Mid-Term Monitoring Survey Results

Health and Water Activities

Changara, Chifunde, And Moatize Districts
Tete Province, Mozambique

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Glossary of Terms

Activista	Unpaid health volunteer from the community who provides health education and promotion of good health behaviors; but no curative care.
AC	Activista Coordinator; an ARC paid employee who trains and supervises Activistas
ARC	American Refugee Committee
AS	Activista Supervisor: supervises the ACs
Bairro	Portuguese term for Neighborhood
CVM	Mozambique Red Cross
EOPS	End of Project Status
GRM	Government of the Republic of Mozambique
HEC	Health Education Coordinator: oversees primarily the Activista program
HELP team	Hygiene Education and Latrine Promotion team
HH	Household
HPM	Health Program Manager: oversees all health program activities
KAP	Knowledge, attitudes, and practices
PHC	Primary health care
PRM	US State Dept. Bureau of Population, Refugees, and Migration
Producer	ARC paid employee, member of the HELP team, who makes latrine slabs and assists with community mobilization and education on importance of latrines and latrine maintenance
SA	Sanitation Assistant; ARC paid employee: member of the HELP team. Provides health education and mobilizes community.
SC	Sanitation Coordinator; ARC paid employee: member of the HELP team. Supervises the activities of the HELP team.
SV	Stichting Vluchteling (a Dutch donor NGO)
TBA	Traditional birth attendant
UNHCR	United Nations High Commissioner for Refugees
USAID	United States Agency for International Development

Executive Summary

American Refugee Committee (ARC) conducted a mid-term monitoring survey during the months of October and November 1995 to assess ARC's progress towards meeting its stated objectives and to assess the quality of its work. This survey was undertaken to give a general indicator of the current situation and to help point to changes in approach or focus for the remainder of the program. Although reasonably rigorous survey techniques were used considering these aims, the small sample size precludes drawing definite conclusions from the data.

In looking at ARC's program logframe (see Appendix A for a detailed description of the stated goals and objectives of the program), the mid-term monitoring survey was used as a tool to determine ARC's progress to date in achieving its objectives as measured by the 'End of Project Status.' Some of this information was obtained through ARC records and visual inspection; other information was collected through community surveys. The community surveys were composed of two parts: observations and interviews. The observation part consisted of an 8-hour household observation at 60 randomly selected households with latrines to observe health practices as regards to hygiene and water. Interviews included two household questionnaires: one to assess adults' knowledge on ten health messages, as well as participation in and opinions of ARC activities; the other to assess water collection and treatment practices.

To assess the quality of ARC's work, additional interviews and observations were conducted. Fifty-four water points were inspected and a few questions asked about maintenance to assess the condition of ARC-constructed or rehabilitated water points. Village leaders in the bairros where the household surveys were conducted were interviewed to assess their impression of ARC's projects and staff. ARC health field staff were also interviewed to assess their knowledge on the same ten major health messages that community members were asked about. In addition, a site visit was conducted to assess ARC's site operations and workers' knowledge and opinions concerning their job responsibilities.

Results from the mid-term monitoring survey suggest that ARC's health projects are nearing, or have reached, their project objectives, as measured by the end-of-project status (EOPS) indicators:

- Water points constructed or rehabilitated by ARC are being used by over 80% of the population living within 750 meters of the water point, as specified by the indicator.
- Trainees' knowledge gain, 57% (35 percentage points), exceeds the range specified by the EOPS indicator.
- The percentage of adults, at least those with latrines, practicing 'appropriate' health behaviors surpasses the number specified by the EOPS indicator.
- The percentage increase in primary health care (PHC) knowledge among the targeted adult population, 19 percent (8 percentage points), has almost reached the specified amount of 20, as stated in the EOPS indicator.
- The percentage increase for hygiene was nearer to the EOPS indicator, at 34 (16 percentage points), most likely because hygiene messages have been emphasized for a longer period of time than the other PHC messages.
- Although the EOPS indicator for latrine coverage is 70%, and the current coverage is only 38%, the target should be reached by the end of the program. Ninety-eight percent of those with latrines were also observed to be using them.
- The percentage of births attended by trained health workers was not measured during this survey.

The mid-term monitoring survey also provided encouraging information about the process towards achieving the program objectives and goals. The level of ARC staff knowledge was

shown to be quite high, with supervisory staff able to provide at least one correct answer per question 98% of the time, and the health educators 94% of the time. Interviews with ARC health field staff also revealed that the staff were aware of their project's objectives, their responsibilities, and they had the support they needed. Areas of needed improvement included the misunderstanding of the subordinates' roles, and the lack of materials in local languages. The site visit revealed a good demonstration of proper hygiene at the ARC production/office site and also highlighted the need for improved communal latrine hygiene. The village leaders' impression of ARC's projects and staff was highly complementary, and cooperation and participation by the communities has been high. Water point observations demonstrated that, overall, water point hygiene is good and the number of water point committees are sufficient, but the percentage of working pumps was lower than desirable, too many water points had high levels of salt, and many fences to keep out animals were lacking.

In order to reach the proposed targets in the next eight months, ARC will need to intensify its efforts in providing health education and latrine promotion within the target communities, and strengthen its staff and the processes to achieve the stated objectives. A special emphasis needs to be placed on the general PHC topics for which the communities' and ARC staff's knowledge was lowest. In addition, ARC will need to analyze and select the most appropriate means towards achieving sustainability, especially with respect to provision of health education, promotion of good health behaviors, and hygiene and maintenance of water pumps and communal latrines.

Introduction

A. Overview of ARC's Mozambique Program

Background

The American Refugee Committee (ARC), at the request of the United Nation's High Commission for Refugees (UNHCR) and the Government of the Republic of Mozambique (GRM), began its program in Tete Province, Mozambique soon after the signing of the peace accord in October 1993. ARC's goal has been to improve the health of approximately 140,000 residents, returnees, and displaced persons in the four districts of Tete Province: Moatize; Changara; and Chifunde; and more recently Mutarara. ARC will achieve this goal through assisting the Mozambican government with the reconstruction and rehabilitation of infrastructure, and through the increased knowledge and improved practices which lead to good health among the targeted population. For further details on the program's goals, objectives, means of verification, and activities, please refer to Appendix A, the ARC Program Logframe.

ARC's Mozambique program began with water point rehabilitation and communal ventilated improved pit (VIP) latrine construction in Moatize district. Construction of health and school facilities and further water point construction was begun in Changara District, which activities were expanded to Chifunde District later in 1994. This was followed by a hygiene education and latrine promotion project in Moatize district in April 1994. As a result of the project's success, the hygiene education and latrine promotion project was expanded to Changara District in August 1994, Chifunde District in March 1995, and to Mutarara District in September 1995. In June 1995, a community health volunteer component was implemented to provide communities with primary health care (PHC) education. Road rehabilitation activities have also been conducted in Changara and Chifunde Districts. ARC continues water point construction and rehabilitation (more than 100 points in 1995) in Changara, Chifunde, and Moatize districts.

The health education program consists of two major components: hygiene education and latrine promotion (HELP); and community health volunteers (called *Activistas*). The Health Program Manager (HPM) oversees all of the health education activities, and is directly responsible for the HELP program. The Health Education Coordinator manages the Activista Program and reports to the HPM. Within the HELP program, there are two Supervisors who coordinate, supervise, and assist with trainings of the HELP teams at their sites. At a typical site a HELP team consists of one Sanitation Coordinator, two Sanitation Assistants, one Lead Producer, 2 Assistant Producers, and one guard. For the Activista program, there is one Supervisor who assists with trainings and supervises the Activista Coordinators at each site. The Activista Coordinators train and supervise from five to ten Activistas at their site. The staff of both health program components work together to mobilize and educate the people in their communities.

Both health program components revolve around a team of health educators, either ARC-paid staff or unpaid Activistas, most of whom originate from the area where the program is located, and are trained and supervised by ARC. These health educators coordinate, mobilize, and educate the community and community leaders to take responsibility for their health through improved health practices. The health educators are responsible for conducting community health education sessions, household visits in their neighborhoods (bairros), and health education talks at the schools and health facilities. The messages, which are as short and simple as possible, are presented using a variety of non-formal adult education techniques including: discussions, puppets, visual aids, dramas, and songs.

Health Education and Latrine Promotion

The hygiene education and latrine promotion (HELP) teams were trained and instructed to provide focused health education mainly on disease transmission, importance of latrines, importance of hand-washing, oral rehydration, and latrine maintenance. Each household with a latrine is to receive at least those five messages. The HELP teams have also received some training on general hygiene (personal, household, food, and water), malaria, and a few Sanitation Coordinators on the importance of colostrum. Some of the Coordinators who had previous training in other topics have also provided health education on AIDS/STDs, family planing, and child care. The number of individual health education messages provided as of October 31, 1995, during household visits, by topic, is provided in Appendix I.

The HELP teams also provide interested families with concrete dome slabs for their latrines. The family digs a latrine pit, provides sand, water and gravel for the slab, and constructs the superstructure of the latrine once the slab is in place. ARC provides the cement, tools, and the skilled labor to construct the slabs. The HELP program has achieved its targets of latrine coverage in the five original Changara District sites as well as one Chifunde District site, Villa Mualadzi, and has therefore expanded to six nearby sites and two other sites in Changara and Mutarara districts. The HELP teams continue to conduct periodic follow-up visits to check on the utilization and maintenance of latrines, hand-washing, etc., and to provide further health education, as necessary. The HELP teams are currently operating full-time in 14 sites.

Activista Program

The Activista program consists of approximately 118 community health volunteers spread over twelve sites who provide health education about four hours a week. The volunteers were selected by the community and trained by ARC. The Activista Coordinators (ACs) are paid staff whom ARC and Mozambican Red Cross (CVM) have trained to act as supervisors and trainers for the Activistas. The Activistas were selected in April and May 1995, were trained in June 1995, and began transmitting health education messages in June, as well. The ACs and Activistas attend monthly training seminars to enhance teaching methodologies as well as knowledge on other health topics.

Primary Health Care topics for which the Activistas were trained and provide health education include mainly: AIDS/STDs, water treatment, hygiene (personal, household, water, and food), diarrhea transmission and prevention, family planning, nutrition, safe motherhood, and child health. Activistas will receive a concentrated training on malaria, oral rehydration, and respiratory illness in 1996. The number of individual health education messages provided during household visits (as of October 1995), by topic, is provided in Appendix I.

ARC's aim has been to build upon and model its program after the functioning CVM Activista program. ARC has changed the focus of the trainings, however, from first aid, which occupied 70% of the Activistas' training, to preventive and promotive health. ARC and CVM are tentatively planning for CVM to take on the supervision and further training (in first aid and CVM philosophy) of a large percentage of the ARC-trained Activistas before ARC leaves next year.

B. Objectives of the Survey

The primary objectives of this mid-term monitoring survey were:

1. To provide ARC staff with sufficient information to identify its strengths and weaknesses so that the program can be modified and strengthened in the last phase.

2. To provide ARC's donors and collaborators with information about the program's strengths and weaknesses and progress to date so that recommendations can be made and lessons learned can be shared.

The program is scheduled to continue until September 1996, with each project phasing out as the project objectives are reached and funding has subsided. With only nine months remaining to the program, a mid-term monitoring survey was conducted to determine how ARC could best use its resources and time to provide quality health and water services to attain its goals and objectives by the end of the program. Based on the results of the mid-term evaluation, an action plan for strengthening or modifying health and water activities in the last phase of the program will be developed in order to ensure program objectives will be met.

Methodology

A. Survey Procedures and Instruments

American Refugee Committee (ARC) conducted a mid-term monitoring survey during the months of October and November 1995 to assess ARC's progress towards meeting its objectives, as stated in the program logframe in Appendix A, and to assess the quality of ARC's work. The mid-term evaluation was conducted entirely by ARC Mozambique staff within the health and water projects to keep the survey simple, quick, and inexpensive.

Depending on the objective being measured, various methods were used to determine the amount of progress made towards achieving these targets. Where possible, achievement was measured against the "end-of-project status" indicators as listed in the program logframe in Appendix A. For 'end-of-project status' indicators, the means of verification are listed opposite the indicators on the program logframe. Where ARC reports are indicated, the reports were simply consulted, and where a survey was indicated, a community household survey, composed of interviews and/or observations, was conducted.

