

DEVELOPMENT OF A BEHAVIOR-BASED MONITORING SYSTEM  
FOR THE HEALTH EDUCATION COMPONENT  
OF THE RURAL WATER AND HEALTH PROJECT,  
CARE-GUATAMALA

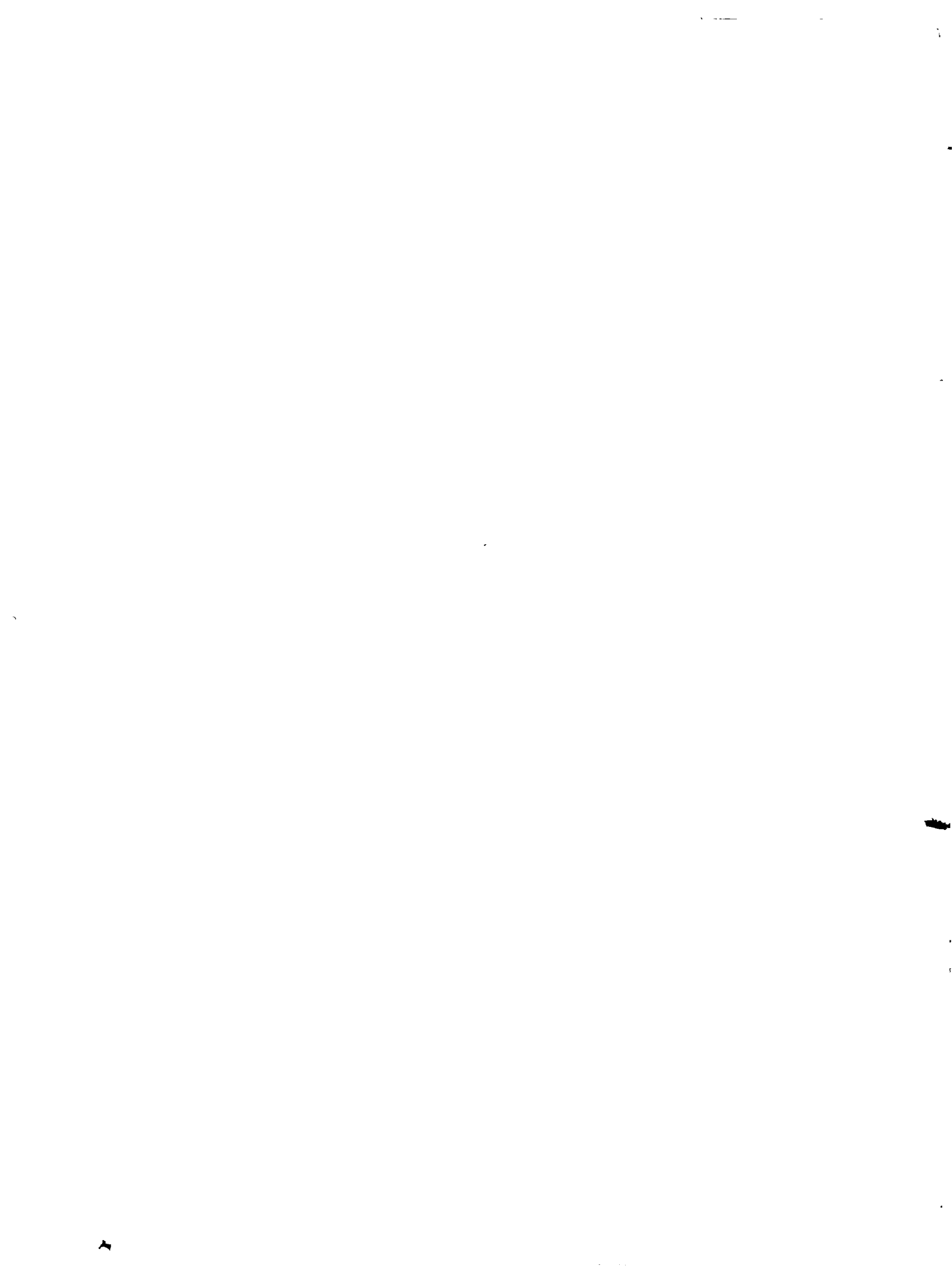
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WASH Field Report No. 364  
July 1992

**WATER AND  
SANITATION for  
HEALTH  
PROJECT**

Sponsored by the U.S. Agency for International Development  
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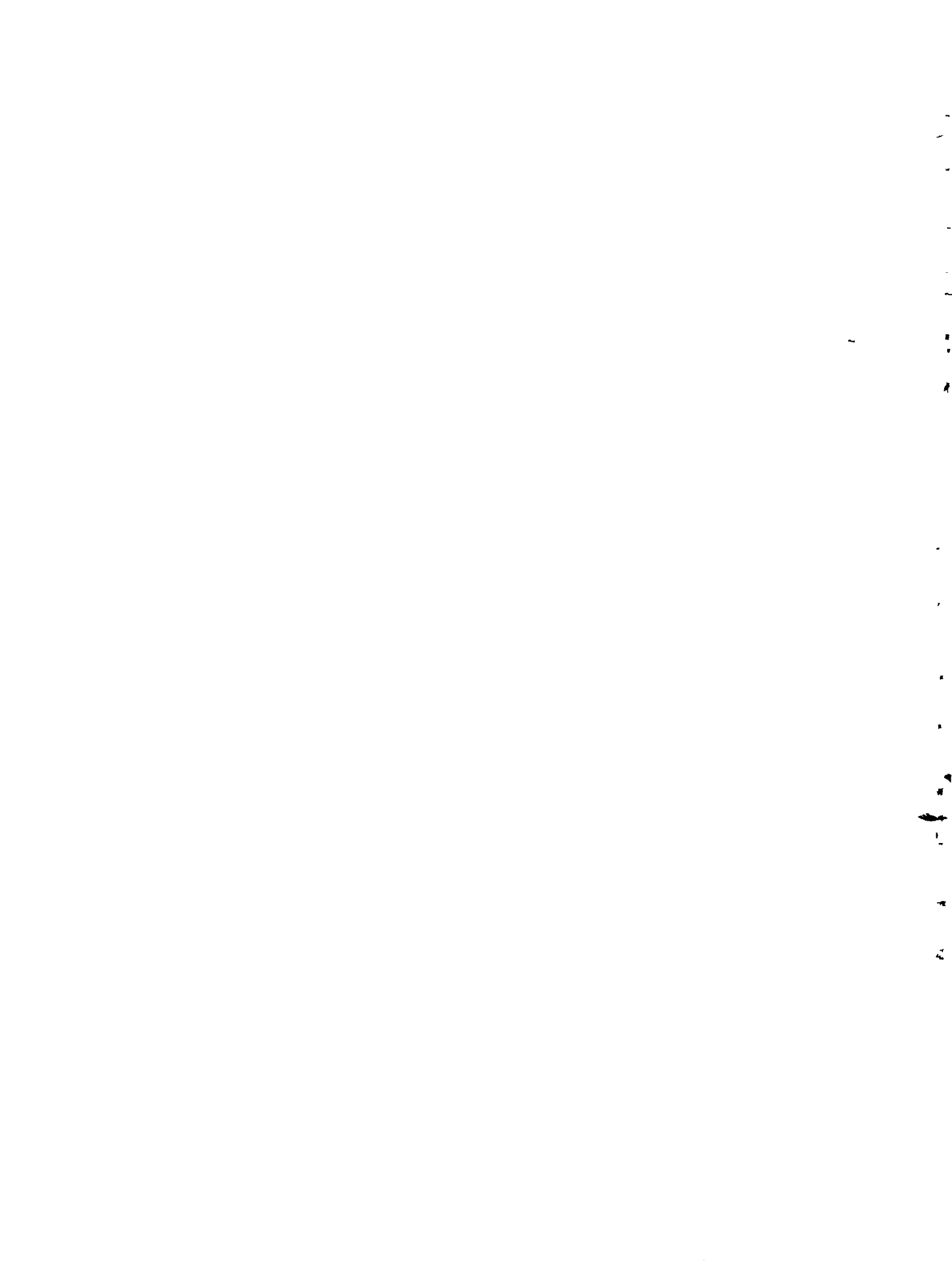
Prepared for the USAID Mission to Guatemala  
and the Bureau for Latin America and the Caribbean,  
U.S. Agency for International Development  
under WASH Task No. 334

