by Component and Geographical Area .

Appendix D: Health and Water Activities, per Grant Activity Outputs.

Appendix E: Comparison Of Diarrhea Incidence in Beira Health Clinics: 1994-95.

Appendix F: Standard Form 269 "Financial Status Report" For Life Of Project.

Sofala Province Integrated Health, Water & Sanitation Project
Organizational Chart



4301 Project Timeline

Activity	1993	1994	1994	1994	1994	1995	1995	1995	1995	1996	1996	1996	Totals
	Sep - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	
Wells		Teams/ Materials	Vehicles/ Materials	3	4	13	13	14	19	11	14		91
Water Storage Tanks		Teams/ Materials	Vehicles/ Materials		2			4		2	2		10
Latrines						LM latrns 31	Chibabava 30		VIP 2	J.Machel 10	Modelo 8		81
Health Posts		Teams Materials	Goonda C. Nova	Tronga		2	1		HP handover				3
Water Seminars							3	7	1	IICB	IICB		11
IEC Seminars	Action Plan	Baseline Follow-up				PAV Campaign		Trad. Birth Attendant Workshop			Education Workshop		
Health Post Data					2 HPs		3 HPs						0
Health/IEC Surveys	City-wide Baseline Survey			Manga/Loforte/Macuti Surveys		Goonda Survey			Inhaconjo Survey	Manga/Vaz/Loforte Surveys			
Africare	Start Project	Materials WASH	Vehicles		Budget/Outs Amendment	UNICEF					Final Evaluation	No-Cost Extension	
	Macuti Office				Mid-Term Evaluation				Ponta Gea office				

Sofala Province Health, Water, & Sanitation Project (4301)

WELLS										
OUT	WELL	OWNER	LOCATION	START	FINISH	LTR	QUALITY/ DATE	PROBLEMS	ACTIONS	NOTES
1	293	Dona Teresa	Manga B, O1	28/06/94	01/09/94	x	Dirty 19/1/96	Few during rainy season/weak community	IEC investigate 29/2/96	Well 3x normal size, users going to D, rings broken till rains stop
2	312	Dona Regina	Manga B, O3	22/08/94	21/10/94	x		Few using well, little water 19/2/96	IEC investigate in March	Comite problems with cmty-better in April, Water to clean tank/well
3	311	Dona Regina	Manga B, O3	27/09/94	07/10/94	x				Simple, no pump installed
4	332	Dois Imaos	Manga B, O1	12/07/94	19/08/94			Social problems	Pump removed	
5	470	Sr Abdul	Manga A, O3	10/11/94	25/11/94			Initial social problems overcome, pump 3/5/96	IEC, Community	Store owner, has guarda, owner responsible?
6	442	Sr DeBarca	Manga A, O5	05/12/94	27/01/95	x	count=640 15/1/96	Needs cups 10/4/96, repaired 3/5/96	Waiting for 2nd analysis	Three week notice 10/4/96 - WATCH LIST; ok 14/5/96
7	353	Sr Matere ("Meme")	Manga A, O1	17/11/94	16/12/94	x	count=1100 15/1/96	Son tries to repair pumps/pumping on 1 cylinder	Wait for 2nd analysis	Fountain needs repair & disinfect 28/2/96; WATCH 14/5/96
8	448	Dona Cufa (Monocuna)	Manga A, O5	01/12/94	22/01/95	x	count=240 15/1/96	broken rubbers 22/2/96, poorly located in pantanal	IEC to investigate 22/2/96	Three week notice 28/2/96 - ok 10/4/96
9	407	Sr Pemrela ("Casa Leao")	Manga A, O10	25/01/95	10/02/95	x	Muddy 22/1/96	Quality of construction issue, few users in rainy season		Simple, no pump
10	ASEM	ASEM	Macurungu	11/08/94	16/09/94			need to check	-	Orphanage 150 kids
11	490	Sr Antunes	Manga C, O2	07/02/95	24/02/95	x	count=9 15/1/96	Social 19/1/96 no guarda nor contributions, cups 3/5/96	Find out why no guarda	Pantanal situation; WATCH LIST 10/4/96; cups 14/5/96
12	488	Sr Nham	Manga C, O2	27/02/94	03/03/95	x				