In addition to assessing ARC's progress towards meeting its objectives, the mid-term monitoring survey was also conducted to assess the quality of ARC's work and the impressions and attitudes of the communities regarding ARC's projects and staff. To assess the impressions and attitudes of the community towards ARC, a few questions were asked of adults during the household survey, in addition to conducting interviews with village leaders. To assess the quality of ARC's work, a water point inspection was conducted at ARC-constructed/rehabilitated water points, health educators' knowledge was assessed through a questionnaire, and a site visit was conducted to assess records, logistics, knowledge of job responsibilities, and awareness of objectives.

ARC's mid-term monitoring survey included the following elements:

- Interviews of 60 adult community members from ten selected bairros (neighborhoods) on their knowledge of ten major health messages being promoted by ARC's Hygiene Education and Latrine Promotion (HELP) teams and Activistas, the target population's participation in the health promotion activities, and their impression of ARC's presence. Thirteen questions were asked in either Chichewa or Chinyungwe. most of which were taken from the ARC water and sanitation baseline survey and the ARC primary health care baseline survey (an English version of the questionnaire is found in Appendix B). ARC Tete office support staff conducted the interviews, and the Health Education Coordinator supervised the survey. The interviewers participated in a one-day training seminar prior to conducting the survey.

- Ten knowledge questions selected were those used in the baseline surveys which seemed well understood and provided useful information. The questions were divided into two groups: the first group consisted of messages taken from the water and sanitation baseline questionnaires and promoted primarily by the HELP teams, and the second group were questions taken from the PHC baseline question and are or will be primarily promoted by the Activistas. Malaria is the only topic for which neither Activistas nor the HELP teams have been emphasizing; nor have the Activistas received thorough training on the topic. Because a number of misconceptions concerning malaria (including its being transmitted through a lack of hygiene) were discovered during the PHC baseline survey, a follow-up was desired to see if those misconceptions were still present.

- Observations of 60 households (HH) from the same 10 selected bairros were conducted for eight hours per household (6-10 a.m. and 3-7 p.m.) to assess the condition and usage of latrines, hand-washing practices, household hygiene, sources of drinking water, and water treatment and storage. Two Activistas from the area observed five households, each observing one HH for 4 hours per day over five days. Each Activista completed a pictorial check-list as they observed; thus two forms were completed for each household. The only information gathered verbally was a question on the source of drinking water (an English version of the check-list is found in Appendix C). The Activistas and Activista Coordinator (AC) participated in a one-day training seminar conducted by the Activista Supervisor (AS) prior to conducting the observations. The AS supervised the Activistas and AC for the first day of observation; afterwards the Activista Coordinator supervised the Activistas.

- Ninety interviews of ARC health field staff were conducted, including: 15 Activistas from the 10 bairros selected for the household surveys; all ARC lead health field staff (three Supervisors; nine Activista Coordinators; 14 Sanitation Coordinators; and 30 Sanitation Assistants); and some of the Producers (14) and Guards (5), who also assist with health education at times. These interviews were conducted to assess ARC staff knowledge on the same 10 knowledge questions asked to the community to ensure that ARC staff possess the correct information. ARC health managers, with interpreters where necessary, interviewed the staff.

- Interviews with 12 village leaders at the 10 selected bairros to assess their impressions of ARC's presence and work (an English version of the interview questions is found in Appendix D). ARC office support staff conducted at least one such interview per bairro.

- Assessment of the reliability and maintenance of water points constructed by ARC, was conducted at 54 sites accessible by Sanitation Coordinators (SCs). The SCs, who had previously completed similar observation forms, were responsible for completing an observation form for each water point assessed. The observation form was a modified version of a previous form used by the SCs. It consisted of 12 observations, two questions for the SC to complete based on his knowledge, and a few questions to be asked of a user of the water point or a village leader responsible for the area. (Refer to Appendix E for the English version of the observation form used.)

- Interviews of adult community members within a 750-meter radius of 7 randomly selected ARC water points to determine their drinking water source and water treatment practices. A survey consisting of four questions was completed in either Chichewa or Chinyungwe (refer to Appendix F for the English version of the questionnaire) by water team members under the supervision of the Water Manager and Health Advisor. The interviewers participated in a half-day training prior to conducting the survey.

- Interviews with the Activista Supervisor and the ARC health staff at Msaua, one of the "average" sites, (not the best nor the worst site), about their jobs including: responsibilities; logistics; communication; supervision; and records; and a site observation to check the condition of the site and the quality of the latrine slabs produced.

B. Sample Selection

Within Tete Province, a total of 60 households (HHs) were interviewed and 60 HHs observed. Within each of the three districts where ARC conducts primary health care (PHC) activities, Changara, Chifunde, and Moatize districts, 20 HH interviews and 20 HH observations were conducted. In two of the districts where ARC conducts PHC activities, Changara and Chifunde districts, two sites within each district were identified for evaluation, and in the third district, Moatize, the only ARC site was included in the evaluation. The sites chosen were representative of the other sites by including some more successful teams, some less successful teams, and some average teams, as judged by internal performance indicators. Two bairros within each site's catchment area were evaluated, giving a total of 10 bairros. The selected sites and bairros, number of households and latrines, and the number of HHs interviewed and observed are listed in Appendix G. The 60 HHs to be interviewed were randomly selected from bairro household listings, and the 60 additional HHs to be observed were randomly selected from household listings of HHs with latrines, either traditional latrines or ones with cement latrine slabs[1]. One adult member of the HH was randomly chosen to be interviewed using a deck of numbered cards. At least one call-back was attempted if the chosen adult was not available to be interviewed. Where the individuals from the selected household were gone for the day or had moved away, another household from the alternate list was chosen. The interviews and observations were selected and conducted independently of each other; and therefore it would have been possible for a household to be included in the HH knowledge survey and in the HH observation survey.

At least one village leader was interviewed at each of the 10 selected bairros, giving a total of 12 leaders who were interviewed. When possible, the Secretario or President was interviewed; however, if they were not available, another leader was selected and interviewed.

Interviews of community members' drinking water practices within a 750-meter radius of an ARC water point was conducted around seven randomly selected water points: three in Chifunde District, three in Changara District, and one in Moatize District. A listing of the villages is provided in Appendix H. The distribution of water points selected per district was based on proportional distribution of ARC water points in the districts. Twelve respondents per water point were interviewed. The respondents were selected from around the water point: three respondents in each of four directions at varying distances from the water point. An attempt was made to interview the household closest to the water point, furthest from the water point up to 750 meters, and somewhere in the middle - approximately 375 meters from the water point. The directions were selected by placing a directional diagram (a diagram with North, South, East, and West directional lines marked on it) next to the water point in an arbitrary fashion, and using the four directions indicated on the diagram as the directional paths to follow away from the water point. Distance from the water point was determined by pacing out the meters.

All ARC lead health field staff were interviewed, including Supervisors, Coordinators, and Sanitation Assistants. At least two Activistas from each of the five selected sites were also interviewed. One or more Activistas from the selected bairros were interviewed in all cases except for Thequesse, where the designated Activistas were not available; therefore, two alternate Activistas from neighboring bairros were interviewed instead. A few guards and producers were also interviewed from Moatize and Changara districts to provide some additional information.

Almost half of the ARC constructed or rehabilitated water points were inspected from the 111 water points ARC has built since the start of the 1995/1996 program. The water points selected for inspection were ones situated within cycling distance of the ARC hygiene education and latrine promotion (HELP) teams.

[1] The household listings were compiled by the ARC HELP teams at each site during the months of June, August, and September 1995.

C. Selection and Training of Survey Enumerators and Supervisors

ARC health, water, and support staff were mobilized to conduct the training seminars and to supervise and conduct the collection of the mid-term data. Wherever possible, staff experienced in survey implementation participated. Health management staff conducted the initial training sessions. Managers and health Supervisors acted as supervisors and trainers of the enumerators. Only the Activistas conducting the HH observations were supervised by Activista Coordinators. Activistas were chosen from the bairros where the observations were to be conducted since they already had a good rapport with the community, and their presence would not seem out of place.

Training sessions included the review of the survey purpose, procedure, and survey instrument, and practical experience in conducting the survey.

D. Data Entry and Quality Control

To ensure consistency of questioning, all enumerators attended the same training sessions and were instructed to read questions exactly as written. Coding was also reviewed during training seminars.

To ensure that complete and correct information was collected, supervisors reviewed all data collected while still in the field so that re-questioning could take place, if necessary, prior to handing in the completed forms to the Tete office for tabulation.

The data was all coded by one person to ensure consistency in coding. Where inconsistencies in recorded information existed, the information was discarded. Most of the data collected was tabulated by hand with a calculator. The water point observation data was entered and analyzed using EPIINFO 6.02.

Results

A. Results From Interviews and Observations

Household Knowledge Questionnaire

Sixty adults were interviewed using the health mid-term monitoring survey primary health care questionnaire (see the English version in Appendix B)[2]. Due to many of the men working in their fields, sixty-seven percent (n=40) of those interviewed were women, 28 percent (n=17) were men, and for five percent (n=3), the respondent's gender was not recorded.

A total of 417 out of a possible 600 correct responses (70%) were given by the 60 respondents for the 10 knowledge questions on the health mid-term monitoring survey PHC knowledge questionnaire. That is, respondents provided at least one correct response per question 70% of the time. The percent of respondents who provided at least one correct response for each question varied by question from 8 to 100 percent (n=5 to 60). All of the respondents (100%) were able to give at least one correct response to question 301, "When is it important to wash your hands?" Ninety-five percent of respondents (n=57) were able to state at least one correct thing to give someone who had diarrhea (question 501). The question with the most incorrect responses was question 901: "How is malaria transmitted?" Only 5 respondents (8%) were able to correctly state that malaria is transmitted by mosquitoes. An additional 15% (n=9) also stated mosquitoes transmit malaria, but thought malaria could be transmitted through poor hygiene, as well. One-third of the respondents (n=20) possessed the misconception that malaria could be transmitted through poor hygiene. The second most difficult question for the respondents was whether or not it is important to give one's newborn colostrum: only 35% were able to correctly answer this question. See Table 1a below for the results of the questions asked.

Table 1a: Correct Responses* (at least one per question), by District and Overall

District	Moatize		Changara		Chifunde		Overall	
	(n=20)		(n=20)		(n=20)		(n=60)	
Question	#	%	#	%	#	%	#	%
201: Benefit of latrine	18	90%	18	90%	15	75%	51	85%
301: When wash hands	20	100%	20	100%	20	100%	60	100%
401: Leftover food	15	75%	14	70%	18	90%	47	78%
501: 'Treatment' of Diarrhea	20	100%	20	100%	17	85%	57	95%
502: How Transmit Diarrhea	18	90%	12	60%	10	50%	40	67%
601: Give Colostrum	9	45%	8	40%	4	20%	21	35%
701: Method of Family Planning	15	75%	16	80%	18	90%	49	82%
702: Time Between Pregnancies	12	60%	13	65%	15	75%	40	67%
801: How Reduce Risk of AIDS	13	65%	15	75%	19	95%	47	78%
901: How Transmit Malaria	2	10%	0	0%	3	15%	5	8%
TOTAL	142	71%	136	68%	139	70%	417	70%

* From Health Mid-Term Monitoring Survey: PHC Knowledge Questionnaire, questions 1 - 10 in Appendix B

[2] Two questionnaires were discarded, one because of self-selection, the other because the interviewee had been substituted for her husband, who unexpectedly returned before the end of the interview day; his interview was retained and hers was discarded.

All three districts provided similar overall knowledge scores: between 68 and 71 percent. Moatize and Changara districts provided the most similar response scores for the set of questions, whereas Chifunde's knowledge was slightly different (better on some questions; worse on others).

Family planning methods considered "correct" did not include withdrawal or traditional methods. Three respondents (5%) mentioned traditional methods in addition to a "proven" method; their responses were considered correct. The five respondents who mentioned only traditional methods of family planning were categorized as not providing correct information.