by

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and  
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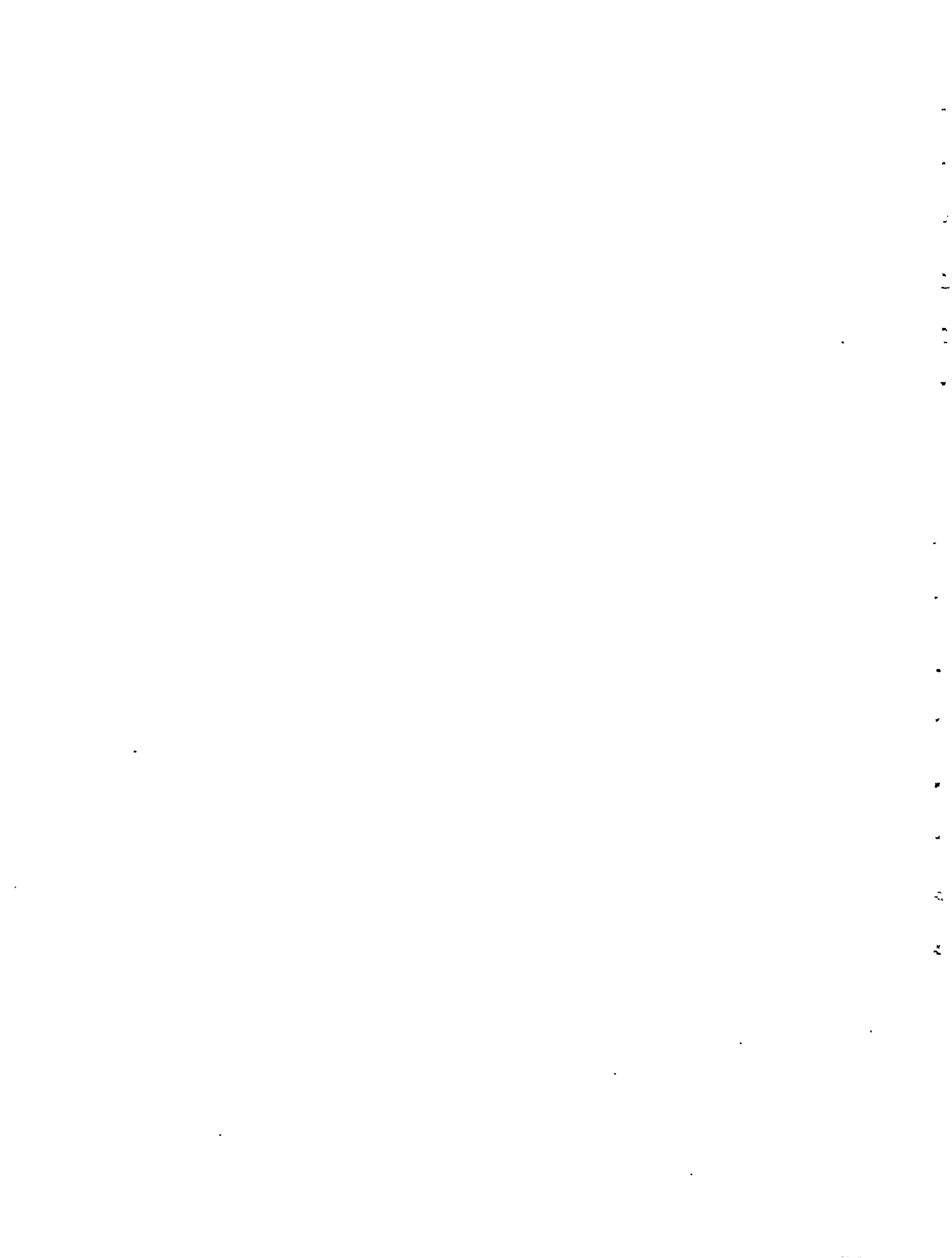
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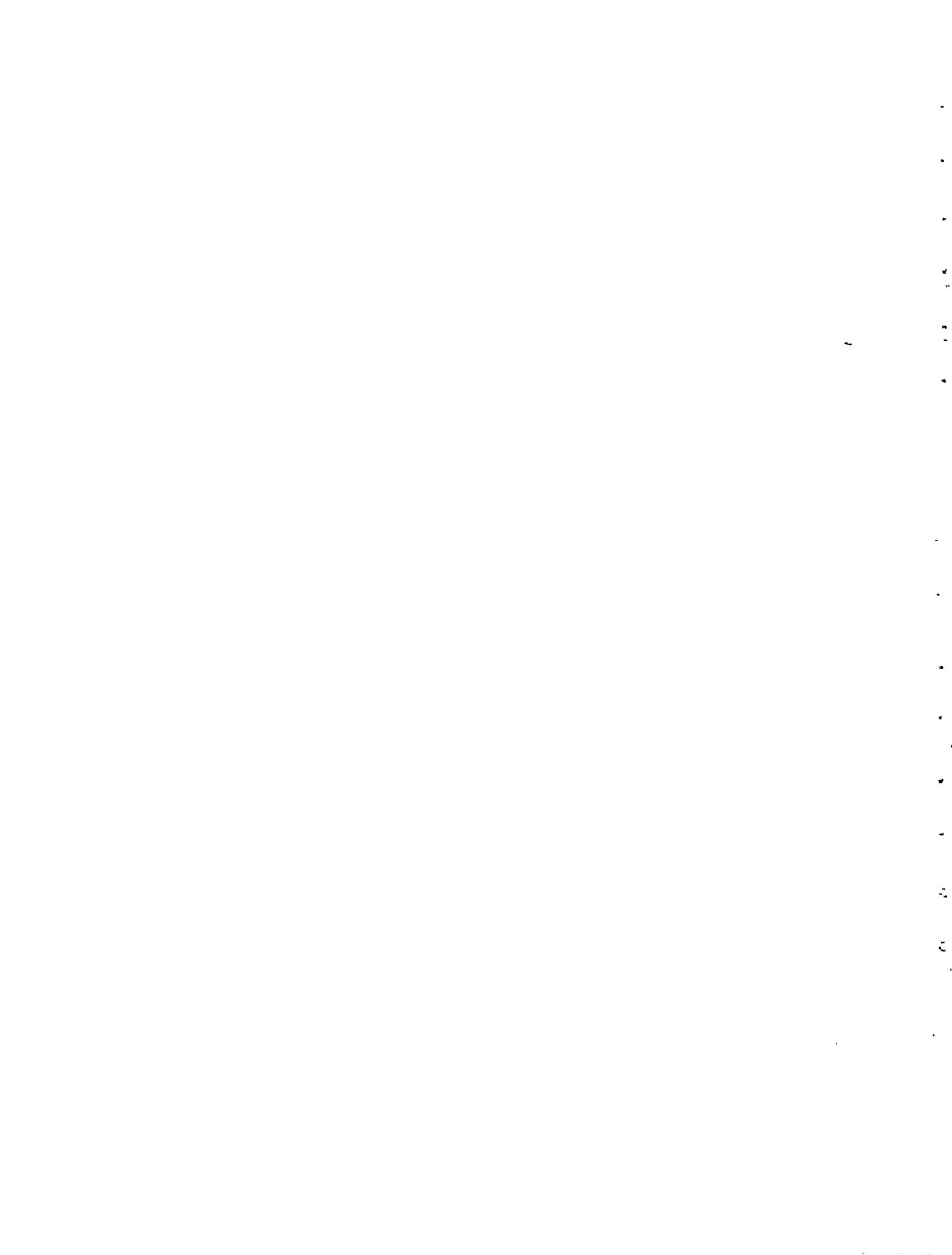
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## ACRONYMS

A.I.D.	United States Agency for International Development (Washington)
INCAP	Institute of Nutrition of Central America and Panama
LAC	Latin American and Caribbean Bureau of A.I.D.
LQAS	lot quality assurance sampling
ORS	oral rehydration salts
ORT	oral rehydration therapy
PHC	primary health care
QFD	quality function deployment
USAID	United States Agency for International Development (overseas mission)
WASH	Water and Sanitation for Health Project
WS&S	water supply and sanitation



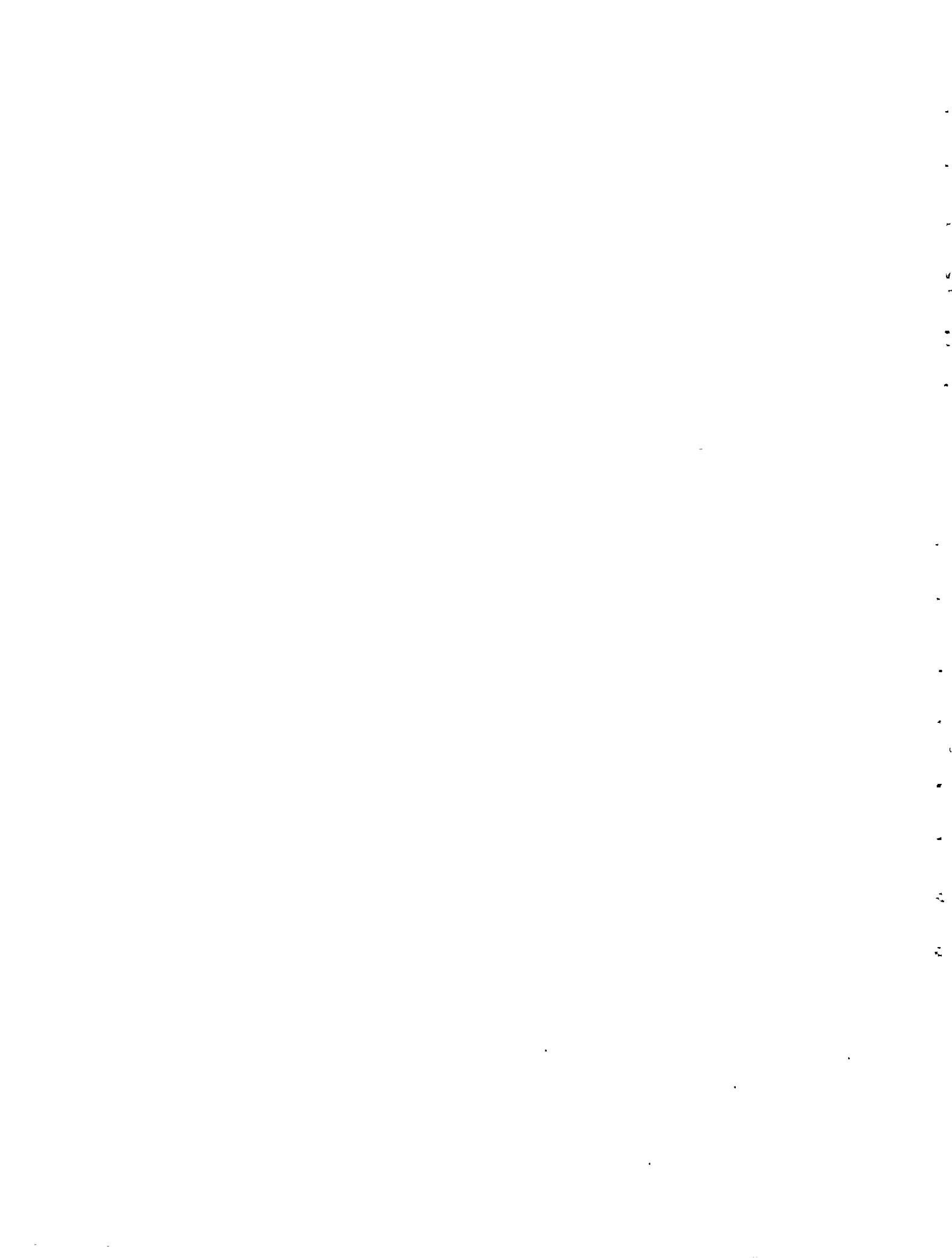
## ACKNOWLEDGMENTS

This work was initiated by Dr. Massee Bateman, who developed the innovative scope of work and technical approach which guided our work. The field work was carried out in close collaboration with the staff of CARE-Guatemala, and we owe a great deal to their openness and creativity. Eduardo Perez and Ann Hirschey, of WASH, provided us with ongoing support throughout the process, and we thank them.