13	483	Sr Mangoma	Manga C, O2	13/02/95	24/02/95	x	count=2400 15/1/96	Pinion, rubbers 19/2/96, ok 10/4/96, dono-cmty prob	Pump removed	water done 28/2/96; social WATCH LIST 10/4/96; ok 14/5/96
14	479	Sr Macuma	Manga C, O2	08/02/95	27/02/95	x	count=2400 15/1/96	suspected aquifer problem, few consumers	Wait for 2nd analysis	WATCH LIST - dono not cooperating, double charging 3/5/96
15	557	Sr Pascuale	Manga A, O5	27/02/95	17/03/95	x	count=4 15/1/96		Wait for 2nd analysis	
16	364	Dona Marta	Manga A, O1	06/03/95	21/03/95	x		pump 19/1/96, few contributions 19/2/96	IEC to meet cmty 22/2/96	removal recd 19/2/96; 3 wk notice 28/2/96; WATCH 14/5/96
17	381	Sr Gaspar	Manga A, O8	06/03/95	22/03/95	x		owner dug deeper, rings collapsed	Pump removed	
18	473	Muslim Assoc	Manga D, O2	22/03/95	31/03/95	x	count=2400 21/1/96	broken rubbers 19/2/96, drawpipe missing 22/2/96	Removal possible	no direct IEC intervention; open well cap; 10/4/96 WATCH 14/5/96
19	548	Sr Amade	Manga D, O2	23/03/95	31/03/95	x	count=4 21/1/96	broken rubber 19/1/96	repaired 22/2/96	well opened; 10/4/96 WATCH LIST; ok 3/5/96
20	533	Sr Antonio	Manga D, O1	03/04/95	19/04/95	x	count=2400 21/2/96	cmty dug deeper, ring collapse	investigate 19/2/96	few users
21	528	Sr Braunde	Manga D, O1	04/04/95	18/04/95	x	count=3 21/2/96			Good example
22	543	Sr Zefarias	Manga D, O1	11/04/95	24/04/95	x	count=2400 21/1/96	owner dug deeper, salty water 19/2/96	wait for 2nd analysis	
23	525	Sr Mofate	Manga C, O3	11/04/95	26/04/95	x		problem with dono not sharing	Pump removed	Removed 29/2/96
24	568	ASEM	Macuti	24/04/95	28/04/95					annex to Macurungu orphanage
25	511	Sr Mashone	Manga C, O3	28/04/95	08/05/95	x	count=93 15/1/96	few consumers 3/5/96	wait for 2nd analysis	IEC to investigate 3/5/96
26	560	Dona Jornal	Vaz B, O2	02/05/95	28/06/95	x		cmty removed drums/safety issue, social	Pump removed	tubes stolen from Vaz WST 19/2/96, waiting for rains to remove
27	572	Sr Mundurumba	Loforte A, O6	15/05/95	23/05/95	x		pinion 19/1/96, few contributions 22/2/96	Pump removed	cap open; IEC to sec. 22/2/96; dono prob. WATCH 10/4/96
28	587	Sr Mombase (Chico)	Loforte A, O3	15/05/95	24/05/95	x	count=2400 21/1/96			
29	584	Sr Pedro	Loforte A, O5	17/05/95	01/06/95	x		pump problem 19/1/96, pump cage broken 22/2/96	Pump removed	opened well cap - WATCH LIST 10/4/96; 3 wk 22/2/96
30	578	Sr Zacuenda	Loforte A, O5	26/05/95	05/06/95	x		pinion missing 19/1/96, broken rubbers 22/2/96	Pump removed	open cap, Three week 22/2/96, remove 10/4/96
31	600	Sr Gigi	Loforte A, O2	02/06/95	12/06/95	x		pump problem, but repaired 22/2/96		
32	604	Dona Perdoar-Barros	Loforte A, O4	05/06/95	12/06/95	x	count=2400 27/3/96	pinion teeth sand damaged 19/1/96	Pump removed	open cap, few contributions 22/2/96, three wk 22/2/96
33	606	Sr Nampua	Loforte A, O4	14/06/95	22/06/95	x	count=240 27/2/96	pinion teeth damage 19/1/96	Chico repaired 22/2/96	
34	615	Sr Babsta	Loforte A, O1	29/06/95	12/07/95	x	count=2400 27/2/96	owner drinks contrib. 19/2/96	Three week rule 22/2/96	owner won't allow cmty to organize, ok as of 12/4/96
35	598	Sr Mocuda	Loforte A, O3	35/07/95	10/07/95	x		pump mistakenly removed 1/96, contribution problems	IEC to investigate 22/2/96	10/4/96 - Replace pump based on cmty mtg 23/3/96