A second measure of knowledge was also calculated to provide a measurement of depth of knowledge[3]. An approximation of the amount or depth of knowledge was calculated to show if respondents were providing more than one correct response where there was an option for more than one. For example, in question 301, "When is it important to wash your hands?", five correct responses were possible. When only considering at least one correct response, 100% of the respondents obtained a "correct" score. However, where more than one correct response is possible, the number of correct responses gives a more accurate picture of the respondent's knowledge. For example, if a respondent only provided one correct response then he/she would receive a depth score of 1 out of 5, or 20% for that question. Whereas, a respondent who provided 4 correct responses for that question would receive a depth score of 4 out of 5, or 80%. For malaria, a depth score of one was assigned to respondents who said that malaria was transmitted by mosquitoes; a score of 0.5 was given when a respondent said malaria is transmitted both by mosquitoes and through a lack of hygiene.

The total depth of knowledge score was calculated by taking the sum of depth scores for each question. The average depth of knowledge score for the household questionnaires was 8.9 points out of a possible 26, or 34%. In other words, on average, respondents gave less than one correct response per question. The depth of knowledge scores, by respondent, ranged from 3 to 16.5 points out of a possible 26, or from 12% to 63% of all possible correct responses. Table 1b presents the overall depth of knowledge score per question.

Sixty-eight percent, or 41 respondents, reported having been visited at home by an ARC staff member to discuss health issues; thirty percent (n=18) had not been visited, and one respondent (2%) did not know or did not respond to the question. Chifunde and Moatize respondents reported more home visits than Changara: 85% (n=17) and 80% (n=16) compared with 40% (n=8), respectively. By bairro, the number of respondents reporting home visits varied from 0/5 in Bairro 4 of Marara to 10/10 for Bairros 2 and 4 of Thequesse. A slightly higher percent of respondents, 75% (n=45), reported attending a health talk in the past two months given by an ARC staff member. The figures varied insignificantly between districts: with, 14, 15, and 16 respondents (70-80%) reporting their attendance at such a talk. Again the number varied by site and bairro, with all respondents interviewed in Bairros 1 and 4 of Marara reporting their attendance at a talk, whereas other sites had only 6/10 attending a talk.

[3] Depth of knowledge score was calculated by assigning 1 to 5 points to each question, one point for each possible correct response. If only one correct response was possible, then only one point could be assigned, etc. The maximum total points possible for depth of knowledge, per person, was 26.

Table 1b: Overall Depth of Knowledge

	Overall Depth of Knowledge		
Question	Correct Responses	Total Possible	%
201: Benefit of latrine	51	60	85%
301: When wash hands	97	300	32%
401: Leftover food	58	120	48%
501: 'Treatment' of Diarrhea	76	300	25%
502: How Transmit Diarrhea	55	120	46%
601: Give Colostrum	21	60	35%
701: Method of Family Planning	53	180	29%
702: Time Between Pregnancies	40	60	67%
801: How Reduce Risk of AIDS	75	300	25%
901: How Transmit Malaria	9.5	60	16%
TOTAL	535.5	1560	34%

When asked in what ways the respondent found ARC's projects useful to him/her, the majority, 82% (n=49), responded with 'health education.' Sixty percent (n=36) mentioned the provision of latrines or latrine slabs, 14 (23%) said provision of water or a pump, 12 (20%) said behavior changes, and 9 (15%) said provision of health facilities.

Village Leader Interviews

Twelve village leaders were interviewed, at least one from each bairro selected for the mid-term survey. All 12 had heard of ARC and were able to explain what activities ARC was involved in. Sixty-seven percent mentioned ARC's role in health education and an additional 58% mentioned ARC's role with latrines and latrine slabs. Forty-two percent cited ARC's building of schools and water points.

All twelve of the leaders reported having attended a health talk within the past two months given by an ARC staff member.

When asked in what ways they found ARC's projects useful to them, the majority, 11 out of 12, stated for reasons of health education. Nine leaders also mentioned the provision of latrines or latrine slabs, and others stated behavior changes (n=5), water/pump (n=4), health facility (n=3), and school (n=2).

The overall impression of the ARC health team was positive. Comments included: good, good job, or working well (n=6); helpful in health or preventing disease (n=3); teaching us about health (n=4), good cooperation or no discrimination (n=2), weekly visits (n=1). Other comments included: "the team worries about them", and "they teach us for the benefit of our lives". One leader from Chifunde Sede said (translated from Chichewa):

> *'It's a good team because it helps us prevent diseases.*
> *Before many people were dying because of diseases,*
> *but now this has decreased.'*

When asked if the ARC health team had cooperated with and respected the leaders and others in the community, all of the leaders responded positively. Additional comments included: "they meet with the leaders before they start their job"; "they collaborate with the leaders";

"they come to homes"; "they take care of the local people"; and "they don't give things, but they help in work."

Responses to the question "What is your impression of ARC's health activities/projects?" were all positive. Nine leaders responded that they were happy with the projects or think ARC is doing a good job. Four people mentioned that the work is advantageous, one stating "if we follow what is taught, we'll avoid diseases and have fewer deaths". Two others also mentioned a decrease in disease. Other comments included: "they teach us good things that we didn't know before"; "they are interested in our lives"; "they give us latrines"; and "they give us hats". A couple of other comments were related to the number of visits made by ARC.

All of the leaders responded that they thought people in the community had changed their health behaviors since ARC's presence. People mentioned changed lifestyle for the better. Most of the behavior changes cited were related to personal and household hygiene building/using latrines; caring for yard/household; washing hands; treating water/keeping water clean; and preparing and storing food. A few other behavior changes included child care, prevention of STDs, and fewer illnesses and deaths. One leader from Marara summed it up like this (translated from Chinyungwe):

'Everything has changed now because of ARC.
Life has improved a little bit.
Some people have changed; others have not;
but with some insistence from ARC,
we will change our lives for the better'.

ARC Staff Interviews

ARC staff fared well on the mid-term PHC knowledge questionnaire. For the Supervisory staff (Coordinators and Supervisors), the overall score was 98%. That is, overall, the supervisory staff were able to provide at least one correct response for each of ten questions 98% of the time. Combining all of the ARC health educators' scores together, including the Sanitation Assistants and Activistas, the knowledge score reduces some, to 94%. By including the Producers and Guards scores the overall ARC health staff score drops a bit further to 92%. See Table 2 below for the details of the ARC staff interview scores.

Average depth of knowledge scores (see explanation in footnote 3) for ARC staff varied by category in a similar fashion to the percentage of correct responses, with the higher level staff, for example the Supervisors and Coordinators, performing better, i.e. they provided more correct responses. Refer to Table 2 for more details.

Table 2: ARC Staff Interview Scores*
Percentage of At Least One Correct Response Per Question and Average Depth of Knowledge Score

ARC Staff Interviewed		≥1 correct Answer	Depth of Knowledge (Avg. of possible 26)	
Position	#	%	#	%
Supervisors	3	100%	18	69%
Activista Coordinators	9	97%	15.7	60%
Sanitation Coordinators	14	98%	15.2	58%
Sup/Coord. Subtotal	*26*	*98%*	*15.7*	*60%*
Sanitation Assistants	30	94%	14.9	57%
Activistas	15	87%	13.1	50%
All Educators Subtotal	*71*	*94%*	*14.8*	*57%*
Producers	14	92%	12.4	48%
Guards	5	66%	12.1	47%
Prod/Guard Subtotal	*19*	*85%*	*12.3*	*47%*
Total	**90**	**92%**	**13.8**	**53%**

In Table 3 below, the questionnaire scores have been broken down by question and by staff category. All of the ARC health staff interviewed were able to explain at least one way a person can reduce his/her risk of infection by AIDS. All of the health educators were also able to explain that a benefit of having a latrine is that it lessens one's chance of becoming ill or that it is better for one's health. ARC staff, overall, were also able to provide correct responses 98-99 percent of the time for: specifying when is it important to wash hands, listing methods of family planning, and describing what should be given to someone with diarrhea. Overall, ARC staff had the most difficulty with the question asking if it is important to give a newborn colostrum. The second most difficult question concerned how much time should elapse between the birth of one child and the beginning of the next pregnancy. The Activistas and Guards had the most difficulty with the question concerning how malaria is transmitted.

Household Observation Survey

Sixty households (HHs) with latrines were observed. Two observation forms were completed per household: one in the morning and one in the afternoon, making a total of 120 observations. Where information on the observation forms was contradictory (e.g., on one form the yard was considered both clean and dirty), the observation was not included. Results of the observations are summarized in Table 4, below. The information is presented as HH totals because it was not possible to distinguish between gender or age.

Out of the 57 latrines observed, 91% of the household latrines had cement slabs, nine percent did not. Three of the households were not included due to conflicting information.

* See Health Mid-Term Monitoring Survey: PHC Knowledge Questionnaire: questions 1 - 10 in Appendix B

Table 3: Percent of Correct Responses (at least one per question)* for ARC Staff
By Staff Category and Overall

	Coordinators / Supervisors	Sanitation Assistants	Activistas	Producers/ Guards	Overall
# Interviewed	26	30	15	19	90
Question					
201: Benefit of latrine	100%	100%	100%	95%	99%
301: When wash hands	96%	100%	93%	100%	98%
401: Leftover food	100%	97%	73%	100%	94%
501: 'Treatment' of Diarrhea	100%	100%	93%	95%	98%
502: How Transmit Diarrhea	96%	100%	100%	79%	94%
601: Give Colostrum	88%	73%	100%	84%	84%
701: Method of Family Planning	100%	97%	100%	100%	99%
702: Time Between Pregnancies	96%	87%	87%	79%	88%
801: How Reduce Risk of AIDS	100%	100%	100%	100%	100%
901: How Transmit Malaria	100%	90%	27%	68%	91%
Total	98%	94%	87%	85%	92%

* See Questionnaire: questions 1 - 10 in Appendix B

The majority of the latrines and yards at households observed were in good overall hygienic condition. Only at one of the households were all four latrine and yard observations reported as being in poor condition. Most of the latrines, 86%, had a lid covering the drop hole, and 80% of the floors or slabs in the latrines were reported as clean. Sixty-five percent of the latrines observed had water for washing hands, either in an ARC-promoted hand-washing unit or in any other container. Yards were generally considered to be clean (81%). See Table 4A for a summary of the condition of the latrines and yards.

Water was observed to be collected, on average, 3.5 times per HH over a period of eight hours. The majority of the time (56%), water was collected from a river or traditional well. The remainder of the time it was collected from a pump. Water treatment occurred 119 times, or less than 52% of the time. When water was treated, it was usually boiled or filtered; water was rarely chlorinated. Numerous times the methods of treating were combined (e.g., the water was boiled and filtered); therefore the percent of times that water was treated cannot be determined. Water treatment occurred in half, five out of ten, of the bairros: two bairros in both Kaphiridzanje and Thequesse, and one bairro at Mazoe Ponte. Most of the time the water container where water was stored had a lid. For a summary of the water observations, please refer to Table 4B, below.

Hands were usually washed after using the latrine, before preparing food, and before eating. Hand-washing was more common prior to eating than before food preparation or after using a latrine. Eighty-two percent washed their hands before eating, 65% washed their hands before preparing food, and 62% washed their hands after using the latrine. Refer to Table 4C for a summary of the hand-washing observations.

Summarizing the behaviors observed, except water treatment, 71% of the HHs observed were practicing appropriate health behaviors.

Table 4: Summary of HH Observation Results

A. Condition of Latrine and Yard

Observation	Households		
	# observed	frequency	% positive
There is a latrine slab	60	57	95%
Lid on latrine hole	118	102	86%
Latrine floor/slab clean	118	94	80%
Water for hand-washing	120	78	65%
Yard clean	118	95	81%

B. Water Collection, Treatment, and Storage

Observation of Activity	#	%
Household water collection	206	
From pump	91	44%
From river/traditional well	115	56%
Household water treatment*	119	
By boiling	58	49%
By filtering	53	45%
By chlorinating	8	7%
Water container had lid (of 119 observations)	110	92%

* Some households treated in more than one manner (overall percentage not applicable)

C. Hand-Washing

Activity Observed	# Performed	Hands washed		% Handwashing
		Before	After	
Latrine used	418		260	62%
Food prepared	272	178		65%
Food eaten	492	404		82%

Water Point Utilization Survey

Eighty-three percent (70 out of 84) of the people interviewed who live within 750 meters of an ARC water pump usually get their drinking water from the pump; 17% obtain their drinking water from a source without a pump (a riverbed or unlined well).