## ABOUT THE AUTHORS

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## EXECUTIVE SUMMARY

During February 1992, the WASH Project provided technical assistance to CARE-Guatemala to develop a simple monitoring system for assessment and improvement of its water and sanitation program, with a special focus on health education. This work was carried out by WASH in collaboration with the Quality Assurance Project. Financial support was provided by the LAC Bureau as part of a larger initiative to combat diarrheal disease and cholera in the region. The team sought to combine recent advances in the measurement of hygiene behavior with program management methodologies for continuous improvement. This effort resulted in a ground-breaking technical approach which has several important features: an emphasis on behavioral indicators and quality assurance strategies, and use of a participatory approach in system design.

Field activities included orientation meetings, document review, and interviews with CARE staff, as well as visits to rural communities in Quetzaltenango. The WASH consultants formed a working team with CARE staff, who participated collaboratively in all activities. The team developed a list of key indicators, data collection instruments, including a baseline survey and monitoring instruments, and a monitoring framework. This framework specifies users of each tool, as well as the frequency and techniques of data collection. The team also developed a simple manual for staff explaining how to implement the monitoring system and how to use the information generated for program improvement. Finally, the team presented the system to the staff in a one-day orientation seminar. The seminar gave staff members who had not participated in the design the opportunity to make comments and suggestions.

Approximately 40 indicators will be used to monitor program performance through a baseline survey and quarterly monitoring. Two health impact measures are included: the percentage of children under age five who have had diarrhea during the last two weeks, and the percentage of children under five who have diarrhea at the time of the survey. Mother's health knowledge in the areas of personal and domestic hygiene, latrine use and maintenance, and use of oral rehydration therapy (ORT) is measured with six survey questions. The remaining indicators relate to health behaviors in the same three areas. Behaviors related to personal and domestic hygiene are measured with an observational checklist applied at the household level. Indicators of program sustainability were also developed. Most of this information comes from key informants at the community level, such as the health committee, the community plumber, the health promoter, and the CARE extensionist.

The indicators will be monitored through the application of 10 simple data collection instruments. Data will be collected at the community level by the CARE extensionist and the health promoter. The extensionist and the promoter will use the information to evaluate and plan their own activities, and they will summarize key data for their supervisors at CARE. Five of the instruments are to be applied by the extensionist. They are: a baseline survey that assesses diarrhea prevalence, health knowledge, and health behaviors; a baseline narrative assessment that describes the community and its health needs; a quarterly monitoring checklist

which focuses on diarrhea prevalence and key behavioral indicators to assess progress (this has been developed in pictorial form so that illiterate health promoters can understand and use the data collected); a narrative update of the community assessment which is carried out as needed; and a case analysis of any child deaths that occur to determine if diarrhea was present and whether appropriate measures were taken. This instrument will help the project to better serve families at risk. The health promoter will assist in the application of the above instruments and will also use four simple pictorial job aids. The first is a pictorial checklist that guides the promotor through all the activities that should be carried out during a household visit. The second is a map which can be used to register home visits. The health promoter will also keep track of the number of cases of diarrhea that she treats, and the number of women who attend educational sessions on a pictorial register. This information will be reported to the community health committee, as well as CARE.

A structured process for using the information collected for program improvement was also developed. This six-step process includes evaluation and measurement, tabulation and analysis of data, problem identification, problem analysis, solution development, and action for improvement. Simple methods for data analysis and problem analysis were recommended and presented to staff. The program improvement process requires that staff return to Step 1 (evaluation and measurement) after action has been taken to solve a problem, to check to see that it was implemented correctly and had the desired impact. This is essential to completing and continuing the monitoring cycle. Once the problem is solved, and the solution has become a standard part of program operations, the primary health care team can move on to another management problem, applying the program improvement cycle again.

The monitoring system developed should enable CARE-Guatemala staff to track diarrhea prevalence over time, and to assess progress toward project objectives. The model developed can also be applied to CARE programs, Guatemalan water and sanitation efforts, and in other Latin American settings.

## **Chapter 1**

### **INTRODUCTION**

#### **1.1 Background of the Project**

##### **1.1.1 Water and Sanitation Programs and Health Education**

Over 1,000 Guatemalans die every month as a result of severe diarrhea caused by poor sanitary conditions and practices and the lack of access to clean water. However, well-managed water supply and sanitation interventions can make a difference. A review of 67 studies from 28 countries analyzed the impact of water supply and sanitation on diarrhea, related infections, and nutritional status. The median reduction in diarrhea morbidity rates was 22 percent overall and 27 percent in a subset of more rigorously designed studies. The median reduction in mortality was 21 percent, while the better-designed studies showed a median reduction of 30 percent (Esrey et al. 1985). Within water and sanitation programs, effective health education programs can reduce the prevalence of water-related diseases. A review of studies from Bangladesh, the United States, and Guatemala on the impact of hygiene education programs found reductions in diarrhea rates between 14 percent and 48 percent (Feachem 1984). Hygiene education is particularly important in an environment where cholera outbreaks may occur.

##### **1.1.2 CARE-Guatemala's Rural Water and Health Project**

CARE has been responding to the critical situation in Guatemala with water and sanitation projects since 1965. In 1989, CARE added a health education component to the water and sanitation program in recognition of the importance of hygiene practices in improving health status. The health education program aims to improve the storage and handling of water and food, basic sanitary practices such as hand-washing, latrine maintenance, and treatment of diarrhea with oral rehydration therapy (ORT). The water and sanitation program funded by the U.S. Agency for International Development (USAID) in Guatemala serves 11,000 people in 22 communities. Of these communities, 10 have recently installed water systems and latrines with CARE assistance. The remaining 12 will build water systems and latrines during the next 18 months. Health education activities will continue in all the communities. The goal of the project is to reduce the prevalence of diarrhea by 30 percent in children ages 5 and under in the 22 communities served by June 1993.

#### **1.2 Objectives of the Study**

In this assignment, a simple monitoring system was designed for assessment and improvement of the health education component of CARE-Guatemala's water and sanitation program. This component was identified as a priority because of the important link between health education, behavioral change, and better health, particularly with regard to diarrheal diseases. The scope

of work (see Appendix A) calls for a monitoring system which CARE-Guatemala staff will use to track diarrhea prevalence over time, and assess progress toward project objectives. The model can also be applied to other CARE programs, Guatemalan water and sanitation efforts, and other Latin American settings.

The team was to develop a list of key indicators, data collection instruments (including a baseline survey and monitoring instruments), and a monitoring framework. This framework should specify the user of each tool, as well as the frequency and techniques of data collection. The team was also to develop a simple manual for staff explaining how to implement the monitoring system and how to use the information generated for program improvement. Finally, the team was to present the system to staff in a one-day seminar, and to make specific recommendations for follow-up activities.

This study was carried out by WASH with the collaboration of the Quality Assurance Project. Financial support was provided by A.I.D.'s Latin America and Caribbean Bureau (LAC) as part of a larger initiative to combat diarrheal disease and cholera in the region. A parallel project, funded by the German government, is also underway. The staff of that project, which has the same basic structure and technical approach as the USAID-funded project, participated in the field activities and will also implement the monitoring system presented in this report.

### **1.3 The Technical Approach**

In defining the technical approach for this assignment, the team sought to expand the parameters of evaluations of conventional water system and sanitation programs. Such evaluations have focused primarily on midterm and final evaluations, rather than including ongoing monitoring which permits problem identification and quality improvement. They have traditionally emphasized direct inputs (money, commodities, labor), implementation activities, and direct outputs such as hardware and the number of participants in hygiene education activities. Health impacts are often discussed, but difficult and costly to measure. Hygiene behavior change, an essential link between new services and improved health, is rarely measured. The team sought to combine recent advances in the measurement of hygiene behavior with program management methodologies for continuous improvement.

This creative effort resulted in a ground-breaking technical approach which has several important features. Among these are an emphasis on behavioral indicators and quality assurance strategies, and the use of a participatory approach in designing the monitoring system.

#### **1.3.1 The Use of Behavioral Indicators**

As indicated by the system model of Better Health through Water and Sanitation (see Figure 1), program performance can be assessed by measuring health knowledge and attitudes, behaviors, or outcomes. While all three types of indicators are important in monitoring, the emphasis in this effort is placed on observable indicators of health behavior. This section



presents a rationale for the choice of behavioral indicators, explains why observational techniques are required, and describes how the indicators were chosen.

#### *Why Use Behavioral Indicators?*

The measurement of outcomes of water and sanitation efforts, such as changes in mortality, morbidity, and nutritional status, is difficult and costly. A variety of methodological problems, including the lack of adequate control groups, presence of confounding variables, difficulty of respondents' recall, seasonality, and barriers to the precise definition of health indicators, have been well documented (Blum and Feachem 1983). Also, health impact studies do not provide practical information about how to improve the effectiveness of ongoing and new water and sanitation projects (Cairncross 1991).