Sofala Province Health, Water, & Sanitation Project (4301)

OUT	WELL	OWNER	LOCATION	START	FINISH	LTR	QUALITY/ DATE	PROBLEMS	ACTIONS	NOTES
36	654	Sr Mandigane	Loforte A, O5	17/07/95	24/07/95	x				skmple. no pump
37	616	Sr Nyamazamu	Loforte A, O1	12/07/95	20/07/95	x	count=93 27/2/96	broken rubbers 22/2/96, finances amiss 29/2/96	Three week rule 22/2/96	Continue WATCH LIST 1 wk 14/5/96
38	609	Dona Macamo	Loforte A, O1	17/07/95	21/07/95	x		broken rubbers 29/2/96	Three week rule 1/3/96	WATCH LIST 10/4/96; continue WATCH 14/5/96
39	618	Sr Macuerje	Loforte A, O1	19/07/95	28/07/95	x		Chico to investigate 22/2/96		WATCH LIST 10/4/96
40	655	Sr Ocama	Loforte A, O5	21/07/95	31/07/95	x		broken pump reported 22/2/96	Pump removed	Three week rule 22/2/96, removal recom. 10/4/96
41	631	Sr Bette	Loforte A, O7	28/07/95	09/08/95	x		pump problem 29/2/96	water investigate	ok as of 10/4/96
42	623	Sr Mangana	Loforte A, O6	01/08/95	15/08/95	x		broken rubbers 22/2/96	Three week rule 22/2/96	WATCH LIST 10/4/96
43	634	Sr T Lus	Loforte A, O7	31/07/95	10/08/95	x		broken rubber 19/1/96, few contrib. 29/2/96	PUMP REMOVAL	Three week rule 1/3/96, Chico invest 22/2/96, remove 10/4/96
44	569	Sr Machicoa	Loforte A, O5	10/08/95	23/08/95	x	count=23 13/2/96	broken connection soldered 22/2/96, few contrib		
45	635	Sr Chigawao	Loforte A, O1	14/08/95	28/08/95	x		few contributions 19/1/96	water invest. 29/2/96	
46	632	Sr Bola	Loforte A, O7	17/08/95	29/08/95	x		broken pinion 19/1/96, Chico val 14/5/96	Pump removed	Three week rule 1/3/96, IEC invest. 22/2/96, remove 10/4/96
47	689	Sr Domingos	Loforte A, O3	22/08/95	07/09/95	x				WATCH LIST 10/4/96; improved 6/5/96
48	593	Dona Rodrigues	Loforte A, O3	04/09/95	14/09/95	x		broken rubbers 22/2/96, few contributions	improved 6/5/96	recommend pump removal 29/2/96; WATCH LIST 10/4/96; ok 14/5/96
49	566	Sr Disspane	Loforte A, O5	07/09/95	15/09/95	x				
50	650	Sr A T Curao	Marocanne	12/09/95	22/09/95	x	count=3 30/1/96			
51	649	Sr A D Maj	Marocanne	19/09/95	29/09/95		count=3 30/1/96			
52	643	Sr I Taob	Marocanne	22/09/95	03/10/95	x	count=23 30/1/96	few contributions 29/2/96	Wait for 2nd analysis	
53	647	Sr Abdoua Buchama	Marocanne	02/10/95	12/10/95	x	count=9 30/1/96			
54	657	Dona Santos	Macuti	03/10/95	10/10/95	x	count=2400 13/2/96	contribution problems 19/1/96, pinion problem 22/2/96	Three week rule 1/3/96	well cap opened; WATCH LIST 10/4/96; improved 6/5/96; ok 14/5/96
55	690	Sr Tabuwa	Marocanne	09/10/95	18/10/95	x	count = 210 30/1/96			no known reason for high conform count
56	581	Sr Opicane	Loforte B, O3	13/10/95	26/10/95	x				
57	675	Aguas de Bera	Macuti	25/10/95	27/10/95	x		social, Africare bming problems 19/1/96	Pump removed	communal well this well whistory of problems
58	703	Sr Wini	Nhaconjo	02/11/95	10/11/95	x	count=3 13/2/96	Water to repair broken pinion		Better as of 14/5/96
59	710	Sr Maceto	Nhaconjo	07/11/95	17/11/95	x	count=2400 13/2/96	broken rubbers, kids problem 19/1/96	Standby 6/5/96; ok	well cap opened. Three week WATCH LIST 10/4/96, Better 14/5/96
60	717	Dona Costa	Nhaconjo	09/11/95	22/11/95	x	count=93 13/2/96			
61	715	Sr Cuassura	Nhaconjo	15/11/95	28/11/95	x	count=2400 13/2/96	loose gland nut 29/2/96	water to repair	
62	694	Sr Ramos Manuel	Nhaconjo	22/11/95	30/11/95	x	count=23 13/2/96	pump problem 19/1/96	Water to repair 22/2/96	water done 29/2/96
63	728	Sr Francisco	Nhaconjo	01/12/95	08/12/95	x	count=3 13/2/96	kids problem with pump 19/2/96	IEC invest. 29/2/96	need more fchas 29/2/96
64	735	Dona Hortensia	Nhaconjo	04/12/95	12/12/95	x	count=3 13/2/96	loose gland nut 29/2/96	water to repair	
65	727	Sr Supinho	Nhaconjo	07/12/95	20/12/95	x	count=3 13/2/96	pump problem 29/2/96	Standby 28/6/96	Needs cups=80,000, IEC investigate 14/5/96
66	738	Sr Bate	Nhaconjo	19/12/95	03/01/96	x		pump within 1st week installation 19/1/96	Standby 14/5/96; ok	soldering 29/2/96 (mits 40,000), Three weeks 10/4/96
67	722	Sr Pawa	Nhaconjo	20/12/95	03/01/96	x		few contributions 29/2/96	IEC invest.	few users as of 10/4/96
68	746	Sr Aguar	Nhaconjo	08/01/96	19/01/96	x		loose gland nut 29/2/96	water to repair	
69	741	Sr Mascarenhas	Nhaconjo	17/01/96	24/01/96	x				
70	743	Sr Chomol	Nhaconjo	17/01/96	24/01/96	x		loose gland nut, few consumers 29/2/96	water to repair	IEC Investigate 14/5/96; WATCH LIST 10/4/96; improved 6/5/96
71	753	Da Malges/RAIN DELAY	Nhaconjo	08/03/96	10/06/96			On hold as of 5/4/96 due to rains	On Hold 6/5/96	
72	781	ASEM SCHOOL/RAIN	Nhaconjo	01/02/96	22/02/96	x		Rain Delay		

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Sofala Province Health, Water, & Sanitation Project (4301)

OUT	WELL	OWNER	LOCATION	START	FINISH	LTR	QUALITY/ DATE	PROBLEMS	ACTIONS	NOTES
73	754	Communal	Nhaconjo	06/02/96	29/02/96	x				
74	760	Sr. Warawa/RAIN DELAY	Nhaconjo	10/02/96	08/03/96	x				
75	767	Centro Mulheres	Nhaconjo	12/03/96	20/03/96	x				Centro de Formacao de Mulheres
76	790	PAPIR	Nhaconjo	15/03/96	18/03/96					Vocational Training Center
77	764	Sr. A. Joao	Nhaconjo	20/03/96	23/03/96	x				
78	777	Sr. L. Megas	Nhaconjo	20/03/96	30/04/96	x		Delayed because of rains		
79	770	Sr. J. Jamal	Nhaconjo	22/03/96	26/03/96	x				
80	802	Sr. R. Vicente	Alto Manga	24/03/96	02/05/96	x				Inauguracao 6/5/96
81	793	Sr. Ndaluza	Alto Manga	24/03/96	29/04/96	x				
82	791	Sr. Coimbra	Alto Manga	02/05/96	07/05/96	x				
83	797	Sr. de Sousa	Alto Manga	02/05/96	10/05/96	x				
84	809	Textil de Pungue	Alto Manga	09/05/96	15/05/96	x				
85	808	Sr. Ndongue	Alto Manga	08/05/96	10/05/96	x				
86	795	Sr. Alberto	Alto Manga	06/05/96	13/05/96	x				
87	804	Sr. Adamo	Alto Manga	13/05/96	16/05/96	x				
88	807	Sr. Cossa	Alto Manga	14/05/96	31/05/96	x				
89	817	Sr. Chigarro	Alto Manga	13/05/96	29/05/96	x				
90	687	Dona Rupia	Macuti	04/06/96	07/06/96	x				
91	818	IICB	Matacuane	10/06/95	28/06/95					