When asked why they get their water from that source, 71% (n=60) explained because it was the closest source. Of the remaining 29% (n=24), 24% (n=20) explained they used the source because the water is clean or it's better for one's health (all of them pump users), two percent

(n=2) responded because there's no wait and two percent either said they did not know or they did not respond. Of the 24 who did not say they used a water pump because it is the closest source, when asked if that was, in fact, the closest water point, 17 said that it was. In other words 92% (n=77) of the population interviewed obtain water from the closest water point; only seven percent (n=6) used a pump for health reasons alone (n=5) or because there is no wait (n=1), and for one person it was not specified.

When asked if they had done anything to the water collected most recently to make it safe for drinking, fourteen respondents (seventeen percent) reported treating their water, only one of whom obtained his/her drinking water from an unprotected source. Seven percent of those who obtain their drinking water from an unprotected source treat their water; 19% of those who obtain their drinking water from a protected source, i.e., a pump, treat their water. Out of those who treat their water, eight reported boiling their water, five reported adding chlorine, and one reported filtering water through a cloth. Thirteen of the 14 who treat their water live in Thequesse; the other one lives in Phacassa.

Observation of ARC Water Points

Out of the 54 water points which were inspected, all had pumps. Out of the water points for which data was provided on the type of water point, a little less than half were reported to be boreholes (n=22), and a little more than half hand-dug wells (n=27). Sixty-seven percent (36/54) of the pumps were working at the time of observation. One-third (33%; 18/54) reported that the water was salty tasting; 65% (36/54) reported that it was sweet.

The observed condition of the apron and the surrounding area of the water points was good. Overall, the aprons and soak-aways were in good shape, and latrines and washing of clothes and dishes was occurring at a safe distance away from the well. Refer to Table 5 , below, for further details.

Fences were present at 43% (n=23) of the wells. Out of 23 fences, 43% were in good repair, or capable of keeping animals out. Animals or animal feces were located within 10 meters of the water point 50% of the time. Fences made a small difference in whether feces or animals were observed within ten meters of the water point; for water points with fences, 39% had animals or feces nearby, whereas 61% of water points without fences did. And out of those water points with fences in good repair (n=10), 40% were still observed to have feces or animals within 10 meters of the pump.

According to the survey, 94% of the water points (n=50) had water point committees established to oversee the maintenance and condition of the water point. All of the water point committees were trained by ARC. When asking someone from the community if there is someone in the community capable of fixing the pump if the pump breaks, 92% (n=47) said that there was someone who could fix the pump. Two of those were pumps for which it was reported that no water point committee had been trained. There were also two communities, Chipembere Sede and Cagogo at Chifunde Sede, which reported that no one in the community could fix the pump even though there was a trained committee.

Ninety-two percent (n=47) reported that the community purchases spare parts for the pump by collecting money from the community; one reported that nothing was ever contributed; one said they don't buy parts; another reported that no one had yet been taught; and one did not respond or did not know.

Table 5: Water Point Observations

Observation	Frequency	Sample #	%
Pump working	36	54	66.7%
Apron clean/free of debris	30	36	83.3%
Apron in good condition	42	54	77.8%
Stones around apron and soak-away	36	54	66.7%
Water flows freely in soak-away	28	35	80.0%
Stagnant water within 10 m of well	13	36	36.1%
Fence around well	23	54	42.6%
Animals can enter fence	10	23	43.5%
Animals or feces within 10 m of well	27	54	50.0%
Latrines within 30 m of well	1	54	1.9%
Wash clothes/dishes within 5 m of well	14	36	38.9%
Water salty	18	54	33.3%

When asked if the well often goes dry, 43% said no/never; 19% said sometimes; 38% said frequently.

When asked how long the pump was broken the last time it broke down, 47% reported that it's never been broken. Out of the 27 reporting the pump had broken down (53%), the average length of time that the pump was broken was six months, with a range of 3 days to 23 months, and a median of four months. For five of the pumps, a length of time that the pump had been broken was not provided.

Results of Activista Supervisor Interview and Site Visit Interviews and Observation

The following is a summary of the major points from a site observation and interviews with the Activista Coordinator (AC), the Sanitation Coordinator (SC), the two Sanitation Assistants (SAs) and one of the Activistas at Msaua, and an interview with the Activista Supervisor (AS).

From all of the interviews, changes in the communities' health behaviors and health were reported since the time that ARC had began its work. They reported increased positive behavior changes including use of latrines, treating drinking water, cleaning yards, washing hands carefully, going to health facilities, and more hygienic water collection practices. The SC also reported less diarrhea.

The interviewed staff all reported receiving sufficient support from their Supervisors in terms of materials, information/communication, supervisory visits, and general support. The SC mentioned that sometimes materials are late, but they get them. The AS felt that communication could be improved between Tete and field staff through increased transportation which would allow for more field visits and increased coordination. They also felt that they had support from the community to conduct their activities.

The Coordinators, Assistants, and Supervisor were aware of the project objectives and felt that they could achieve them as planned. The interviewed staff felt they were qualified for their jobs and they were clear as to their responsibilities. The AS, however, felt he could use more skills/knowledge in logistics.

An interview with one of the Activistas revealed that the community is learning new things and appreciates what she is doing. However, she sees herself as an ARC worker and thinks that

she should receive something, like shoes, soap, or salt, to justify her efforts even though she volunteered to be an unpaid health educator. The Activista requested more chlorine to treat the water. She said there was none in the shops, but even if there was she felt people wouldn't buy it due to lack of money. She said she was chlorinating water at the pump and at people's houses, regardless of where they obtained the water.

ARC's production shelters and homes were all in good condition. The latrines were clean, the hand-washing units were filled with water, and the yards were tidy. The production shelters' roofs, however, were in poor repair. One of the shelter walls had large health education drawings on the outside for passersby to see. In the community the latrines and hand-washing units were easily visible and plentiful, as were the new latrine holes being dug. A quick check revealed that many of the hand-washing units were empty. At the school, no hand-washing units were present; the headmaster informed the observers that they had been stolen. The condition of the school and health latrines was appalling, filthy and smelling terrible.

The slab production site appeared to be working well. Overall the quality of the slabs was good. However, a spot check of the slab thickness and diameter revealed some inaccuracies for a few of the slabs. Slab thickness varied from 27-45 mm, with one slab varying from 29-45 mm. And one of the slab's diameter varied from 115-121 cm. Observation also revealed that the slabs previously made were curing under damp sand in the shade. The production team reported testing all the slabs before giving them to the community.

B. Results From ARC Reports

Latrine Coverage

By reviewing ARC's November 1995 monthly report, the number of household (HH) latrines in the target areas of the four districts was found to be 4,754. The percent of HH in the target areas with latrines, or latrine coverage, at the end of November was 38%. By district, latrine coverage varied from 7% to 44%, and by site, latrine coverage varied from 7% to 93%.

Trainees' Knowledge Gain

ARC measures knowledge gained amongst its trainees during a training session by administering pre-tests and post-tests at training seminars. ARC has conducted approximately 17 major training seminars within the health program: 10 HELP team orientation, management, and review training seminars and seven Activista Coordinator training seminars. From a sampling of 6 training seminars, ARC trainees had a 57 percent gain in knowledge for trainings, or a 32 percentage-point increase in knowledge (refer to Table 6 for more detailed information). Individual's percentage-point change in knowledge ranged from -12 to +82.

Table 6: ARC Trainee Pre- and Post-Test Scores for Sample of Training Seminars

Training Topic	Dates	# of Trainees	Pre-Test Score	Post-Test Score	% Pt. Gain	% Gain
SA and SC Orientation and Training	24/1/95 - 2/2/95	22	54%	89%	35%	64.8%
SC Management Training	24/2/95 - 27/2/95	7	30%	88%	58%	193.3%
SC Management & Review	6/12/95 - 10/12/95	9	75%	89%	14%	18.7%
SA Orientation and Training	13/12/95 - 15/12/95	5	50%	90%	40%	80.0%
AC Basic Training	11/12/95 - 15/12/95	5	65%	85%	20%	30.8%
AC Follow-Up Training	04/01/96-13/01/96	12	60%	85%	25%	41.7%
TOTAL		**60**	**56%**	**88%**	**32%**	**56.5%**

Deliveries by Trained Health Workers

Because information on the number of deliveries by trained health workers was not expected to have changed much since the May baseline survey, other measures are reported to demonstrate how ARC is working towards increasing the number of deliveries attended by a trained health worker.

One traditional birth attendant (TBA) training seminar has been sponsored by ARC so far, and four more courses are planned for 1996, to lead towards an increase in the number of trained health workers available to attend deliveries in its target areas. The first training seminar was a basic course conducted in Chifunde District for 10 participants. Two more basic courses for a total of 25 participants and two refresher courses for a total of 38 participants are planned for 1996.

ARC is also providing safe motherhood education to communities, primarily through the Activista Coordinators and Activistas, in order to raise the communities' awareness concerning prenatal care, maternal risk factors, and the need to seek trained assistance if a pregnant woman is identified to be at risk. Provision of education to raise the awareness of the community should lead towards an increased use of trained health workers to assist with deliveries.

Discussion

Introduction

Although ARC is presenting numerical data based on the survey results, it should be kept in mind that the results obtained are not actually statistically significant because of the small sample size used in the mid-term survey. ARC's objective through this survey was to find indications of success or failure in ARC's approach and effectiveness. We believe that the results of this survey show such an indication, but we do not claim that the numerical gains or losses in knowledge or changes in behavior as presented in this report are statistically accurate or valid.

A. Surveys and Observations

1. Primary Health Care (PHC) Knowledge

Household Knowledge Questionnaire - PHC Knowledge Change

One of ARC's objectives was to achieve a 20 percent increase in PHC knowledge among the adult target population. By comparing the results of identical questions from the four baseline surveys implemented prior to the current mid-term monitoring household PHC knowledge questionnaire, an increase of knowledge of 19 percent, or 11 percentage points, has been shown; this almost reaches the target of a 20 percent increase. The 19 percent increase in knowledge represents an increase in the percent of times that at least one correct response was given for each question. Refer to Table 7 for the details on the comparisons between the baseline and mid-term evaluation surveys.

Table 7: Comparison of PHC Knowledge Scores Between Baseline and Mid-Term Surveys

		Baseline Results			Current Results			% Pt.	%
#	Question	Corr. Resp.	# Resp.	% Correct	Corr. Resp.	# Resp.	% Correct	Gain or (Loss)	Gain or (Loss)
201	Benefit of latrine*	391	1015	38.5%	51	60	85.0%	46.5%	120.7%
301	When wash hands+	639	663	96.4%	60	60	100.0%	3.6%	3.8%
401	Leftover food#	310	329	94.2%	47	60	78.3%	(15.9%)	(16.9%)
501	'Treatment' of diarrhea#	445	535	83.2%	57	60	95.0%	11.8%	14.2%
502	How diarrhea transmitted+	252	663	38.0%	40	60	66.7%	28.7%	75.4%
Subt	*201-502*	*2037*	*3205*	*63.6%*	*255*	*300*	*85.0%*	*21.4%*	*33.7%*
601	Give colostrum	161	422	38.2%	21	60	35.0%	(3.2%)	(8.3%)
701	Method of fam. planning	274	423	64.8%	49	60	81.7%	16.9%	26.1%
702	Time betw pregnancies	242	423	57.2%	40	60	66.7%	9.5%	16.5%
801	How to reduce risk of AIDS	330	406	81.3%	47	60	78.3%	(2.9%)	(3.6%)
901	How malaria transmitted	58	423	13.7%	5	60	8.3%	(5.4%)	(39.2%)
Subt.	*601-901*	*1065*	*2097*	*50.8%*	*162*	*300*	*54.0%*	*3.2%*	*6.3%*
Total		**3102**	**5302**	**58.5%**	**417**	**600**	**69.5%**	**11.0%**	**18.8%**

* Scores from all 3 water and sanitation baseline surveys: 2/95, 7-8/94, and, 3/94
\- Scores from 2 of the water and sanitation baseline surveys: 2/95 and 7-8/94
\# Scores from only the Chifunde water and sanitation baseline survey of 2/95

The first five questions on the survey (201-501) relating to hygiene and diarrhea were compared with the three district water and sanitation baseline surveys of March 1994, July-August 1994, and February 1995. When comparing the overall knowledge scores, of at least one correct response, between the baselines and the mid-term surveys, an increase of 34%, or sixteen (16) percentage-points was achieved for the hygiene and diarrhea questions.