Health knowledge and attitudes are often used to measure program effects and effectiveness because they are relatively easy to measure and are conventionally thought to be a necessary precondition for desired behavioral change. However, recent research questions the conventional wisdom about the path to behavioral change, finding that measures of health knowledge and attitudes alone are not sufficient indicators of change in health practices (Stanton and Clemens 1987). The conviction has grown that valid, useful, practical, and cost-effective evaluation of water and sanitation projects requires focusing on change in hygiene behaviors.

#### *Why Use Observational Techniques?*

Knowledge, attitude, and practice surveys have been developed to measure program effectiveness as an attempt to respond to these theoretical problems. However, experience with these surveys has revealed several weaknesses. Because surveys rely on reported rather than observed practice, it can be difficult to obtain accurate data about actual health behaviors. Self-reported data has two sources of inaccuracy. First, respondent recall may be inaccurate. Second, respondents may report ideal rather than real behaviors.

Although it is difficult to observe and record actual behavior, indicators or physical "traces" can reveal practices in water and sanitation through spot observations (Hurtado and Bartlett 1991). Risk behaviors significantly associated with diarrhea in children 0 to 36 months were identified using this method in a study recently conducted in Guatemala (Bartlett et al. 1991).

#### *How to Select Behavior Indicators Verifiable by Observation*

In selecting behavioral indicators appropriate for the CARE program, the team drew on the goals and indicators defined by the project, previous research in Guatemala, and information provided by staff and community informants about local practices and terminology. Following is an example of how behavioral indicators are developed and adapted to local conditions.

Hurtado and Bartlett (1991) have developed observational indicators of behavior for hand-washing and latrine use. For example, stains or wear of the seat and the presence of cleaning materials can be used as indicators of latrine use. These indicators were discussed with health

extensionists and promoters to determine their appropriateness. In order to identify additional indicators, informants were asked, "How could you tell that a latrine is being used without asking the mother?" Based on their responses and in collaboration with a group of extensionists and promoters, indicators were chosen for the CARE program.

While previous research can be consulted in the choice of behavioral indicators, it is important to review them with local informants to determine which are most appropriate, and to ensure that they are expressed in acceptable terminology.

It is clear that observational measures cannot be used in every instance. An attempt was made to observe those practices or "traces" of behaviors which were in fact observable. These indicators, in combination with more traditional methods, permit effective monitoring of performance.

### **1.3.2 The Quality Assurance Orientation**

The quality assurance orientation emphasizes monitoring for the purpose of improving program performance. Rather than using information from midterm and final evaluations to measure progress externally, program staff can use a baseline assessment and routine internal monitoring system for project management and improvement of performance.

The baseline assessment includes measurement of behavioral indicators, as well as selected census information and measures of health knowledge. Program strategies and goals can be revised in light of what is learned in the baseline assessment. Routine monitoring focuses on a set of core behavioral indicators. Regular review of these indicators permits staff to take action for program improvement.

The design of the monitoring system must take into account the project goals and objectives, size of the population, duration of the project, number of staff available, and their specific skills. Thus, a monitoring system's indicators, methods, and frequency of data collection must be tailored to program-specific needs.

### **1.3.3 The Participatory Approach to System Design**

The team worked in close collaboration with CARE counterparts from the outset and sought to develop consensus at each stage of system design. After an initial assessment of the existing procedure and management structure for monitoring, the team worked with CARE staff to define a set of indicators and to design instruments to gather the needed information. A schedule for data collection and review for the life of the project was also developed.

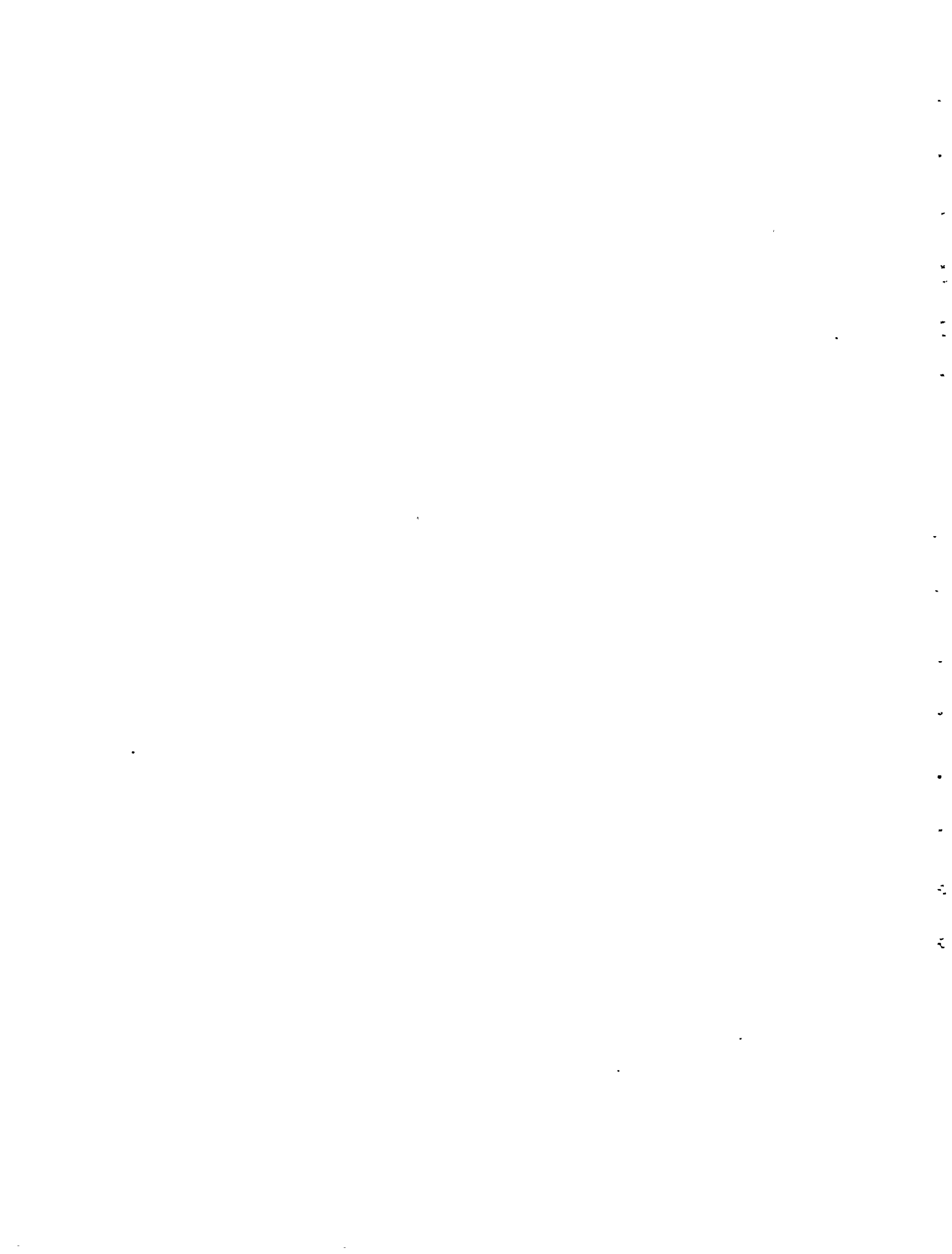
The initial assessment began with a review of the current management structure. The main objective of this assessment was to estimate how much time CARE community extensionists and their supervisors were willing to devote to data collection and monitoring, and to determine whether the structure would be adequate for effective monitoring and program improvement. The monitoring program that was designed was based on the assumption that

extensionists could devote approximately two days per month to data collection and analysis, and that ongoing monthly staff meetings would address this information, so that action for improvement could be taken. The current management structure was deemed adequate. However, the addition of two or three community extensionists was recommended to promote health education efforts more effectively in all 22 communities.

The team also reviewed current and previous monitoring efforts. Many staff members had creative ideas about monitoring, and had drafted materials based on their experience with the previous CARE project. Because the current project is just getting started, monitoring data has not yet been collected, making staff particularly receptive to new ideas. Although monitoring indicators had already been defined in the project proposal, the initial assessment was used to revise them to reflect the behavioral emphasis of the project and to systematize ideas about monitoring methods and tools.

Health behavior monitoring is to be carried out by various individuals. The level of education and literacy were factors in the design of the instruments. Promoters and plumbers are community members who volunteer their services, receiving training from the CARE staff. Extensionists are CARE employees living in the communities they were assigned. The Extensionist Supervisor is based at CARE headquarters and oversees the work of several extensionists. In some sense, this role is viewed as supporting the extensionists, and is thus referred to as "Extensionist Assistant." In a more hierarchical sense, this position is supervisory, overseeing CARE's community-based staff.

Once indicators were agreed upon, the team worked with CARE staff to develop instruments, using materials that the staff had developed, and incorporating state of the art technical skills. Field testing, revision of instruments, and a one-day seminar to introduce the new system were carried out collaboratively with CARE staff. (See Appendix B for a summary of field activities and persons interviewed.)



## Chapter 2

### DEVELOPING A MONITORING SYSTEM

#### 2.1 What Is Monitoring?

Monitoring is a routine process of gathering and reviewing data to determine whether a program is being implemented in accordance with the established norms and goals. In simple terms, monitoring helps answer the question “How are we doing?” in relation to our objectives.