Sofala Province Health, Water, & Sanitation Project (4301)

Water Storage Tanks					
Activity	Location	Start	Finish	Amount	Notes
1	Manga B	17/10/94	14/12/94	1	Connected to well #312, Dona Regina
2	Vaz B	29/08/94	08/11/94	1	Connected to public standpipe at Milha Tres/Tubes stolen 18/2/96
3	Macurungu	12/05/95	28/07/95	2	ASEM Orphanage
4	Matacuane	14/08/95	18/09/95	2	Instituto Industrial & Commercial da Beira (IICB)
5	Matacuane-Mesquita	03/11/95	26/01/96	2	Public standpipe; pipes stolen 3/5/96
6	Chipangara	27/03/96	15/05/96	2	Public standpipe; 1st WST finished 29/4/96
			Total	10	
Latrines					
Activity	Location	Start	Finish	Amount	Notes
1	Manga	06/02/95	13/03/95	1	Pilot VIP latrine built at Africare armazem
2	Manga A	01/05/95	10/06/95	3	Latrinas Melhoradas
3	Manga B	01/05/95	10/06/95	6	Latrinas Melhoradas
4	Vaz	01/12/95	01/02/96	30	Latrinas Melhoradas
5	Matacuane	27/08/95	31/10/95	2	Instituto Industrial & Commercial da Beira student built
6	Manga B	13/05/95	21/02/96	10	Escola Josina Machel - Note: backhoe began in August
7	Manga Loforte	30/10/95	30/03/96	8	Escola Modelo
			Total	60	
Water Seminars					
Activity	Location	Date	No. Trained	Description of Seminar	
1	Josina Machel, Manga B	06/05/95	30	School latrine seminar for teachers and students	
2	Modelo, Loforte	30/06/95	45	School latrine seminar for teachers and students	
3	Mauve I, Loforte	22/07/95	20	School latrine seminar for teachers and students	
4	Manga A & B	05/08/95	20	Handpump maintenance/repair for well owners and community	
5	Manga C & D	12/08/95	20	Handpump maintenance/repair for well owners and community	
6	Manga C & D	19/08/95	20	Follow-up to first maintenance seminar	
7	Mauve I, Loforte	26/08/95	10	Follow-up to first latrine seminar	
8	Manga C & D	02/09/95	10	Follow-up to second seminar	
9	Mauve I, Loforte	09/09/95	20	Follow-up to second seminar	
10	Manga Loforte	16/09/95	25	Handpump maintenance/repair for well owners and community	
11	Manga Loforte	21/10/95	20	Follow-up to first seminar	
			Total	240	

Sofala Province Health, Water, & Sanitation Project (4301)

	Africare IEC Trainers	Community Health Agents			
	(TOTs)	Bairro/ # wells	Bairro/ # wells	Bairro/ # wells	
1	Estrela	Manga Loforte = 12	Marocanha = 5		
2	Madriga	Manga C = 4	Macuti = 2	Manga Loforte = 11	
3	Selemane	Manga A = 8	Manga B = 2	Manga D = 5	
4	Alex	Nhaconjo = 6	Ato de Manga = 10		
5	Ernesto	Nhaconjo = 16			
				Total # ADCs trained = 330	Note: early IEC activities had no limits to # ADCs
	IEC Surveys - Beira				
Activity	Bairro	Unidade	No. Households	Date	Type of Activity
1	Manga Mascarenhas	all	34	December 1993	Overall informational survey to choose 4301 starting point
	Ponta Gea	all	153		
	Munheva	all	144		
	Inhamizua	all	69		
2	Manga Mascarenhas	all	757	June 1994	Epidemiological survey to examine state of starting point health
3	Manga Mascarenhas	all	300	July 1994	Baseline
	Vaz	B			Baseline
4	Manga Mascarenhas	all	300	May 1995	KAP I
	Vaz	B		May 1995	KAP I
5	Manga Loforte	A	300	July 1995	KAP I / Baseline
	Macuti	all			KAP I / Baseline
6	Nhaconjo	all	300	Nov. 1995	KAP I / Baseline
7	Ndunda	all	300	Dec. 1995	KAP I / Baseline
8	Manga Mascarenhas	all	900	Jan. 1996	KAP II / Baseline
	Manga Loforte	A			
	Vaz	B			
	Nhaconjo	all			
		Total	3557		

Sofala Province Health, Water, & Sanitation Project (4301)