A smaller increase of knowledge has been demonstrated for the last five questions on the survey (601-901) relating to breast-feeding, safe motherhood, family planning, AIDS, and malaria. These questions on the mid-term survey were compared to the PHC baseline survey of May 1995. The results showed a mere six percent increase in knowledge, or a three percentage-point increase from May until November. This could be due to the short period of time in which this portion of the health education activities have been in place. The Activistas are primarily responsible for providing health education on these topics, and they had just begun teaching some of these topics in June at the earliest, and others not until September or October. Therefore, they have not had much time to disseminate the information on these topics. HELP team members have only delivered a limited number of health education messages on AIDS, malaria, and family planning, as their primary focus is on hygiene and sanitation.

The HELP teams, on the other hand, have been providing health education on hygiene and diarrhea since April 1994 for Moatize District, September 1994 for Changara District, and March 1995 for Chifunde District; a much longer time than the Activistas. The results obtained were as expected: more of an increase in knowledge where the messages have been disseminated for a longer period of time, i.e., the hygiene and diarrhea messages.

Another possible explanation for the low knowledge scores on the mid-term monitoring survey compared to the PHC baseline questionnaire could also be that in the mid-term survey women respondents represented 67% of the respondents, whereas in the baseline women accounted for 50%. And for the PHC baseline survey, it was found that the women usually scored lower than the men, by almost 10 percent.

The topic where the largest percent and percentage-point increases in knowledge was observed was in the benefit of having a latrine, a 121% increase in knowledge, or a 46 percentage-point increase. The second largest increase in knowledge was for how diarrhea is transmitted: a 75% or 29 percentage-point, increase.

For the question on hand-washing, it was not possible to receive a higher percent or percentage-point increase in knowledge the way the knowledge scores were calculated since all, 100%, of the respondents were able to provide a correct response on the mid-term survey. This does not, however, mean that hand-washing does not need to be further emphasized. In fact, the depth of knowledge for hand-washing was as low as 32%; that is, on average 1.7 out of a possible 5 correct responses were given per respondent. More health education should certainly raise the depth of knowledge score.

The health message for which the largest percentage-point decrease in knowledge was observed was for storing and reusing leftovers. This finding is surprising and unclear as to why this decrease occurred, when the number of individual health education messages on this topic is as high as the number for oral rehydration, and more than the number of messages for AIDS/STDs, malaria, family planning, and breast-feeding[4].

The message for which the largest percent decrease in knowledge occurred was for how malaria is transmitted. The already low percent of the population who knew how malaria is transmitted decreased even further. And the percent of respondents with the misconception that malaria can be transmitted through lack of hygiene increased even more: from 10% on the baseline to 33% on the mid-term. A possible explanation for the marked increase could be that

[4] The number of individual health education messages by topic are taken from ARC's October 1995 monthly report. A copy of the relevant pages with these figures are found in Appendix I.

on the baseline survey only one response was accepted; that one which the respondent thought was the most significant or the one which he/she said first. Again, the Activistas have not yet received intensive training on malaria, and none of the field staff have made it their focus as of yet. Malaria is certainly a topic which warrants considerable attention in the months to come.

However, it should be emphasized that the comparisons between surveys can only provide a general indication of knowledge change; it's in no way a true evaluative statement. The method of sampling and the number of individuals interviewed or observed do not allow for any statements of significant differences. The comparisons are more of a way to detect potential problem areas where more emphasis is needed.

The percent of respondents who reported being visited at home by an ARC staff member to discuss health issues was lower than expected, especially for Changara District where only 40% reported having been visited. This figure appears to be under-reported since latrine coverage is as high as 78% and 79% for Mazoe Ponte and Marara Districts. And in Marara, nine out of 10 respondents interviewed had latrines, yet only four out of ten reported having been visited at home by an ARC staff member. This is surprising since the HELP team visits a HH at least four times, often times more, to assist in siting and measuring the latrine pit, checking that the pit is dug, delivering the latrine slab, and following-up the construction of the latrine superstructure and hand-washing system. Activistas and Activista Coordinators are also present in Marara and might have also visited those HHs; so it's surprising that so few reported being visited. Perhaps the community members do not realize who the ARC staff members are since most of them are neighbors from the community itself.

ARC Staff PHC Knowledge

The ARC staff fared well on the PHC knowledge questionnaire, especially since not all of the staff have received training in all of the topics included in the questionnaire. The staff, especially supervisory staff, scored high for knowing at least one correct response per question, but the depth of knowledge scores were not so high and need some improvement all around. The Activistas had lower knowledge scores, but they have been with ARC for the shortest period of time, and are probably the least educated of the health educators. In general, the topics on which ARC staff had the most correct responses were topics on which they received training from ARC. An exception to this was for the Sanitation Assistants (SAs) who could all mention at least one way to reduce one's risk of AIDS even though they have not received any formal training on AIDS. The SAs most likely gained the information from the combined activities conducted with the Activistas and Activista Coordinators.

Topics on which the ARC staff had more difficulties were typically ones for which no formal training had been received. For example, the Activistas had the most incorrect responses for how malaria is transmitted, a topic which has not yet been formally covered. Sixty-seven percent of the Activistas also held the misconception that malaria is transmitted through poor hygiene. The second and third most difficult questions for the Activistas were concerning left-over food and time between pregnancies, both of which had been reviewed in their training sessions. For the SAs, the two most difficult questions were the ones concerning colostrum and time between pregnancies, neither of which was covered in their training seminars. Three out of thirty SAs also had difficulty with the question on how malaria is transmitted, although they were trained in malaria transmission.

The Supervisors were able to provide at least one correct response for all 10 questions. The Coordinators provided mostly correct responses, with only 6/230 incorrect responses: three SCs on the colostrum question (for which not all had received training), and one AC on each of the questions on time between pregnancies, transmission of malaria, and hand-washing.

Comparison of PHC Knowledge Between Community and ARC staff

ARC staff had more PHC knowledge than the community according to the survey conducted. ARC staff provided at least one correct response 92% of the time compared with 71% for the community. The topics on which ARC staff and the community scored well were fairly similar. The four questions on which the community had the most correct responses (scoring between 82% and 100%), hand-washing, treatment of diarrhea, benefits of a latrine, and family planning, were also among the top five questions on which ARC staff scored best (scoring between 98% and 100%). However, the question on which ARC staff scored 100%, ways to reduce one's risk of AIDS, the community did not score so well, with only 78% providing a correct response.

Similarly, the topics on which the community had the fewest correct responses were similar to the ones on which ARC staff had difficulties. The community had the most trouble with malaria, colostrum, time between pregnancies, and diarrhea transmission. ARC staff had the most difficulties with colostrum, time between pregnancies, and malaria. Where the community had the least information, on transmission of malaria, the Activistas also fared the worst.

It appears that where ARC staff know the information well, they are also capable of passing on that information to the community, but where information is lacking for the ARC staff, correct information cannot be passed.

The number of messages transmitted by the HELP teams and Activistas do not link up that well with the scores obtained by the communities. One would expect that where more messages were given, and the ARC staff knew the information, the community would receive the highest score. However, a clear pattern is not established between the two. For hand-washing, benefits of latrines, and treatment of diarrhea the connection holds: many messages were given and ARC staff knew the information, and the community fared well on the questionnaire. However, for diarrhea transmission, many messages were also given and the ARC staff were also knowledgeable, but the community did not score very well. And for family planning, although not many messages were transmitted, the community was able to list at least one method of family planning, but then again they were not able to explain how much time should elapse between pregnancies. Either the community has other good sources of information or some people are not receiving or understanding the messages transmitted by ARC.

As expected, the depth of knowledge score was higher for ARC staff then for the community: 13.8 (53%) compared to 8.9 (34%). This was expected since ARC staff have received more intensive training, and many of the ARC staff are literate, whereas fewer literate people are probably found in the communities surveyed. The other point to note on depth of knowledge is that it is contingent on the interviewee's desire to expound on a response. The respondents are told at the start of the interview to provide as many responses as they can for each question, but if a respondent is shy or not talkative, then their depth of knowledge score will be low.

Trainees' Knowledge

For the six ARC training seminars for which pre- and post-test scores were provided, the trainees demonstrated a 48 percent, or a 27 percentage-point, increase in knowledge. This percent increase meets the criteria in the end-of-project-status indicator which specifies a 25-50 percentage increase for trainees. Only for a review seminar was the percentage increase lower than the indicated target. The highest knowledge gain occurred for the initial management course since it was an unfamiliar topic for the trainees.

2. *Health Behaviors*

Community Household Observation:

The health behavior end-of-project-status (EOPS) indicators include: 33% of adults practicing appropriate health behaviors; and 70% of HHs in target areas using a latrine. The community HH observation survey was able to demonstrate that for the behaviors measured, 71% of the HHs observed (those with latrines) were practicing good health behaviors, including: hand-washing; using a latrine; and practicing good household, latrine, and water hygiene. This is over twice the percent specified in the EOPS indicator. Granted, the observed 'appropriate' health behaviors were only measured for those with latrines, which already signifies good health behaviors, but those behaviors are most likely not limited to this group of people with latrines. It seems that many good health behaviors would occur throughout the target areas. But even so, the behaviors observed should be similar to those of other latrine owners. And since ARC's target areas should have 70% coverage by the end of the program, at least 70% of the population should be practicing similar good health behaviors 70% of the time.

For latrine usage, 59 out of 60 HHs (98%) with latrines were observed using their latrine at least once during the eight hours of observation. Latrines have not been built just for show.

In comparison to the three water and sanitation baseline surveys ARC conducted, the percent of the target community currently practicing good household and water hygiene has improved some, as can be seen below in Table 8.

Table 8: Comparison of Household and Water Hygiene Practices Between the Baseline Water and Sanitation Surveys and the Mid-Term Survey

Observation	Baseline	Mid-Term
lid on latrine hole	22%	86%
latrine floor clean	46%	80%
yard clean	56%	81%
Collect drinking water from a pump	35%	44%

Water Utilization Survey

The end-of-project-status indicator for water specifies that "80% of HH living within 750-meter radius of an ARC water point get their drinking water from that protected source." The water utilization survey confirmed that, in the surveyed areas, 83% of the population living within 750 meters of an ARC constructed or rehabilitated water point do obtain their drinking water from that protected source.

Water treatment was not widely practiced by the eighty-four respondents interviewed. And most of those who did treat their drinking water obtained water from a protected source. Thequesse (Chifunde District) represented 13 out of the 14 respondents who treated their water. Thequesse has also evidently stressed treatment of all drinking water, since over half of the respondents from Thequesse reported treating their water even though all but one got their drinking water from a protected water source. Chlorination was reported as one of the methods used to treat the water by 42% of the Thequesse respondents, which could be a direct result of a recent chlorination demonstration.

When comparing the findings of the water utilization survey to those found in the HH observation survey, some major differences were observed. Although 83% were found to obtain

their water from a pump in the water utilization survey, only 44% were found to get their water from a protected water source in the HH observation survey. One probable explanation for this difference is that in the water utilization survey collection of water referred only to drinking water, whereas in the HH observation survey the use of the water was not specified, so drinking and wash water would both be included. And wash water would not necessarily be collected as often from a protected source, nor is it as important to do so.

Two other possible reasons for the difference in source of water for the HH observation and water utilization surveys include the distance from a protected source and the presence of a protected source. In the HH observation survey there wasn't necessarily a functioning protected source as was the case for the water utilization survey. An example of this was in Nhambulu I where the pump was broken so people had to use another source of water. As well, in the HH observation survey, the HHs could have been located in excess of 750 meters, which would render them less likely to utilize the pump.