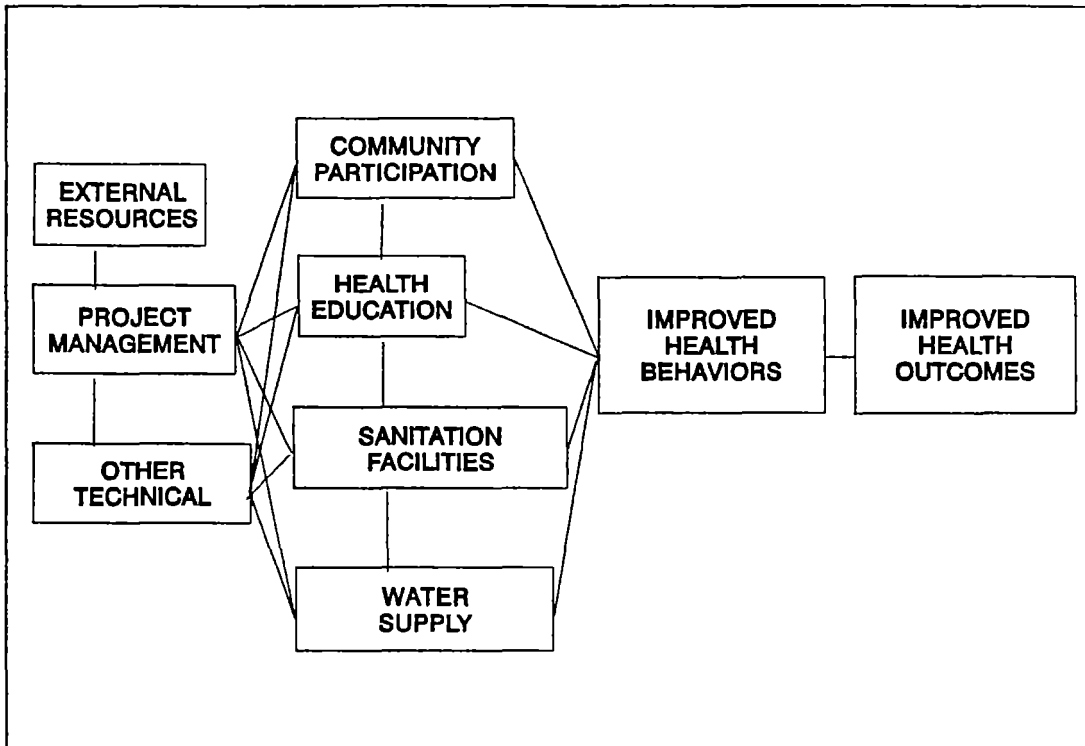
The information system presented for monitoring the Rural Water and Health Project has three special features:

- a) The system focuses on health practices or behaviors of people rather than on their knowledge. The indicators chosen include various measures of knowledge, but emphasis is placed on the observation of practices or “practice trails” at the household level. In accordance with the model proposed (see Figure 1), a change in behavior is a necessary precondition for the desired improvements in health.
- b) The system focuses on the community level, and proposes that information should not be gathered unless it will be used. Thus, the objective is to avoid having data collection become the end goal, wasting staff time and losing opportunities for interpretation and application. Instruments were designed to be appropriate at the community and project levels.
- c) The goal of monitoring is to improve the quality of the program. The monitoring process includes problem identification and analysis, and the development and application of solutions, with a mechanism for immediate feedback to the program.

#### 2.2 Better Health through Water and Sanitation: A System Model

The water and sanitation system is made up of eight components that work together to improve health status. Better health status is achieved through improved health behaviors, which in turn require health education, community participation, a water system, and sanitation facilities. For these activities to be carried out effectively in a community, resources, effective project management, and technical assistance are also needed.

The graphic model shows all the system components that must be in place in order to improve health through water and sanitation. The monitoring effort discussed in this report focuses on the health education component, but the framework and methods could be applied equally to all parts of the system.



**Figure 1**

**BETTER HEALTH THROUGH WATER AND SANITATION**

**2.3 Key Indicators**

Indicators are measurements which allow program evaluation with respect to a specific norm or objective. Each component of the system is associated with several indicators. An indicator must be objective, and based on concrete measurements. Indicators should be selected with program goals, objectives, and plans in mind. It is common for the discussion of indicators to generate a revision of plans and goals. At the end of the process, there should be close correspondence between the plan and the indicators. The indicators are the link between the program goals and the actions taken.

It is not necessary to select an indicator for each aspect of a service, activity, or practice examined. The indicators must be reliable, but they need not document completely. The number of indicators must be minimal, focusing on those aspects of the program which are most important.

Table 1 presents some indicators which can be used for monitoring and improving the Rural Water and Health Project. For the complete list of indicators recommended for this project, refer to Appendix C. Identified in the following table are the sources of information and the

information-gathering techniques to be used. Frequency of information gathering must also be defined.

## **2.4 Instruments for Evaluation and Monitoring**

Questions or observations which reflect the indicators selected were grouped together in appropriate instruments. These instruments were designed with attention to the unit of measure and the technique and frequency of data collection.

Table 2 presents a summary of the instruments recommended for use in CARE's Rural Water and Health Project. The instruments themselves are shown in the Appendix D, in the order listed in Table 2.

## **2.5 Communications Mechanisms**

Implicit in the development of an information system is the need to communicate what is found in relation to the question "How are we doing?" Interpersonal communication between personnel at all levels and the communities served also constitutes a part of the monitoring system, and often leads to greater impact and effectiveness. A regular communications network is a major element for ensuring that the information gathered is communicated, interpreted and used for improving the program. The communication mechanisms should be developed by the staff of CARE, the Water Committees, the health promoters, the plumbers and other members of the community. Table 3 presents an illustrative profile of a regular communications system which is based on the information generated by the above-described instruments. These meetings can be incorporated into existing interactions between CARE staff and the communities. For example, quarterly monitoring data can be discussed during the existing monthly meetings.

**Table 1**

## ILLUSTRATIVE LIST OF INDICATORS

<b>Indicators</b>	<b>Source of Data</b>	<b>Gathering Technique</b>
<ul style="list-style-type: none"> <li>■ <i>Impact</i> % of children age 5 and under who had diarrhea during the past two weeks</li> </ul>	mothers	questioning
<ul style="list-style-type: none"> <li>■ <i>Personal and Domestic Hygiene</i> % of mothers who can mention three ways to prevent diarrhea</li> </ul>	mothers	questioning
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of homes in which stored water is covered</li> </ul> </li> </ul>	house	observation
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of mothers who can demonstrate effective hand-washing</li> </ul> </li> </ul>	mothers	observation
<ul style="list-style-type: none"> <li>■ <i>Maintenance and Use of the Latrine</i> % of latrines that are covered at the time of observation</li> </ul>	latrine	observation
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of latrines that are free of cleaning materials or feces (on the ground and surrounding area)</li> </ul> </li> </ul>	latrine	observation
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of children between the ages of three and five years who can demonstrate the use of the latrine or a sanitary alternative</li> </ul> </li> </ul>	child	observation
<ul style="list-style-type: none"> <li>■ <i>Oral Rehydration Therapy</i> % of mothers who can recognize a packet of oral rehydration salt (ORS)</li> </ul>	mother	showing ORS packet/ questioning
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of mothers who can name the ingredients used to prepare the homemade solution and the corresponding amounts required</li> </ul> </li> </ul>	mother	questioning
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of mothers who have used ORS during the most recent episode of diarrhea in children under age 5</li> </ul> </li> </ul>	mother	questioning
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of mothers who can correctly demonstrate preparation of the homemade solution</li> </ul> </li> </ul>	mother	observation
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>% of mothers who report that they will continue to feed a child with diarrhea</li> </ul> </li> </ul>	mother	questioning



**Table 2****INSTRUMENTS FOR GATHERING INFORMATION**

<b>Instruments</b>	<b>User</b>	<b>Frequency</b>	<b>Unit</b>
1. Baseline survey	Extensionist	beginning/end	home
2. Narrative report on external conditions	Extensionist	beginning and as needed	community
3. Monitoring checklist	Extensionist/ Promoter	quarterly	home/ community
4. Update of community assessment	Extensionist	whenever necessary	community
5. Case analysis of child deaths	Extensionist/ Promoter	whenever a child dies	home
6. Job aid for promoter's home visits	Promoter	continuously	home
7. Registers for recording:			
a. home visits (may be shown on a local map if desired)	Promoter	continuously	_____
b. Record of cases of diarrhea treated	Promoter	continuously	_____
c. Record of attendance at educational sessions	Promoter	continuously	_____
8. Questionnaires for sustainability assessment	Surveyor	September 1992; Final six months or post-project*	community