IEC Seminars					
Activity	Group Trained	Location	No. Participants	Date	Description of Seminar/Workshop
1	CVM, Saude, Kulima	Office	21	Dec 1993	Preparation for Baseline Survey
2	Government Personnel	Office	35	Jan 1994	Workshop discussing results of Dec. baseline survey
3	Government Personnel	Office	16	Feb 1994	Follow-up to workshop on baseline survey
4	Training of Trainers	Office	11	Feb 1994	Selecting and training the original TOTs
5	TOTs	Office	11	April 1994	How to contact and organize communities
6	TOTs	Office/field	11	April 1994	How to organize and train committees (ADCs)
7	TOTs/Community	Office/field	30	April 1994	How to number houses in preparation for surveys
8	TOTs	Office	11	May 1994	How to fill in survey instruments
9	TOTs	Office/field	11	May 1994	Learning how to Teach
10	Water Team	Office	17	June 1994	Basic health education relating to water use
11	TOTs	Office/field	11	Sept. 1994	Techniques in education and communication
12	Communities	Field	24	Oct 1994	Supervising at the community level
13	TOTs	Office/field	11	May 1994	Epidemiological Mapping
14	ADCs of Manga Masc.	Field	40	Feb 1995	Seminar on health, sanitation and well maintenance
15	TOTs/Government	Office/field	12	Feb 1995	IEC Strategies and monitoring of health posts
16	TOTs	Office	11	May 1995	Development of strategies of education for health and communication
17	Teachers	Office	15	June 1995	Health education for primary school teachers
18	Communities	Office	266	Sept 1995	Recommendations for water point maintenance/sustainability
19	TOTs	Office	5	Oct 1995	Final phase of IEC implementation strategies
20	Communities/Clubs	Office/field	35	Dec 1995	Financial management for community clubs
21	Communities/Clubs	Office/field	35	Jan 1996	Financial management for community clubs
		Total	639		
HIS Data Collection					
Activity	Health Post Location	Date			Description of Activity
1	Airport/Manga	October 1994			Collection of data for general baseline information
2	Alto de Manga	October 1994			Collection of data
3	Ponta Gea	April 1995			Collection of data
4	Munhava	April 1995			Collection of data
5	Macurungu	April 1995			Collection of data

Sofala Province Health, Water, & Sanitation Project (4301)

CHIBABAVA DISTRICT				
Activity	Location	No. Outputs	Date	Description of Activity
1	Goonda, Chibabava	Households = 300	March 1995	KAP I / Baseline Survey
2	Goonda, Chibabava	Households = 300	October 1995	KAP II Survey
3	Tronga	Trained = 30	February 1995	IEC-PAV Seminar for District Health Personnel
4	Chibabava Sede	Trained = 11	July 1995	Traditional Birth Attendant Training for District Women
5	Goonda	Latrines = 30	April 1995	Goonda Latrine Construction Program
6	Goonda, CN, Tronga	Vaccinated = 16,802	Jan-Nov 1995	PAV Fixed Post Campaign
7	Goonda	Trained = 2	March 1995	In-Service Training for Health Post Personnel
	Casa Nova	Trained = 2	March 1995	In-Service Training
	Parja	Trained = 2	October 1995	In-Service Training
	Mangunde	Trained = 2	October 1995	In-Service Training
	Muxungue	Trained = 2	January 1995	In-Service Training
	Health Posts			
1	Tronga Rehabilitation		1995	
2	Casa Nova Rehabilitation		1995	
3	Goonda Construction		1995	

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Life of Project Report, Sept. 1993 - Sept. 1996

Table I: Water Supply and Sanitation Construction Activities			
Activity/Information	Peri-Urban Beira	Chibabava District	Total
# Wells surveyed	817		817
# Wells rehabilitated	91		91
# Pumps installed	90		90
# WSTs Built at Wells	5		5
# Beneficiaries per well	875 (135 users/well x family of 5)		875
# WSTs built at standpipes	5		5
# latrines	60	30	90
# Health, Water & Sanitation Committees Created	27 (3 committees x 9 unidades)		27
# of families in water committees	99 (11 members/committee x 9 unidades)		99
# guardas working	2		2
# user-fee systems established	9 (1 per unidade)		9
# user-fee systems functioning	6		6
# school latrine committees created	2 (1 per school)		2
Technical Training:			
a. Africare staff	42 (18 water + 12 IEC + 14 health post crews)		42
b. Water committees	9		9
c. Latrinas Melhoradas	5		5
Table II: Health Activities and Health, Water and Sanitation Education Activities			
Health Posts:			
a. # constructed		1	1
b. # rehabilitated		2	2
d. # latrines constructed		3	3
Technical Training:			
a. DPS		40	40
b. CVM volunteers	12		12
c. Community volunteers	240 (water seminar participants)		240
d. IEC Trainers	11 reduced to 5 by end of project	1	12
Community Training:			
a. Training in IEC	297 (33 ADCs x 9 unidades)	11	308
# KAP surveys	7	2	9
# Health messages	16		16
# Vaccinations		16,802	16,802

COMPARACAO ANO 94 E ANO 95 - DIARREIA - TRES PRIMEIROS TRIMESTRES

Aeroporto

CRIANCAS			ADULTOS		
	1994	1995		1994	1995
TR 1	221	125	TR 1	53	44
TR 2	138	48	TR 2	43	12
TR 3	86	51	TR 3	14	11

A Educacao da Comunidade sobre as diarreias comecou no primeiro trimestre de 1994 na Unidade B de Manga Mascarenhas, trabalhando com Focus Groups", principalmente as maes e as criancas de menos de 5 anos. O Programa de Educacao (IEC) expandiu-se para o bairro de Manga Mascarenhas no segundo trimestre de 1994. Observa-se uma diminuicao nitida da frequencia dos casos de diarreia entre as criancas (idade de 0-14 anos) no PS do Aeroporto em 1995 em relacao ao ano 1994. Esta diferenca e mais acentuada no segundo trimestre, altura do tempo frio. Observa-se no PS do Aeroporto uma diminuicao no terceiro trimestre em 1994 em relacao ao segundo trimestre que não se observa nas outras Unidades Sanitarias, e que nao voltou a aparecer em 1995. Entre os Adultos, observa-se o mesmo fenomeno, mas a diferenca entre o ano 1994 e o ano 1995 nao e tao ampla como nas criancas.