In addition, water treatment practices varied between the HH observation and water utilization surveys. The water utilization survey respondents reported treating their water 17% of the time; by boiling or chlorinating, and rarely filtering. The HH observation recorders indicated that water was treated 52% of the time or less by boiling or filtering, and rarely by chlorinating.

Water Point Observation

The general condition of the water points and the surrounding area was good. However, one-third of the pumps were not working at the time of observation. This is higher than expected, especially since 92% of the community members interviewed said they contribute money to buy spare parts for the pump and there is someone in the community capable of repairing the pump should it break down.

According to the survey, 94% of the water points had water point committees established to oversee the maintenance and condition of the water point. However, the Water Program Manager reports that a water point committee has been established for all of the water points surveyed. It appears that some confusion about the question existed. For two of the water points where it was recorded that no water point committee had been established, the community member interviewed from that village said that there is someone from the community capable of repairing the pump should it break down. An inference could be made that this person capable of repairing the pump is a member of the water point committee. For one of the water points it was also reported that the community collects money to buy spares, again suggesting that a committee has been formed to oversee the maintenance of the pump. There were also two communities, Chipembere Sede (Changara) and Cagogo at Chifunde Sede who reported no one in the community could fix the pump if it was broken even though trained committees have been established there. In these instances, the water point committees are not well enough known.

Fences were not very plentiful, but animals and animal feces near the water points were. However, a large difference between water points with fences and those without, regarding the presence of feces or animals within ten meters, was not observed. Perhaps this is because fences may not be built as far out as 10 meters from the water point. The time and energy required to obtain a sufficient quantity of materials to build such a large enclosed area may be prohibitive.

Although 33% of the observed wells were reported to contain 'salty' water, it is not considered to be at a dangerous level. The water is safely consumable, but not so pleasant tasting.

One question concerning the recharge of the water point (question number 12) had to be eliminated due to confusing wording within the question.

When asked how long the pump was broken the last time it broke down, some of the responses provided suggests that the question was not well understood. For example, dates of the last break down were provided instead of the time period for which it was not functioning. As well, for some of the rehabilitated pumps, it is not clear if the length of time reported for the pump being broken is referring to before of after ARC rehabilitated the pump. Regardless, it is clear that the pumps do break, and it is essential that water point committee members are capable of obtaining spare parts and fixing the pumps.

The frequency with which the water points were reported as sometimes or often dry was quite high. Being a drought year may have caused the number to escalate. Perhaps some of the water points were also dug while the water table was still high.

In comparison to two of the water and sanitation baseline surveys from Moatize and Changara Districts, the percent of working pumps, pumps where the apron is clean, there is no stagnant water, there is a fence, and someone is capable of fixing the pump has increased according to the mid-term survey observations. The percent of pumps without animals or feces within 10 meters, however, has decreased according to the baseline and mid-term survey observations. See Table 9 for more details.

Table 9: Comparison of Water Point Observations Between Water and Sanitation Baseline Surveys and the Mid-Term Survey

	Baseline			Mid-Term		
Observation	# observed	Frequency	%	# observed	Frequency	%
Apron clean/free of debris	25	4	16%	36	30	83%
No stagnant water within 10m	25	13	52%	36	23	64%
Fence around pump	25	5	20%	54	23	43%
Pump working	24	14	58%	54	36	67%
No animals or faeces within 10m	23	21	91%	54	27	50%

3. *Participation In/Attitude Towards ARC Activities*

Without a positive attitude about ARC staff and its activities, participation in ARC-sponsored activities and hence the resulting transfer of PHC knowledge and changes in health behaviors would not occur. From the village leader questionnaire a positive attitude towards ARC staff and activities was demonstrated. ARC staff are not surprised that community leaders would give positive responses because of the heavy presence of ARC in many of the areas and because of the obvious many inputs that ARC has provided many of the communities. However, ARC attempted to limit solicitation of positive responses by using non-local staff for the interviews and by asking open-ended questions.

From both the HH PHC knowledge questionnaire and the village leader questionnaire, health education was reported most commonly as the way in which ARC's projects are considered useful. That's a positive sign since tangible items like water points, schools, and health facilities are much easier to identify as benefits of ARC's programs, and health education is not always recognized as something useful. But maybe the response to this last question were also influenced by the positioning of the question. By the end of the questionnaire, it was obvious that the interviewers were interested in health since all of the other questions related to health.

Participation in ARC activities has been good. Three-quarters of the community members and 100 percent of the village leaders also reported attending a health talk given by an ARC staff member.

More than two-thirds of the people interviewed reported having been visited at home by an ARC health staff member to discuss a health issue. This demonstrates the actual or an underestimation of the coverage by ARC personnel. Other HHs may have received visits, as well, but the interviewee may not have been aware of it if he/she was not home at the time of the visit.

4. *Health Supervisor Interviews and Site Visit Interviews and Observations*

The good condition of the site as witnessed during the site visit serves as a good example to the rest of the community as to what a clean yard, latrine, filled hand-washing unit, etc. should look like. The health education murals on the walls of the latrine slab production shelter were also good examples of health education messages for everyone to see.

The community also appeared to be fairly clean, with well-kept yards, many latrines, and hand-washing units. Although many of the hand-washing units did not have water in them at the time of inspection, it is understandable since a terrible water shortage in the community existed at the time of the visit.

The latrine slab production team were working well together. The slabs were curing appropriately, and the team reported proper testing of slabs prior to delivering the slabs to people's homes. Although some of the dimensions of the slabs were a bit off, the producers and guards were able to explain how they test each slab before it leaves the site to ensure it's durability. Therefore, no slabs should break after they are tested and delivered.

Apparent inconsistencies in the HELP team records regarding individual health messages and the procedure of securing gravel, sand, and water were already known and dealt with appropriately by the Health Program Manager.

In addition a few suggestions for improving the program came out of the interviews. The SC suggested changing one of the reporting forms for ease of completion. The AS suggested providing materials in local languages instead of Portuguese for better comprehension and transmission of messages.

Although the AC reported she knew her job, the hours she reported the Activistas should work, the number of messages to be given, and the number of HH to visit per week were all incorrect. As an example the AC and the Activista interviewed reported that the Activistas should work full-time 5 days a week. Whereas, in reality the Activistas are expected to work four hours per week. The incorrect hours and numbers were immediately discussed with those involved, and the correct figures are now known by the AC and Activista.

Although the Activista and AC suggested the Activistas should receive something more for their services, ARC's approach had been to keep incentives to a minimum so that the chances for sustainability are increased. When ARC leaves, CVM may be able to assist with supervision, but may not be able to provide the continuation of large incentives. ARC has avoided providing much in the way of incentives so that the Activistas do not get accustomed to receiving 'payment' for their health education activities, when ARC leaves, the Activistas would stop receiving their 'payment', and would inevitably stop their activities. ARC intends to hold discussions with community leaders to see if the community could in any way provide some support for the Activistas, perhaps by assisting the Activista with domestic or field work, food, etc. so that the Activistas will feel that their work has some additional value. Receiving something from the community may also encourage the Activistas to continue their work.

When interviewing the site staff, some felt that the community would continue to practice good health behaviors after ARC left, but one felt that it was doubtful without a health person present to remind them. When asked it they thought the Activistas would continue to provide

health education and promotion of good health behaviors after ARC left, the responses indicated that they doubted that the Activistas would continue.

B. ARC Reports

Latrines

ARC aims to achieve 70% family latrine coverage by the end of the sanitation program. Currently (30 November 1995), with the expanded target area, the coverage is 38%, or 54% of the target has been reached, with coverage of 44% in Changara District, 37% in Chifunde District35% in Moatize District, and 7% in Mutarara District. This compares favorably with the original 14% overall latrine coverage recorded during the Changara, Chifunde, and Moatize water and sanitation baseline surveys. If latrines in progress are counted, the overall coverage rate rises to approximately 47%. Also, it appears that the Mutarara population in our target area has been overestimated, so coverage is probably higher than current figures show.

Six of the original twelve sites have exceeded their targets of 70% coverage, and have expanded to neighboring communities. Moatize District's latrine is comparatively low because of the large population living there. In Mutarara the coverage is so low because promotion just began in September 1995. The expansion accounts for the low current coverage rate. As of November 1995 coverage rates for the original sites stood at 52% (Changara District: 80%; Chifunde District : 38%; and Moatize District: 35%). However, even with the expansion, ARC expects to achieve the target coverage of 70% by the end of the program.

C. Potential Bias in Information

Comparisons to previous surveys could be misleading since the same population and interviewers were not used, there has been movement within the target populations, only a limited number of sites and households were interviewed and observed, and there were slight wording changes in two of the questions. Drawing conclusions as to the benefits of ARC's activities from the results must be done cautiously since time and other interventions could have lead to changes in knowledge and behaviors which were unrelated to ARC's interventions.

Results of the mid-term monitoring survey are most likely somewhat biased since ARC staff was doing the questioning. Especially, when asking questions about one's attitude concerning ARC staff and projects, the responses obtained were most likely more positive than they would have been if non-ARC staff had asked the questions. However, the amount of bias, overall, for the HH and village leader interviews should have been minimized somewhat by using office support staff who are not so involved or attached to the program, and would gain nothing from suggesting responses or by altering data. The HH observations and water point surveys, however, were conducted by field staff with a vested interest, and therefore the validity of the collected data could be called into question.

Results from selected sites for the HH interviews and observations are not generalizable to the other ARC sites since they were not selected at random and the sample size was too small. ARC was not aiming to conduct a scientific study; instead ARC wanted to generate information to get a feel for its strengths, weaknesses, and progress. ARC staff interviews of guards and producers are also not generalizable to the other guards and producers because of their non-random selection.

The results are dependent on who was interviewed: all members of the family do not possess the same information, even on such an issue as if they had been visited by an ARC staff member at home. This was witnessed at one household where both the wife and husband were interviewed (and later the non-selected individual's survey discarded), and the woman had

reported that they had received a home visit by ARC, whereas the man said no such visit had occurred.

Data quality could be affected by translation errors, interviewer errors, observer errors, and tabulation errors. Also, the questions asked and the responses given may have been interpreted differently than originally intended due to differences in dialects spoken.

The water point observation survey may have produced more positive results than it might have if all of the water points were included in the observations. The water points which were inspected are ones which are more likely in better working order and the surroundings more tidy where an ARC health team is situated. The reasons for a potentially better condition at the water points near an ARC health team include more access to vehicles, more empowered staff with ARC individuals present, and a constant reminder to keep the water point clean and functional by ARC field staff.

The percent of people reporting that someone from the village is capable of fixing the pump if it breaks down could appear inflated since village leaders were sometimes questioned, instead of an average resident living near the pump. The village leaders are typically more informed about committees and available skills in their communities then the community members.

Recommendations

Health Education

- Continue health education through home visits, group talks in the communities and at schools, etc., focusing on those health messages where the community had less knowledge, e.g. transmission and prevention of malaria and the importance of colostrum.
- A variety of methods should continue to be employed, as well as differing times during the week used, in order to reach the majority of the population.
- Stress to ARC health staff that they not teach about topics on which they are not knowledgeable nor on topics which they have not received training.
- Messages should be limited to a few important points on a limited number of topics. It is better to teach a limited number of health messages well than to provide incomplete or inaccurate information on more. Also, by limiting the scope of health messages, neither the health educators nor the community should become overwhelmed or confused by too many messages.

ARC Staff

- Review survey findings with all ARC staff and community members; devise action plans with input from staff and community members.
- Continue to provide further training sessions to ARC health educators on basic PHC messages. Ensure health educators understand the basics well, before attempting to add new topics. ARC team members can also continue to share information between themselves, for example ACs and Activistas can teach HELP teams, and vice versa.
- Continue to supervise the health messages and activities of the field staff to ensure messages are being transmitted correctly.
- Conduct refresher training courses for all ARC health staff, stressing the topics where the greatest difficulties were identified from the surveys, but not limiting to only those topics.
- Provide Activista Coordinators and Activistas with materials in local languages.
- Ensure all ACs and Activistas are aware of the Activista's role as a *volunteer*, not a full-time staff member, nor someone who receives compensation from ARC for his/her work.