\* Depending on availability of funds

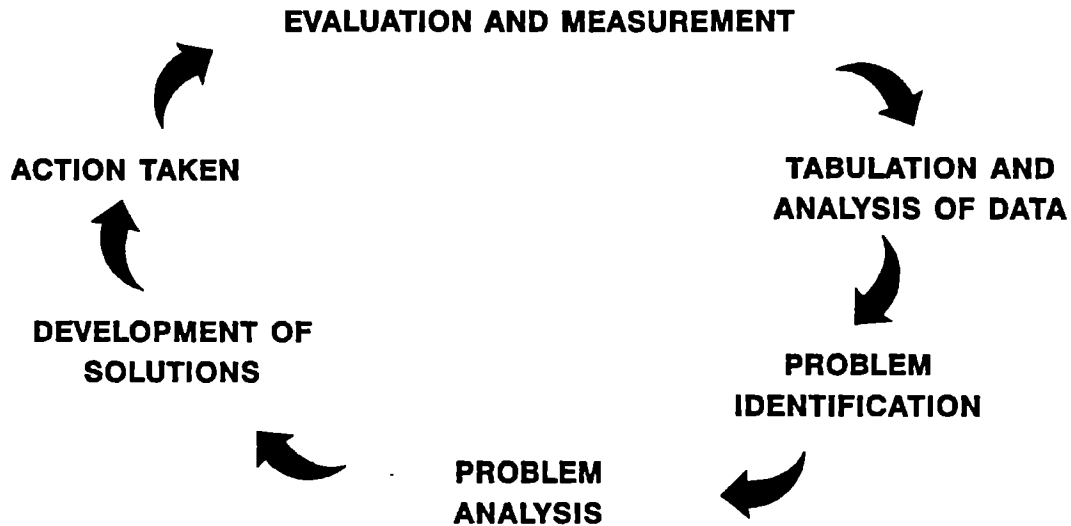
**Table 3**

**COMMUNICATIONS SYSTEM (MEETINGS)**

<b>Who participates?</b>	<b>Frequency of meetings (Minimum)</b>	<b>Purpose</b>
<ul style="list-style-type: none"><li>■ Extensionist</li><li>■ Promoter</li></ul>	monthly	Review promoter records and work guide, jointly identify important areas and develop a plan for solving problems. Provide support to the promoter so that later on she will be able to perform the review by herself.
<ul style="list-style-type: none"><li>■ Extensionist</li><li>■ Promoter</li><li>■ Plumber</li><li>■ Committee</li></ul>	quarterly	Present to the Committee a summary of the activities carried out during the quarter. Identify important areas jointly with the Committee. Specify the support required from the Committee. Over time, the promoter should be able to perform the presentation by herself.
<ul style="list-style-type: none"><li>■ Extensionist Supervisor (individual)</li></ul>	monthly	Review what is happening at the community level, offer support.
<ul style="list-style-type: none"><li>■ Extensionist Supervisor</li><li>■ Director</li></ul>	quarterly	Review the data from the checklist (monitoring) and from the analysis of deaths. Identify individual and common problems. Develop a plan for the following quarter. Allow the extensionists to share information and support each other. Over time, the extensionists should be able to conduct their own meetings.

## Chapter 3

### HOW TO USE DATA: THE MONITORING AND IMPROVEMENT CYCLE

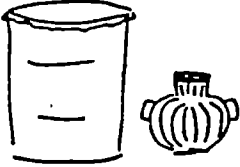


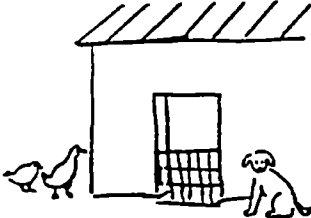



The following guide describes the monitoring and improvement cycle at the level of the health promoter, extensionist, and extensionist supervisor. The project director should be present when the results of the baseline survey and monitoring process are presented in order to participate in the interpretation of data and planning of solutions.

### 3.1 Step 1: Evaluation and Measurement

#### 3.1.1 Health Promoter

The health promoter can evaluate and measure progress through the use of the job aid and activity registers (Instruments 6 and 7, Appendix D). The pictorial job aid, shown in Figure 2, helps her to remember all the health behaviors she should check on and evaluate during a household visit. During each household visit she makes a mark next to the appropriate picture if the corresponding health behavior is NOT observed. She can use this information to counsel the mother, and she may use the picture as an educational aid. Regular use of this tool during household visits will allow the health promoter to estimate the magnitude of the community's acceptance and adoption of these behaviors.

DESIRED PRACTICE:	HOUSES IN WHICH IT IS NOT OBSERVED: Houses Visited: <i>//// // // //</i>
 Water covered	<i>/// //</i>
 Food covered	<i>//// /// ///</i>
 Hands clean	<i>/// /// /// ////</i>
 Animals outside house	<i>/// /// /// /// ///</i> <i>////</i>
 Latrine clean	<i>/// //</i>

**Figure 2**

**SAMPLE: JOB AID FOR PROMOTER'S HOME VISITS**

The health promoter should also maintain pictorial activity registers (see Instrument 7) of her three major activities: the number of cases of diarrhea detected and treated in each month, the number of home visits in each month (this could be done on a local map, drawn by the health promoter), and the number of mothers that attended meetings each month. This information can be used for planning and reporting with both the extensionist and the health committee.

### **3.1.2 Health Extensionist**

The health extensionist can monitor behavioral change in the community through household visits. The monitoring instrument (Instrument 3) includes questions for the mother about diarrhea incidence, observation of water and food management, latrine maintenance, and observation of hand-washing practices. A small random sample of household visits will allow the extensionist to identify priority problems to address with the promoter. After taking into account the program target, the need for precision, and time available for data collection, the assistant extensionists (supervisors of the extensionists) defined the sample size to be 19. This sample size was determined through the use of lot quality assurance sampling (LQAS) principles.

### **3.1.3 Extensionist Supervisors**

The extensionist supervisors can use both monitoring data and baseline survey data to assess program performance. The baseline survey includes all of the indicators that are used for monitoring, as well as some indicators of health knowledge and practice. Some census information is also included (see Instrument 1). The sample for the baseline study will be all households in the communities served. This sample was chosen because of the need for census information. In addition, the initial visit can be used as an opportunity to provide health education. After the baseline survey is carried out in a household, the extensionists can review health and sanitation principles with the woman interviewed, based on the results of the assessment.

## **3.2 Step 2: Tabulation and Analysis of Data**

The system is designed so that data tabulation and preliminary analysis can be conducted at the time of the assessment. In this way, problems can be identified and immediate action can be taken. Additional analysis of the pooled local data will be carried out for use in project-wide action plans.

### **3.2.1 Health Promoter**

The health promoter uses the data collected to identify health-enhancing behaviors needing attention at the household and community levels. A tool was developed (Instrument 3) to

allow promoters to estimate the magnitude of the problem for each indicator, without requiring the tabulation data. For example, Figure 3 illustrates the community-wide problem of animals not being kept outside of homes, compromising household hygiene and the purity of food and water. Water management appears to be adequate, however. The promoter's records can also be used to tabulate data on the number of household visits, attendance at educational sessions, and treatment of children with diarrhea.

### **3.2.2 Health Extensionist**

The information gathered during the monitoring activities carried out by the health extensionist can easily be tabulated manually. Figure 3 presents a matrix of results from visits made to 19 homes. The second-to-last column contains the total number of homes where the desired practice was not observed during the monitoring visit. These tabulations can be performed on the instrument itself.

To identify problem areas, the health extensionist can apply the following simple decision rule, which is based on the program goals:

**If there are more than five houses in which the desired practice was not observed, the practice must constitute a priority for the following cycle of improvement.<sup>1</sup>**

A second rule with respect to this data is also important:

**Percentages would not be reliable at the local level with this type of sampling.**

In filling out the form, the health extensionist will apply the following codes:

0 = NO (the described practice was not being performed at the time of observation)

1 = YES (the described practice was being performed at the time of observation)

2 = Don't know, unable to observe

9 = Not applicable

Based on the decision rule (more than five cases of non-compliance), problem areas in the matrix shown in Figure 3 are keeping animals penned up, keeping the mother's hands clean, and keeping animals outside the house.

The health extensionists analyze their results jointly with the extensionist supervisors and the director. In this process, they can share ideas and experiences in order to solve problems.

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<sup>1</sup> This decision rule was established by the extensionist supervisors based on LQAS principles. They wished to ensure an ideal compliance of 80 percent, with a minimum of 55 percent and alpha and beta error < .10.










	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Y	N	U	
 Floor clean (feces)	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	17	2	
 Floor clean (garbage)	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	18	1	
 Animals outside	0	0	0	1	1	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	10	9	*
 Animals penned up	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	6	13	*
 Hands clean	1	0	0	0	1	1	0	0	1	1	1	0	1	1	1	1	0	1	1	1	12	7	*
 Ltrine	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	0	
 Outhouse	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	0	
 Roof	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	0	
 Door	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	0	

Figure 3

### **3.2.3 Extensionist Supervisors and Project Director**

#### *Analysis of Baseline Survey*

The baseline survey will serve as an important source of information at both the community and project levels. Each indicator must be analyzed by: total area, old (12) versus new (10) communities, community, and families with children under age 5. Other types of analysis may be performed, but those indicated here are essential for planning the program for each community.

#### *Analysis of Monitoring Data*

Monitoring data from the 22 communities can be pooled to form a large sample (approximately  $n = 418$ ) of the project which can be used to estimate compliance with each indicator. It is necessary to calculate a multiplier factor (weight) for each community based on its population as compared to the total population. It is important to calculate the confidence intervals related to the sample. Also, if feasible, monitoring data should be analyzed by the following categories: families with children under age 5, and old versus new communities. Results of data analysis should be reviewed with the health extensionists and the project director.

### **3.3 Step 3: Identification of Problems**

The results of data tabulation and analysis should be compared to project goals and objectives in order to identify areas where action is required. This exercise will result in a list of potential or existing problems and areas for improvement. These findings should be summarized and reviewed with all participants. Such information-sharing can often make the assessment more accurate, help the group set priorities, and enhance plans for improvement. The following questions can guide the process of identifying priority problems.

- *Which activities were carried out well?* Although the objective of the exercise is to identify problems, the team should begin by recognizing those activities that are going well. This reinforces good performance, and establishes a constructive rapport.
- *Which activities need improvement?* Areas that need improvement should then be reviewed, providing as much specific information as possible. Some problems will be associated with quantitative data, while others will be described in more qualitative terms.
- *Which problems can be corrected easily?* Some problems are easy to correct, have obvious solutions, and require little additional effort to resolve. Extensionists should be encouraged to take the initiative to make the corrections. In these cases, further analysis (Step 4) will not be necessary.
- *Which problems should be treated as priorities?* Quarterly monitoring will identify more problems than can be solved in the short term. The staff should define the criteria to be



used in deciding where to take action. For example, the focus may be on problems that pose high risks to patients or staff, or problems that occur frequently and affect a large number of people.

- *Which problems will be more difficult to correct?* These problems must be addressed using in-depth analysis by a problem-solving group or special study.