***Outras Unidades Sanitarias**

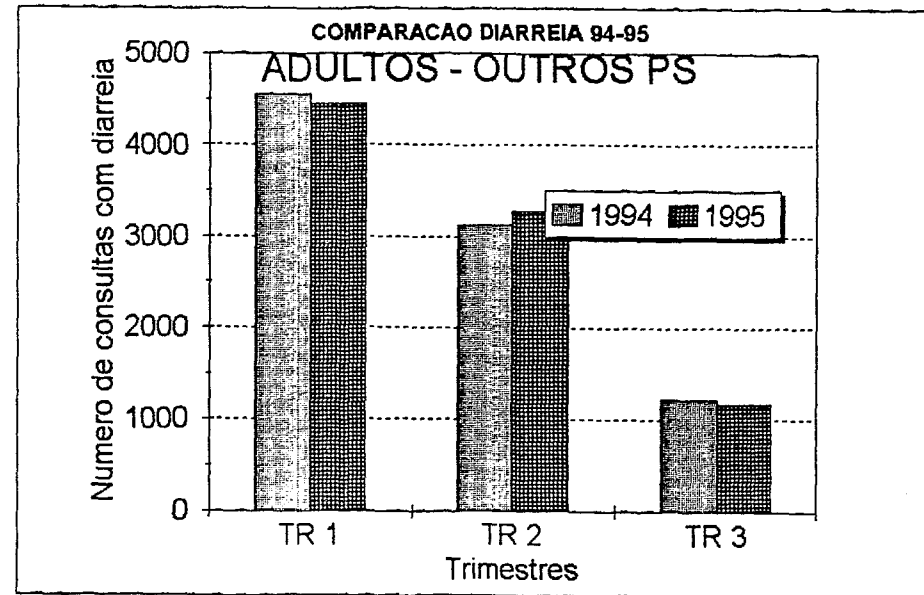
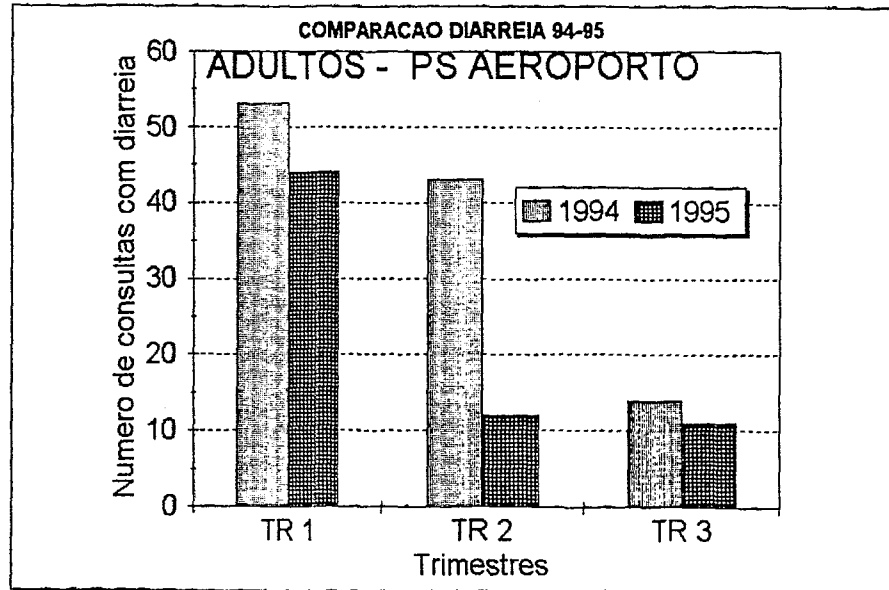
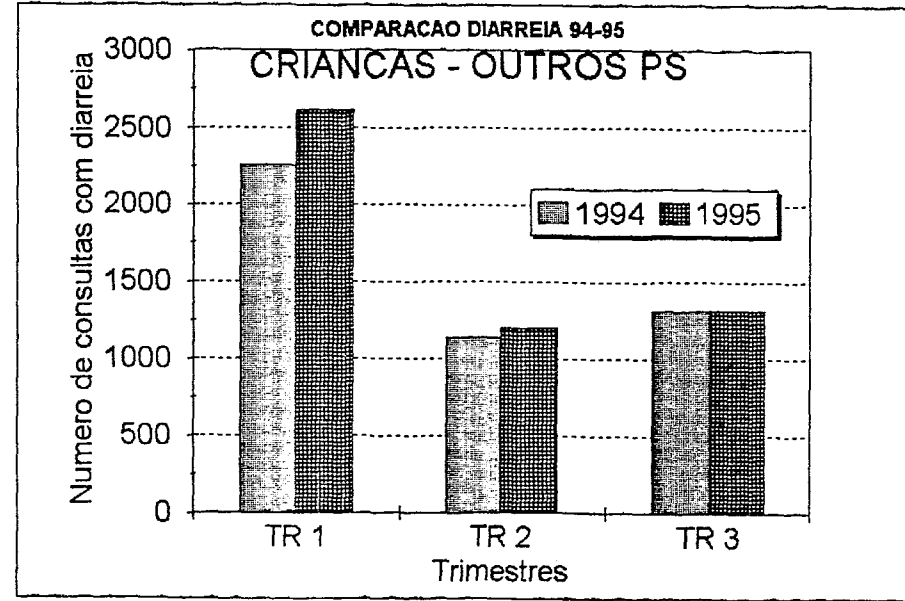
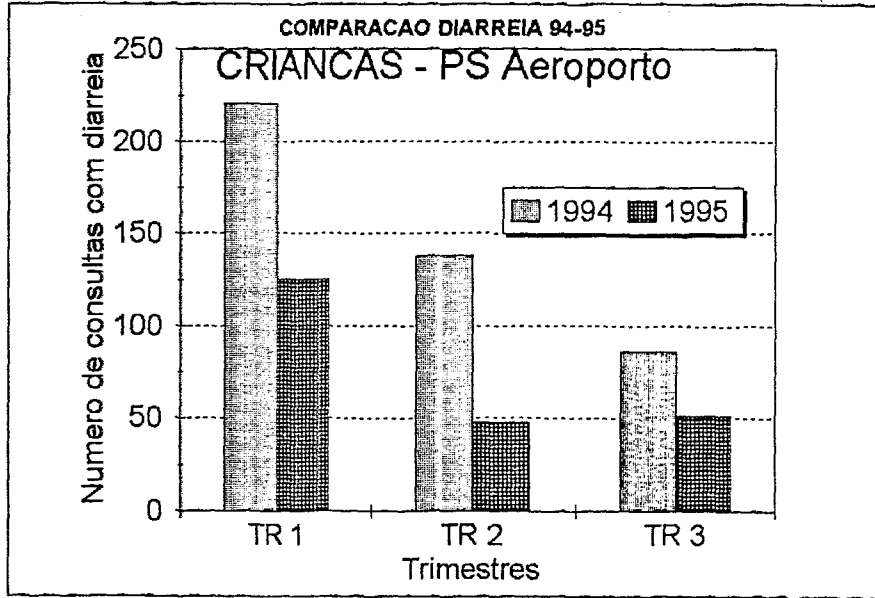
CRIANCAS			ADULTOS		
	1994	1995		1994	1995
TR 1	2252	2613	TR 1	661	615
TR 2	1134	1199	TR 2	323	344
TR 3	1311	1316	TR 3	334	328