TBAs

- Continue to include traditional healers and TBAs in training sessions.
- Continue to assist the Ministry of Health to provide additional training seminars and follow-up for TBAs.

Latrines

- Continue promotion and maintenance of latrines, hand-washing units, and construction of latrine slabs. Focus attention on communal latrine maintenance and availability of water for hand-washing.

- Conduct more spot checks on the quality of the latrine slabs produced; ensure adherence to specified measurements and ensure slabs are tested for strength prior to leaving the production site.

Water Points

- Conduct a follow-up study on condition of all ARC constructed or rehabilitated pumps. Conduct refresher training courses for water point committees. Work with committees and Agua Rural, as appropriate, to repair broken pumps.
- Investigate the water point where it was noted that a latrine is within 30 meters of the water point; test the water quality and take appropriate actions.
- Where limited resources exist, water treatment should be emphasized for water collected from an unprotected source which will be used for drinking.
- If further water points are to be established, consideration should be given to the location with respect to other water sources. The water utilization survey demonstrated that people tend to utilize the closest water point available, with a few exceptions of pump usage for solely health reasons.
- Wells should be deepened, where possible, so they will not go dry so frequently.
- Water should be tested for saltiness at the test hole stage to try and avoid pumps with salty water which people do not like to drink.

Overall

- The final program evaluation should include a measurement of the water point committees' knowledge, a broader scope of trainees' scores, and a larger sample, overall, to allow tests of significance to be conducted.
- Develop and pilot sustainability options for all health activities, including maintenance of water points, which are appropriate for allowing program activities to continue after ARC is gone.

Appendix A: ARC Program Logframe

1 January 1995 - 30 September 1996

Project Logical Framework ARC_MOZ

Narrative Summary (NS)	Verifiable Indicators (OVI)	Means of Verification (MOV)	Important Assumptions
Goal: 1 To improve the health of approximately 140,000 residents, returnees, and displaced persons, in the target areas of Moatize, Changara, Chifunde, and Mutarara districts of Tete Province, Mozambique	1.1 Decreased morbidity and mortality among the target population (beyond the scope of this project to measure)	1.1 CDC cites significant decreases of morbidity and mortality from similar interventions The primary health care approach is the key to obtaining 'Health For All' (Declaration of Alma Ata, 1978)	(Goal to Supergoal): 1 Interventions sustained
Purpose: 1 To improve primary health careknowledge and practices among the target population	1.1 (End of Project Status) 80% of HH living within 750 m radius of ARC water point get their drinking water from that protected source 20 % increase in PHC knowledge among adult target population 70% of HH in target areas have and use family latrines 50% of births in target areas are attended by a trained health worker ARC trainees show a 25-50 % increase in knowledge for each training 33% of adults in target area report practicing appropriate health behaviors	1.1 1,2,4,6: Surveys 3: ARC records; Visual inspection 5: ARC records of pre/post-tests 7,8: ARC records & available population data	(Purpose to Goal): 1 Environmental stability

Project: ARC_MOZ

Date: January 24, 1996

Project Logical Framework ARC_MOZ

Narrative Summary (NS)	Verifiable Indicators (OVI)	Means of Verification (MOV)	Important Assumptions
	_% (CFE to add) of target population served by ARC-built health posts _% (CFE to add) of school-aged children in target areas are served by ARC-built primary schools		
Outputs: 1 Provision of clean drinking water Provision of sanitary facilities Provision of health centers/posts and equipment Provision of road access to project sites Provision of health education Provision of schools	1.1 107 protected water points constructed or rehabilitated Water point committees established and trained for each water point 65 VIP latrines constructed 8,750 family latrines constructed 6 health centers/posts constructed or rehabilitated and equipped Open and maintain 230 km of access roads 320 village-level health workers trained 9,375 HHs visited at least once by ARC trained village-level health worker 150,000 health education messages delivered 5 school-based AIDS clubs established	1.1 1,3,4,5,6,11: visual inspection 2,7,8,9,10: ARC reports	(Output to Purpose): 1 Target population conducive to change Facilities utilized by target population Facilities maintained by GRM and target population Facilities staffed and supplied by appropriate Ministries Population remains stable

Project: ARC_MOZ

Date: January 24, 1996

Project Logical Framework ARC_MOZ

Narrative Summary (NS)	Verifiable Indicators (OVI)	Means of Verification (MOV)	Important Assumptions
	15 classrooms constructed and furnished		
Activities: 1.1 Recruit, hire, train, and supervise staff Secure material and equipment Revise administration and operation systems Maintain donor support Maintain collaboration with appropriate Ministries, NGOs, and communities On-going monitoring, evaluation, and revision of activities Implementation of program (and project activities)	Inputs: Personnel (1 CD, 1 HPM, 1 HEC, 1 WPC, O/CM, 1 AM, and project personnel) Material and equipment Transport Information Facilities	1.1 Budget:	(Activity to Output): 1 Continued donor support Materials available and affordable Qualified staff available Appropriate Ministries, NGOs, and communities will cooperate and support ARC's program

Project: ARC_MOZ

Date: January 24, 1996

Appendix B: ARC Health Mid-term Monitoring Survey

PHC Knowledge Questionnaire

ARC Health Mid-Term Monitoring Survey
November 1995

100 IDENTIFICATION

Site: _____

Bairro: _____

Respondent No.: ____

Date: _____/ 11 /1995

Interviewer's name: _____

Supervisor: _____

Respondent's Gender: 1. [ ] woman
2. [ ] man

HYGIENE

200 LATRINES

201 What are the benefits, if any, of having a latrine?
(MULTIPLE RESPONSES ACCEPTED)
1. [ ] Close to home / privacy
2. [ ] Less chance of getting disease / better health
8. [ ] Other
9. [ ] DK/NR[1]

300 HAND-WASHING

301 When is it important to wash your hands?
(MULTIPLE RESPONSES ACCEPTED)
1. [ ] Before eating
2. [ ] Before preparing food
3. [ ] After using the latrine
4. [ ] After washing baby's bottom
5. [ ] After working in the fields
8. [ ] Other
9. [ ] DK/NR

[1] Don't Know / No Response

400 FOOD HYGIENE

401 What should you do with leftover food to make it safe for eating?
(MULTIPLE RESPONSES ACCEPTED)
1. [ ] Keep it covered
2. [ ] Reheat it
3. [ ] Keep it away from flies
8. [ ] Other
9. [ ] DK/NR

500 DIARRHOEA

501 If someone has diarrhoea (that is, 3 or more watery stools in a day), what should you give him or her?
(MULTIPLE RESPONSES ACCEPTED)
0. [ ] Nothing
1. [ ] More liquid
2. [ ] Sugar-salt solution
3. [ ] Thin porridge/cereal-based ORS
4. [ ] ORS packet
5. [ ] Medicine from health post
6. [ ] Traditional medicine
7a. [ ] Breastmilk
7b. [ ] Fruit juice
8. [ ] Other
9. [ ] DK/NR

502 How is diarrhoea transmitted?
(MULTIPLE RESPONSES ACCEPTED)
(IF RESPONSE IS "NOT WASHING HANDS", "DIRTY LATRINE", ETC., PROBE: "How can that cause diarrhoea?")
1. [ ] Flies
2. [ ] Contaminated water or food
3. [ ] Faeces
4. [ ] Faeces carried by flies
8. [ ] Other
9. [ ] DK/NR

OTHER PRIMARY HEALTH CARE ISSUES

600 BREAST-FEEDING

601 Is it important to give your newborn colostrum (the thick yellowish breastmilk produced in the first few days after birth)?
0. [ ] No
1. [ ] Yes
9. [ ] DK/NR

700 FAMILY PLANNING

701 What can a man and a woman do to avoid or postpone becoming pregnant?
(MULTIPLE RESPONSES ACCEPTED)
0. [ ] Nothing
1. [ ] Use methods from health centre / store (eg. condoms, injectables, pills, IUD)
2. [ ] Use traditional medicine (eg. amulets, special liquid)
3. [ ] Abstinence (avoid sex)
4. [ ] Exclusive breast-feeding
5. [ ] Withdrawal
8. [ ] Other
9. [ ] DK/NR

702 How much time should elapse between the birth of one child and the beginning of the next pregnancy?
1. [ ] 2 or more years
2. [ ] less than 2 years
3. [ ] does not matter
9. [ ] DK/NR

800 AIDS

801 What can one do to reduce one's risk of infection by the AIDS virus?
(MULTIPLE RESPONSES ACCEPTED)
0. [ ] Nothing
1. [ ] Use condoms
2. [ ] Reduce number of sexual partners
3. [ ] Remain faithful to partner(s)
4. [ ] Traditional medicine
5. [ ] Abstinence (avoid sex)
6. [ ] Ensure needles or razors are sterilized or new
8. [ ] Other
9. [ ] DK/NR

900 MALARIA

901 How is malaria transmitted?
1. [ ] By mosquitoes
2. [ ] From the wind
3. [ ] From poor hygiene
8. [ ] Other
9. [ ] DK/NR

1000 ARC VISITS AND IMPRESSIONS

EXPLAIN WHAT ACTIVITIES ARC HAS CARRIED OUT IN THE COMMUNITY AND DESCRIBE ARC HEALTH STAFF (THE ONES WITH THE CAPS AND VEHICLES).

1001 Have you ever been visited at home by an ARC staff member to discuss health issues?
0. [ ] No
1. [ ] Yes
9. [ ] DK/NR

1002 Have you attended any health talks in the past 2 months given by an ARC staff member?
0. [ ] No
1. [ ] Yes
9. [ ] DK/NR

1003 In what ways have you found ARC's projects useful for you?
(MULTIPLE RESPONSES ACCEPTED)
0. [ ] Not useful
1. [ ] Provided water/pump
2. [ ] Provided latrine/latrine slab
3. [ ] Provided health facility
4. [ ] Provided school
5. [ ] Health education
6. [ ] Behavior changes
8. [ ] Other (SPECIFY: _____)
9. [ ] DK/NR

END

This concludes the interview. Thank you for your time and cooperation in completing this interview. Your responses will assist us a great deal in assessing our health education messages and services.

Appendix C: ARC Health Mid-term Monitoring Survey

Observation Form

OBSERVATION FORM GUIDE

I. LATRINE HYGIENE

1. Is there a slab? (yes or no)

2. Is the lid on the hole? (yes or no)

3. Are the slab and area around the slab clean? (yes or no)

4. Is there a hand-washing system or water for hand-washing within 5 meters of the latrine? (yes or no)

II. ENVIRONMENTAL HYGIENE

5. Is the yard clean? (yes or no)

III. DRINKING WATER

6. How many times did someone fetch water?

7. From where did s/he fetch water? (well with a pump, river or traditional well, lined well without a pump) NOTE: THIS IS THE ONLY QUESTION TO BE ASKED VERBALLY.

8. Did s/he treat the water? How? (boil, filter, chlorine bleach)

9. Does the water container have a lid? (yes or no)

V. HAND-WASHING

NOTE: OBSERVEES CAN INCLUDE 2 WOMEN, 2 MEN, 4 OLDER CHILDREN, 1 SMALL CHILD ACCOMPANIED BY ITS MOTHER OR OTHER ADULT, AND 1 OTHER PERSON IF NECESSARY.

10. How many times did this person use the latrine?

How many times did this person wash hands after using the latrine?

11. How many times did this woman (or other person) prepare food?

How many times did s/he wash hands before preparing food?

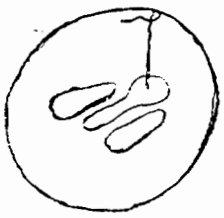
12. How many times did the family eat?

How many times did each person wash hands before eating?