### **3.4 Step 4: Problem Analysis**

Difficult problems require in-depth analysis, based on the experience and insight of all those involved in the process. This section presents two analytical techniques that can help staff at all levels work together to understand management problems and their causes. It is important to find root causes of problems so that actions taken are comprehensive and not superficial. By beginning with a thorough analysis, the team will be able to develop a solution that is appropriate, effective, and acceptable to all those involved. This process might occur at the time of the presentation of preliminary results, or during a separate meeting.

#### **3.4.1 Ask “WHY?” Five Times**

One simple technique for better understanding problems is to ask “why” five times. Often only the first cause of a problem is addressed, without examining deeper causal relationships. By repeatedly asking why, the team can discover a number of causes, some that can be addressed, others that cannot. Upon conducting this thorough analysis, the problem-solving group will be better able to decide where and how to take action.

For this technique to be effective, curiosity is required. Participants must look at a familiar problem in a new light, so that they may see it in all its complexity. It also requires openness; rather than accepting traditional explanations, the team, and especially the project director, must be willing to consider new ideas that come from the group. A third important element is participation. All those involved in the process should participate in the analysis. Finally, participants will be more likely to share their thoughts if they are in a considerate, listening environment.

#### **3.4.2 Fishbone Diagram**

Another tool for the analysis and identification of root causes is a cause and effect diagram, commonly called a “fishbone diagram.” This method is useful because it organizes information from a variety of sources, graphically representing the situation in a way that is easy to comprehend. Generally the major categories of causes (such as human resources, equipment, facilities, and supplies, etc.) are listed on the major branches, or “bones,” and all the possible causes related to that category are listed there. The objective of the exercise is to look for the most likely root causes of the problem and try to reach a consensus as to which should be the

focus of a management improvement effort. An example of a fishbone diagram is shown in Figure 4.

This technique can also be adapted for use with groups who do not have reading skills. Pictures, rather than words, can be used to show the causal relations. Figure 5 is a pictorial cause and effect diagram that explores the causes of diarrhea.

### **3.5 Step 5: Development of Solutions**

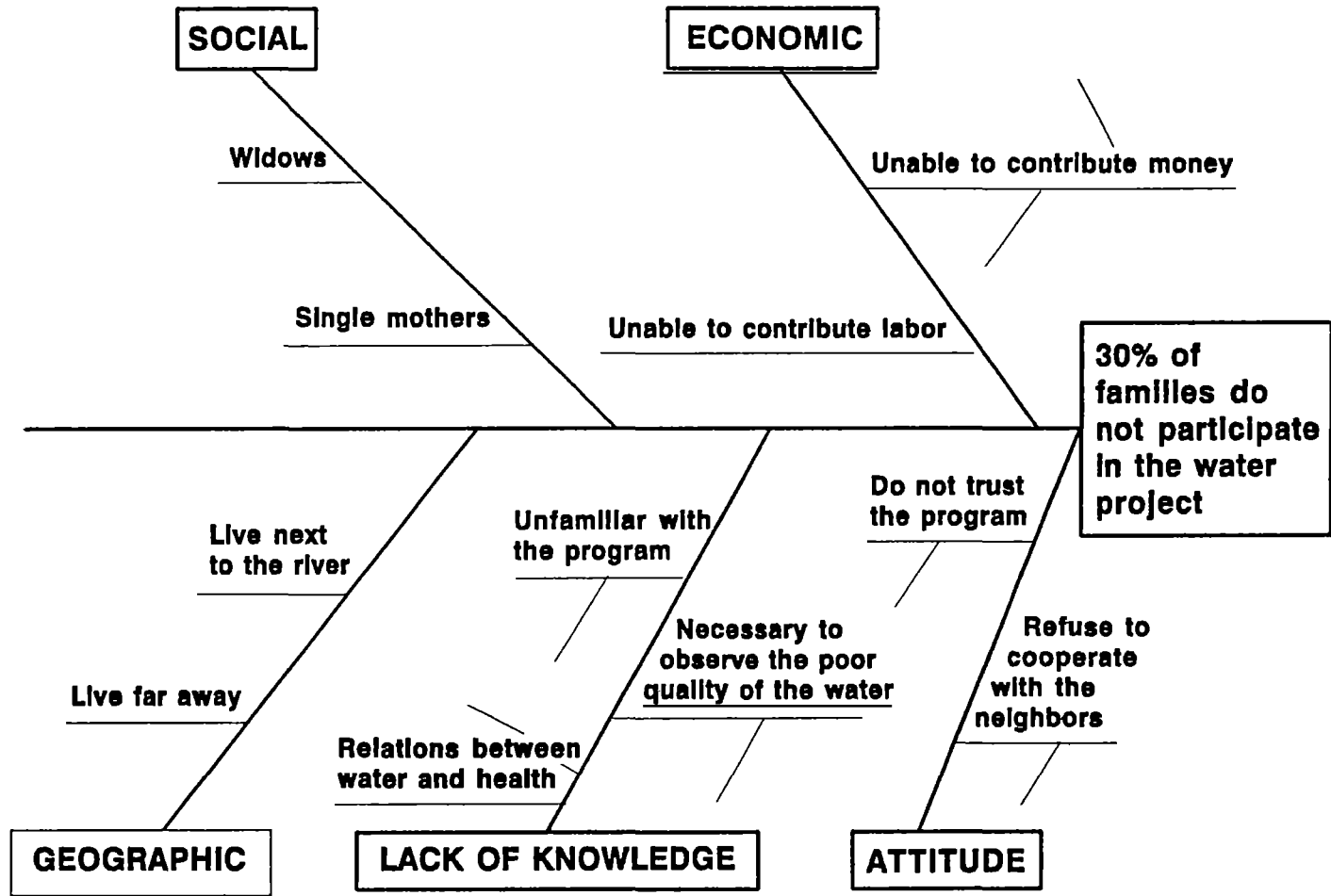
Evaluation and analysis are not useful unless they are followed by action for improvement. Based on the findings of the assessment and subsequent analysis of causes, the team should be able to identify and implement ways to improve the quality of those tasks that are not performed well.

### **3.6 Step 6: Action for Improvement**

Once a course of action has been chosen, the staff must decide how it will be implemented and by whom. It is important to develop a plan, and to find out what kind of support the extensionists need from the assistant extensionists to implement the solution.

### **3.7 Step 7: Continuous Monitoring**

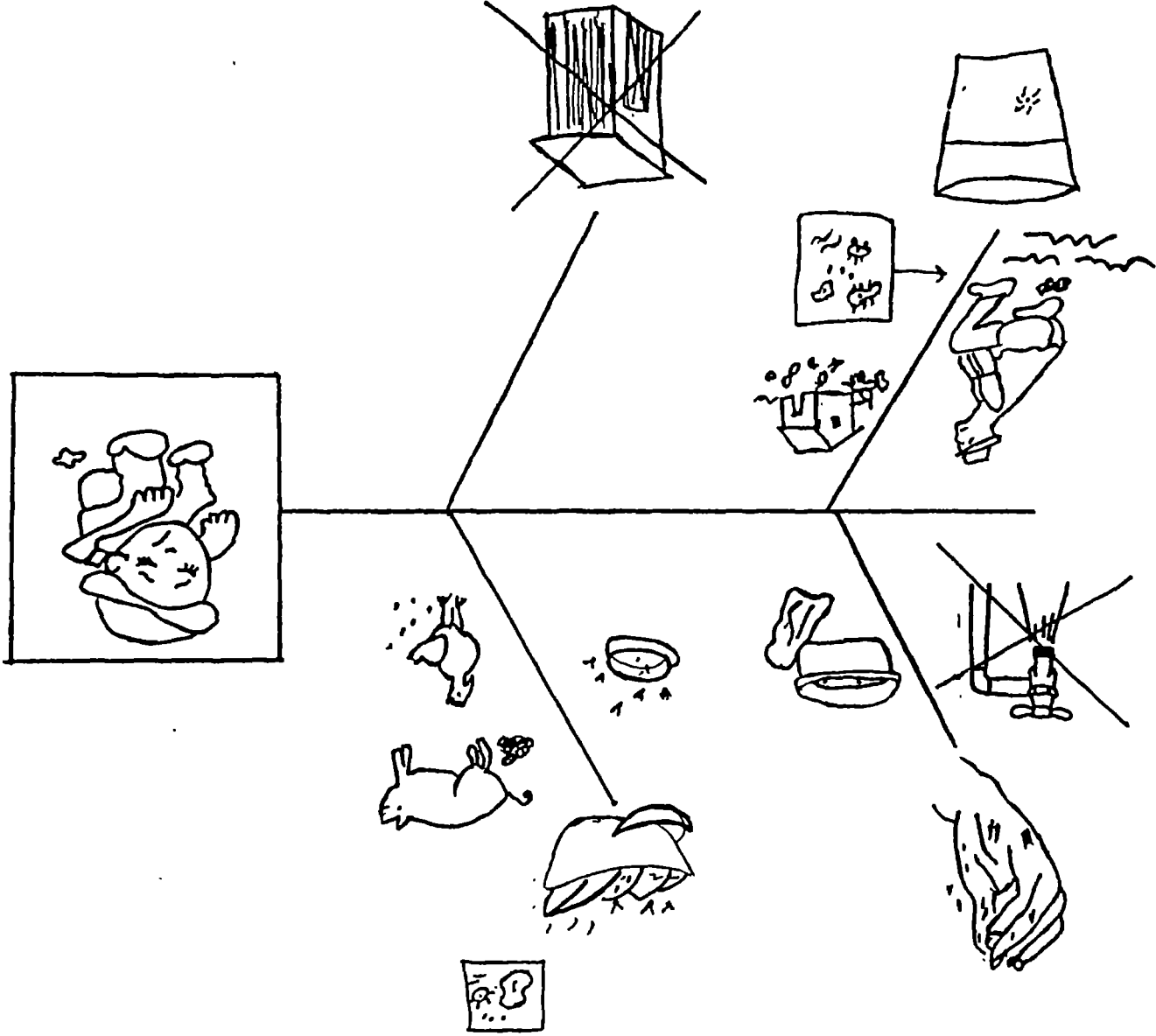
After action has been taken to solve a problem, it is important to go back to Step 1, Evaluation and Measurement, to check to see whether it was implemented correctly and whether it had the desired impact. This is essential to completing and continuing the monitoring cycle. At the time when a decision is made to take action, a plan to evaluate its effectiveness should be developed. It may be a very simple check, carried out by the project director or a staff member, but it is an essential element in management improvement. If the problem has not been resolved, further analysis will be needed to explore why, and a modified strategy for improvement should be developed. Once the problem is solved, and the solution has become a standard part of program operations, the primary health care (PHC) team can move on to another management problem, in an effort to continually improve the program.