Nao se observa nenhuma diminuicao da frequencia das diarreias nas criancas em 1995 em relacao ao ano 1994 nos outros Postos de Saude (Ponta Gea, Munhava, Macurungo, Alto da Manga).

Nao se observa nenhuma diferenca na frequencia das diarreias nos adultos em 1995 em relacao ao ano 1994 nos outros Postos de Saude (Ponta Gea, Munhava, Macurungo, Alto da Manga).

No ano 1994, houve um pouco mais casos de diarreia no terceiro trimestre em relacao ao segundo trimestre nas Outras Unidades Sanitarias. Isto contrasta com o diagrama do Posto de Saude do Aeroporto, onde se constata um decrescimo amplo no ano 1994, quer nos adultos como nas criancas.

COMPARACAO ANO 94 E ANO 95 - DIARREIA - TRES PRIMEIROS TRIMESTRES



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COMPARACAO ANO 94 E ANO 95 - DIARREIA - TRES PRIMEIROS TRIMESTRES

SISTEMA DE INFORMACAO PELA SAUDE - CRIANCAS de 0 a 14 anos

Casos de Diarreia verificados nas Unidades Sanitarias do AEROPORTO,
MACURUNGO, ALTO DA MANGA, PONTA GEA e MUNHAVA nos anos 1994 e 1995

		Aeroporto		Ponta Gea		Munhava		Macurungo		Alto da Manga	
		1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
02-Jan	08-Jan	18	9	22	25	57	80	37	30	48	28
09-Jan	15-Jan	24	13	36	43	87		30	50	13	34
18-Jan	22-Jan	15	7	30	48	126	96	23	41	19	38
23-Jan	29-Jan	14	13	47	52	130	77	28	42	23	80
30-Jan	05-Feb	18	11	42	19	120	62	34	22	38	57
06-Feb	12-Feb	13	7	28	10		173	32	30	29	59
13-Feb	19-Feb	18	14	46	57	175	83	42	53	35	76
20-Feb	26-Feb	18	4	28	93	85	97	32	59	35	
27-Feb	05-Mar	18	11	35	74	77	98	29	48	28	53
06-Mar	12-Mar	21	14	29	47	89	101	23	37	27	39
13-Mar	19-Mar	12	8	36	38	61	75	29	26	19	28
20-Mar	26-Mar	23	9	27	33	55	50	21	28	25	35
27-Mar	02-Apr	8	5	10	27	42	39	12	22	19	23
TOTAL											
Jan a Mar		221	125	412	568	1114	1811	372	488	254	548

		Aeroporto		Ponta Gea		Munhava		Macurungo		Alto da Manga	
		1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
03-Apr	09-Apr	11	2	18	20	59	39	12	13	15	15
10-Apr	16-Apr	14	1	11	30	44	31	17	18	18	21
17-Apr	23-Apr	14	5	21	28	48	72	20	17	13	20
24-Apr	30-Apr	21	2	21	28	55	32	14	14	10	31
01-May	07-May	13	2	21	12	45	37	8	6	6	22
08-May	14-May	12	3	12	33	60	25	8	25	18	15
15-May	21-May	7	4	22	6	51	32	17	8	10	18
22-May	28-May	13	4	19	10	37	26		21	15	14
29-May	04-Jun	3	4	13	18	19		10	10	23	10
05-Jun	11-Jun	10	2	18	24	41	34	12	10	15	32
12-Jun	18-Jun	10	5		33		63		17	13	21
19-Jun	25-Jun	7	8	41	25			16	12	13	17
28-Jun	02-Jul	3	5	38	22	64	83	25	18	31	15
TOTAL											
Abr a Jun		138	48	254	289	523	474	150	185	198	251