NOME DA ALDEIA_____ BAIRRO _____

NOME DE ACTIVISTA_____ N° ___ ___/___

I. HYGIENE DE LATRINA

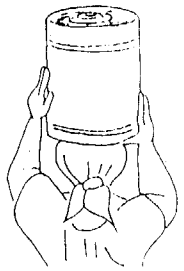
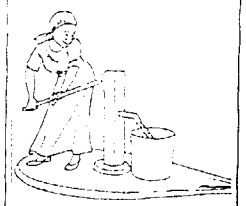
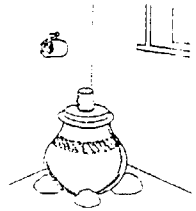
			
(1) ☺ ___ ☹ ___	(2) ☺ ___ ☹ ___	(3) ☺ ___ ☹ ___	(4) ☺ ___ ☹ ___

II. HYGIENE DE QUINTAL

	
(5) ☺ ___	☹ ___

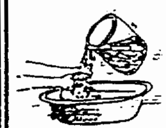
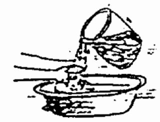
III. AGUA PARA BEBER

N° ___ ___/___

(6)	(7)			(8)			(9)
							
0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	☺ ___ ☹ ___

IV. LAVAGEM DAS MÃOS

N° ___ ___/___

	(10) 		(11) 		(12) 	
 1	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
 2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
 1	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
 2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
 1	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
 2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
 4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0

Appendix D: ARC Health Mid-term Monitoring Survey

Village Leader Questionnaire

ARC Health Mid-Term Monitoring Survey
Village Leader Interview
November 1995

100 IDENTIFICATION

Site: _____

Bairro: _____

Leader interviewed: _____

Date: _____/11/1995

Interviewer's name: _____

Supervisor: _____

200 ARC VISITS AND IMPRESSIONS

201 Have you heard of ARC before?
0. [ ] No (GO TO EXPLANATION)
1. [ ] Yes

202 Do you know what activities ARC does?
0. [ ] No (GO TO EXPLANATION)
1. [ ] Yes [PROBE: What do they do? What else do they do?]

EXPLANATION

(IF HE/SHE IS NOT FAMILIAR WITH ARC, OR IS NOT AWARE OF CERTAIN ACTIVITIES - EXPLAIN WHO ARC IS AND DESCRIBE THE ACTIVITIES ARC IS INVOLVED IN BEFORE ASKING FURTHER QUESTIONS) (EXPLAIN WHAT ARC STAFF LOOK LIKE: THE ONES WITH THE CAPS AND VEHICLES.))

203 What is your impression of the ARC health team?

204 Has the ARC health team cooperated with and respected the leaders and others in this community?

205 What is your impression of ARC's health activities/projects? (OBTAIN SPECIFICS)

206 Have people in your village changed any of their behaviors regarding health since ARC's presence?
If so, which behaviors?

1002 Have you attended any health talks in the past 2 months given by an ARC staff member?
0. [ ] No
1. [ ] Yes
9. [ ] DK/NR

1003 In what ways have you found ARC's projects useful for you?
(MULTIPLE RESPONSES ACCEPTED)
0. [ ] Not useful
1. [ ] Provided water/pump
2. [ ] Provided latrine/latrine slab
3. [ ] Provided health facility
4. [ ] Provided school
5. [ ] Health education
6. [ ] Behavior changes
8. [ ] Other (SPECIFY: _____)
9. [ ] DK/NR

END

This concludes the interview. Thank you for your time and cooperation in completing this interview. Your responses will assist us a great deal in assessing our health education

Appendix E: ARC Health Mid-term Monitoring Survey

Water Point Observation Form

COMITÉ AMERICANO PARA REFUGIADOS
PROGRAMA DE EDUCAÇÃO SANITÁRIA

MID-TERM MONITORING SURVEY
NOVEMBER 1995

• OBSERVATION OF ARC WATER POINTS •

Village _____ Bairro _____

Pump Number _____ Date ___/___/95

Type of water point: _____ borehole with pump _____ hand-dug well with pump

_____ new construction _____ rehabilitation

THE SANITATION COORDINATOR SHOULD RECORD HIS OBSERVATIONS IN THIS SECTION.

1. Is the pump working now?
   0. [ ] no
   1. [ ] yes

2. Is the apron clean and free of debris?
   0. [ ] no
   1. [ ] yes

3. Is the apron in good condition and free of cracks and holes?
   0. [ ] no
   1. [ ] yes

4. Are there stones around the apron and soak-away?
   0. [ ] no
   1. [ ] yes

5. Can water flow freely in the soak-away?
   0. [ ] no
   1. [ ] yes

6. Is there stagnant water within 10 metres of the well?
   0. [ ] no
   1. [ ] yes

7. Is there a fence around the well?
   0. [ ] no
   1. [ ] yes

8. Is it possible for animals to get inside the fence?
   0. [ ] no
   1. [ ] yes

9. Are there animals or animal faeces within 10 metres of the well?
   0. [ ] no
   1. [ ] yes

10. Are there any latrines within 30 metres of the well?
   0. [ ] no
   1. [ ] yes

11. Are there people washing clothes or dishes within 5 metres of the well?
   0. [ ] no
   1. [ ] yes

12. Does the water flow at a normal rate? (Do people have to wait for a long time to fill buckets?)
   0. [ ] no
   1. [ ] yes

13. Is the water sweet or salty?
   0. [ ] salty
   1. [ ] sweet

14. Is there a water point committee for this well?
   0. [ ] no
   1. [ ] yes

15. Who trained this committee?
   0. [ ] ARC
   1. [ ] Água Rural
   2. [ ] Other (specify _____)

THE SANITATION COORDINATOR SHOULD ASK THESE QUESTIONS.

1. Does the well often go dry?
    0. [ ] No, never
    1. [ ] Sometimes
    2. [ ] Frequently

2. When the pump is broken, is there someone in the community who can fix it?
    0. [ ] no
    1. [ ] yes

3. How long was the pump broken the last time it broke down?

    _____

    _____

4. How does the community purchase spare parts for the pump?

    _____

    _____

Appendix F: ARC Health Mid-term Monitoring Survey

Water Utilization Questionnaire

ARC Water Mid-Term Monitoring Survey
November 1995

100 IDENTIFICATION

Site:_____

Bairro: _____

Type of water Point: _____

Respondent No.: ___ ___

Date: _____/ 11 /1995

Interviewer's name: _____

Supervisor: _____

200 WATER

201 From where do you usually get your drinking water?
1. [ ] Pump
2. [ ] Not pump
9. [ ] DK/NR[1]

202 Why do you get water from there?
1. [ ] Water source is closest (GO TO Q204)
2. [ ] Water is clean / better for health
3. [ ] No waiting
4. [ ] Usually water / reliable
8. [ ] Other (SPECIFY: _____)
9. [ ] DK/NR

203 Is that the closest water point?
0. [ ] No
1. [ ] Yes
9. [ ] DK/NR

204 Did you do anything to the water you collected most recently to make it safe for drinking? (If yes, PROBE: "What did you do?")
0. [ ] No, nothing
1. [ ] Boiled it
2. [ ] Filtered it through a cloth
3. [ ] Chlorinated it
8. [ ] Other (SPECIFY: _____)
9. [ ] DK/NR

END

This concludes the interview. Thank you for your time and cooperation in completing this interview. Your responses will assist us a great deal in assessing our water projects.

Appendix G: ARC Health Mid-term Monitoring Survey

List of Sites, Bairros, Number of Households, Latrines, Interviews and Observations

Locations for: HH interviews
Village leader interviews
Interviews of Activistas from the bairros listed below
Activista observations

District	Site	Bairro	HH	# of Latrines	# of interviews & observations
Moatize District	Kaphiridzanje	Nhambulu I	306	149	10
		Nthudzi	299	107	10
Changara District	Mazoe Ponte	Mathwire (Bairro 2)	290	198	5
		Mvuze (Bairro 3)	176	107	5
	Marara	Bairro 1	66	56	5
		Bairro 4	39	28	5
Chifunde District	Chifunde Sede	Bairro 1	129	50	5
		Capata (Bairro 2)	139	51	5
	Thequesse	Lipirane (Bairro 2)	33	20	5
		Goviate (Bairro 4)	46	14	5
Total			**1523**	**780**	**60**

* Figures from HH listings compiled by ARC Health Education and Latrine Promotion teams in June, August, and September 1995.

Appendix H: ARC Health Mid-term Monitoring Survey:

Water Point Utilization Questionnaire Locations

District	Village	Bairro
Moatize	Kaphiridzanje	Centro
Changara	Camanga	2
	Phacassa	1
	Mufkaconde-Baroma	2
Chifunde	Thequesse	4
	Thequesse	1
	Afulu	

Appendix I: ARC Individual Health Education Messages:

Through end-October 1995

THEME	KP1	KP2	MS	MP	MU*	MR	CS	TQ	NS*	BU*	VM*	Total	Cumm.
	Moatize		Changara District				Chiúta de District						
NUTRITION													
3 food groups		30	24			6						60	901
colostrum/breast-feed.		18	40			18						76	447
intro. of weaning foods		26	35			18						79	625
ident. of malnutrition		7	9			18						34	561
MATERNAL & CHILD HEALTH													
import. - prenatal care		49	20			24						93	424
health - pregnant woman		30	24			24						78	217
STDs/AIDS/FAMILY PLANNING													
AIDS trans./prev.	100	203	40	45		41	65	151				645	1,696
STD trans./prev.	93	202	40	38		41	27	127				568	1,664
birth spacing/family plan.		103	18	40		41	54	65				321	967
DIARRHOEAL DISEASE													
diarrhoea trans./prev.	70	49	35	25		41	12					232	1,389
diar./oral rehydration	273	64	68			82	33					520	1,917
HYGIENE													
importance of latrines	65	72	27	14		41	11	54				284	2,339
hand-washing	58	74	27	5		41	32	54				291	2,204
personal hygiene	54	100	7	8		41		51				261	2,212
food hygiene	131	81	20	17		41	18	49				357	2,431
household hygiene	11	97	29	9		41	8	47				242	2,059
water hygiene	79	120	28	5		41	66	84				423	2,805
OTHER HEALTH TOPICS													
immun./childhd. diseases		82	31			33						146	427
malaria trans./prev.		8				41	69	6				124	1,189
respiratory illness		2				41						43	84
accident prevention												0	91
treatment of abscesses			2									2	104
eye health		3	2									5	163
oral hygiene				1								1	301
alcohol abuse		14										14	14
smoking												0	24
TOTAL	934	1,434	526	207	0	715	395	688	0	0	0	4,899	27,255

* Information not available at time of report.

(Appendix I continues on next page)

Appendix I continued

THEME	CB	CO	CP	MR*	MT	MP	MS	MU	PA	KP	DO	BU	CA	CS*	NA	NS	TQ	VM	Total	Cumm.
	Changara District									Mo	Mu	Chifunde District								
Disease transmission	49		178		49	15	35	10	50	23	18	98	16	51	36	5	106	10	749	17,160
Importance of latrines	65		174		49	15	45	20	47	35	15	98	16	51	26	40	106	10	812	16,695
Import. of hand-wash.	43		174		49	15	45	20	31	62	16	98	22	51	31	45	106		808	16,206
ORS/diarrh. disease	57		2		26	15	21	10	28	9	12	74	12	35	14	55	62	17	449	8,922
Latrine maintenance	24				7	13	22	10	41	115	20	94		28	45		14	24	457	1,717
Teach child. latr. use	55	126	174		26	97	28	30	20		13			18			18		605	678
Personal hygiene	51		18			11	16		28	47	9	24	7	20	16	27	52	9	335	9,736
Household hygiene	50		6		26	11	44	20	30	60	11	36	29	18	26	10	78		455	11,191
Food hygiene	52		6			11	31	10	24	39	17	34	7	18	28	23	61	4	365	10,374
Water hygiene		126	12			43	17		17		34	11	52	49		14	162	44	581	3,257
Malaria trans./prev.																	15		15	607
AIDS/STD trans./prev.																			0	103
Bilharzia														11					11	871
Child care																			0	100
Promotion of immuniz.																			0	133
Malnutrition																			0	3
Birth spacing																		33	33	166
TOTAL	**446**	**252**	**744**	**418**	**232**	**246**	**304**	**130**	**316**	**390**	**165**	**567**	**161**	**350**	**222**	**219**	**780**	**151**	**6,093**	**97,919**

* Monthly total received without details.