		Aeroporto		Ponta Gea		Munhava		Macurungo		Alto da Manga	
		1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
03-Jul	09-Jul	10	5	35	43	61	40	23	20	41	44
10-Jul	16-Jul	7	5	28	37	58	49	18	12	17	34
17-Jul	23-Jul	5	6	26	38	54	37	18	8	34	28
24-Jul	30-Jul	7	6	0	25	0	46	0	13	11	36
31-Jul	06-Aug	7	4	25	21	46	31	20	19	15	23
07-Aug	13-Aug	9	2	0	10	48	36	12	22	19	20
14-Aug	20-Aug	10	9	18	30	69	32	26	15	10	24
21-Aug	27-Aug	7	3	24	12	47	24	31	15	13	24
28-Aug	03-Sep	9	1	38	20	52	37	25	25	13	18
04-Sep	10-Sep	4	3	22	20	16	41	26	16	15	15
11-Sep	17-Sep	3	3	20	12	35	29	17	26	18	22
18-Sep	24-Sep	4	1	24	13	18	0	20	13	18	18
25-Sep	01-Oct	4	3	25	23	45	45	12	21	12	31
TOTAL											
Jul a Set		86	51	283	304	547	449	246	226	235	337

COMPARACAO ANO 94 E ANO 95 - DIARREIA - TRES PRIMEIROS TRIMESTRES

SISTEMA DE INFORMACAO PELA SAUDE - ADULTOS

Casos de Diarreia verificados nas Unidades Sanitarias do AEROPORTO, MACURUNGO, ALTO DA MANGA, PONTA GEA e MUNHAVA nos anos 1994 e 1995

		Aeroporto		Ponta Gea		Munhava		Macurungo		Alto da Manga	
		1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
02-Jan	08-Jan	6	3	29	11	14	10	5	4	30	12
09-Jan	15-Jan	4	1	8	21	18		7	7	30	5
16-Jan	22-Jan	5	7		18	13	22	2	12	22	18
23-Jan	29-Jan	2	5	12	20	14	8	3	8	37	24
30-Jan	05-Feb	4	1	12	1	6	25	3	7	18	28
06-Feb	12-Feb	3	5	20	3		20	5	10	17	15
13-Feb	19-Feb	5	8	14	7	28	21	7	2	28	23
20-Feb	28-Feb	2	1	18	17	13	10	3	3	15	
27-Feb	05-Mar	3	8	10	12	8	18	2	1	15	18
08-Mar	12-Mar	5	3	12	5	11	22	2	3	18	18
13-Mar	19-Mar	4	4	18	16	9	22	3	3	12	14
20-Mar	26-Mar	3	2	21	17	13	15	4	1	18	20
27-Mar	02-Apr	7	0	14	8	8	8	3	2	12	8
TOTAL											
Jan a Mar		53	44	188	157	156	198	49	61	268	189

		Aeroporto		Ponta Gea		Munhava		Macurungo		Alto da Manga	
		1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
03-Apr	09-Apr	7	3	5	1	11	12	2	0	17	8
10-Apr	16-Apr	0	0	18	3	7	1	1	3	7	10
17-Apr	23-Apr	0		10	8	8	12	1	3	17	10
24-Apr	30-Apr	6	1	5	8	10	11	3	3	4	8
01-May	07-May	6		18		3	8	0	2	8	14
08-May	14-May	5	1	17	9	5	7	4	3	5	17
15-May	21-May	8	2	2	6	9	5	2	1	7	11
22-May	28-May	4		13	16	3	8			5	7
29-May	04-Jun	1	2	8	18	2				7	8
05-Jun	11-Jun	3		13	7	10	4	2	1	2	3
12-Jun	18-Jun				16		8		5	14	12
19-Jun	25-Jun			4	10					3	11
26-Jun	02-Jul	5	3	14	8	12	8	2	1	5	14
TOTAL											
Abr a Jun		43	12	125	111	80	82	17	22	101	129

		Aeroporto		Ponta Gea		Munhava		Macurungo		Alto da Manga	
		1994	1995	1994	1995	1994	1995	1994	1995	1994	1995
03-Jul	09-Jul	1	1	18	7	13	3	1	4	10	7
10-Jul	16-Jul	1	0	8	12	11	4	1	3	5	10
17-Jul	23-Jul	2	1	16	7	8	2	1	3	4	9
24-Jul	30-Jul	1	0	0	7	0	8	0	2	8	8
31-Jul	06-Aug	2	0	8	8	13	8	3	0	8	10
07-Aug	13-Aug	1	0	0	7	11	8	1	0	8	4
14-Aug	20-Aug	0	0	21	9	10	8	4	2	5	8
21-Aug	27-Aug	2	1	8	11	3	4	3	4	11	12
28-Aug	03-Sep	1	1	2	5	8	5	3	2	7	8
04-Sep	10-Sep	0	1	8	12	7	8	4	1	15	10
11-Sep	17-Sep	3	4	5	6	12	8	1	0	8	9
18-Sep	24-Sep	0	1	10	15	2	0	0	0	5	8
25-Sep	01-Oct	0	1	5	8	8	8	0	0	1	18
TOTAL											
Jul a Set.		14	11	110	115	106	73	22	21	96	119

JUL A SET.