FISHBONE DIAGRAM

Figure 4

Figure 5



## Chapter 4

### RECOMMENDATIONS

This section presents recommendations for the two principal clients in this effort: CARE and USAID/Guatemala. It also presents recommendations for developing this work into a model for the monitoring of health education activities.

#### 4.1 Recommendations for CARE

##### 4.1.1 CARE-Guatemala: Follow-up Activities

Implementation of the monitoring system developed during this period requires the following additional technical support. In some cases local experts could provide the assistance.

- a. *Training of Extensionists for Baseline Survey.* To assure the quality of the baseline survey and subsequent monitoring a two- to three-day course in survey techniques, taught by a local expert, is recommended. In addition to improving survey skills, the survey specialist should work with the extensionist supervisors to develop detailed instructions for each instrument.
- b. *Statistical Support for Baseline Survey and Monitoring.* The CARE staff will require the technical assistance of a local statistician for the analysis of monitoring data. This assistance should include analysis and interpretation of data, with the goal of building the skills of CARE staff so that they can carry out the analysis in the future. The statistician should be familiar with LQAS methods.
- c. *Support for the Development and Implementation of the Sustainability Assessment.* The draft questionnaires for the sustainability assessment (water committee, promoter, plumber) should be revised and finalized at the time of the study. This activity is scheduled for September 1992. Professional interviewers, local or expatriate, should be hired to conduct the survey in the 22 project communities to ensure impartiality. The project would benefit from the participation of at least one member of the original team in the field work or the team planning meeting.
- d. *Training Extensionists in Qualitative Research Techniques.* Additional skills would enhance the caliber of the qualitative diagnosis and subsequent updates. A two-day workshop would provide CARE staff with basic skills, and improve their work as well as the baseline survey. Local expertise in this area is available.

#### **4.1.2 CARE-Peru**

A representative from CARE-Peru's water and sanitation program participated in the development of the monitoring system presented here. During the visit an effort was made to review CARE-Peru's activities and make recommendations about the applicability of this work to the Peru program. While there are many differences between the two programs, several elements of the monitoring system designed in Guatemala are applicable in Peru:

- a. The emphasis on behavioral indicators of program success is relevant for Peru. The indicators developed in Guatemala could be tested in Peru and adapted accordingly.
- b. Lot quality assurance sampling methods could be applied in Peru.
- c. The instruments developed during this assignment could be used as models for supervision instruments and job aids in the Peru program.
- d. The concept of monitoring for program improvement could be applied in Peru. Because the Peru program is integrated with other health interventions, a broader quality assurance effort could be launched, with additional technical assistance.

#### **4.2 Recommendations for the USAID/Guatemala Mission**

The following areas for potential technical assistance in water and sanitation in Guatemala were noted.

- a. *Design of Latrines.* The team encountered many concerns about latrine use. Counterparts reported that latrines are well accepted in some communities, while in others new latrines go unused. While much can be done to educate community members about latrine use, some design issues may warrant further study so that latrine design takes community preferences into account. For example, some communities may prefer a squat latrine, while others prefer a seat. Also, the advantages and disadvantages of the compost latrine could be explored from the community perspective. Design issues can be addressed through formative research and an innovative design approach called quality function deployment (QFD). The formative research should employ an interdisciplinary approach, incorporating social science (especially anthropology and psychology) and engineering. Quality function deployment is a design tool that permits technicians to develop an optimal design based on user and technical requirements which are taken into account at the design stage. One advantage of the QFD approach is that the process of product testing and revision is usually considerably shorter. However, product testing will be required for broad-scale implementation. WASH, in collaboration with the Quality Assurance Project, could provide guidance in the QFD approach.
- b. *Increase Use of Latrines by Children.* Use of latrines by children under age five is a special problem. During field visits, many mothers reported that they do not feel comfortable about letting their children use the latrine alone for fear that they will fall

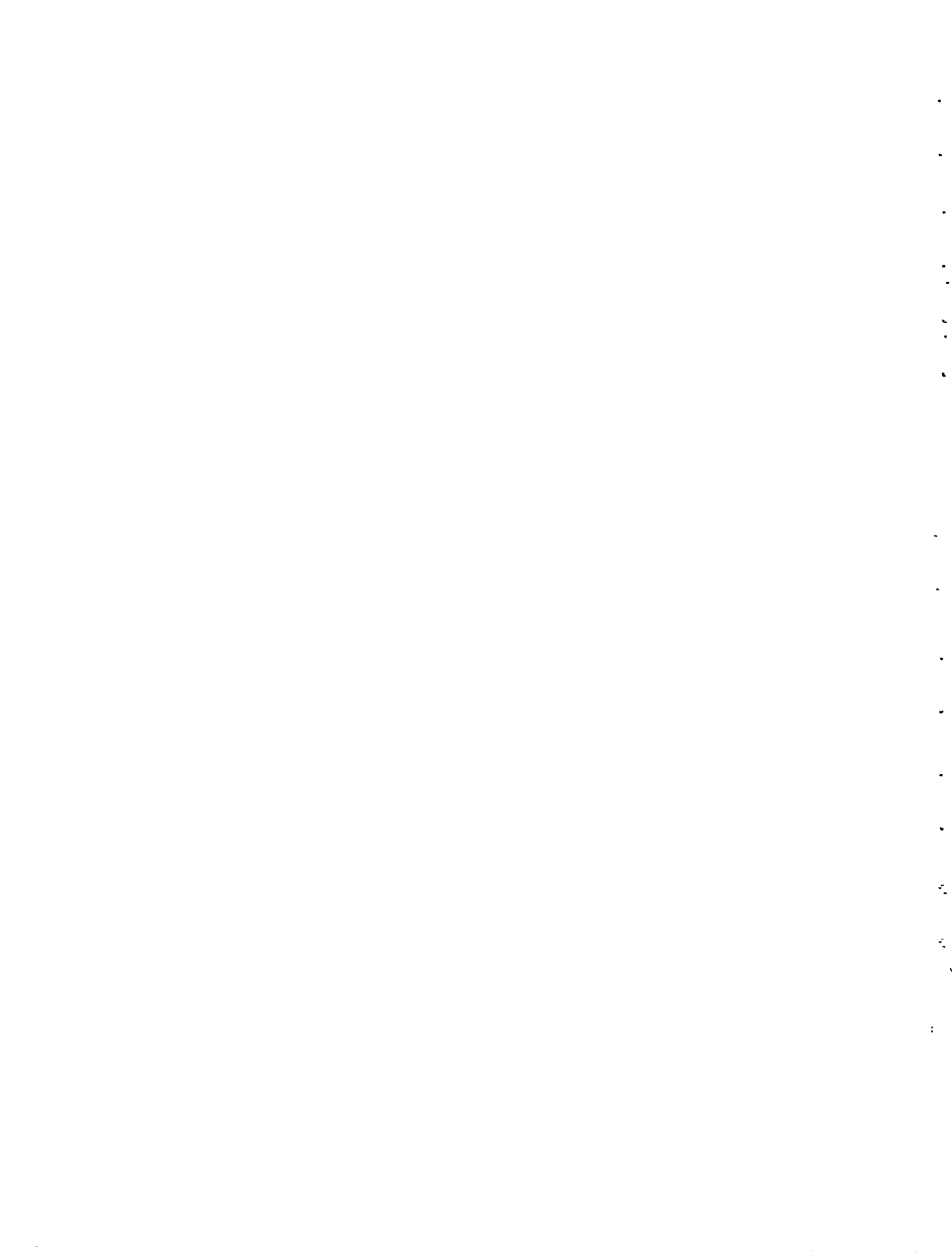
in. Thus, with the current design, the child can only use the latrine if the mother or an older child is available and willing to accompany him or her. Water projects should offer some solutions that make latrine use by children under age five more acceptable. This could be incorporated into latrine design, or could be treated separately.

- c. *Formative Research in Health Education.* Formative research related to current community practices could be used to develop and strengthen health education strategies. By studying behaviors, such as hand-washing and water and food storage, health education efforts could build on the strengths of current practices while addressing the difficulties associated with change. The differences between users and non-users of latrines could also be studied. Another area that might be developed is the importance of the sanitation of the *community* as a whole. Many current health education messages focus on the household level, and do not take into account the significance of overall sanitary conditions.
- d. *Design of Project Evaluation and Monitoring Component.* The design of a project evaluation and monitoring system would enhance the Guatemala program. While an impact-oriented baseline study was not recommended for the CARE project (because of its size and duration), impact measures could be included in the baseline, midterm and final evaluation of the Guatemala water initiative. A monitoring system, based on what has been designed for CARE, could also be developed for the USAID country project.

#### **4.3 Recommendations for WASH: Toward a Model for Monitoring Health Education in Water and Sanitation Projects**

With further development and testing, the monitoring system described here could serve as a model for monitoring the health education component of water and sanitation projects. Following is a list of issues and next steps toward the development of this model.

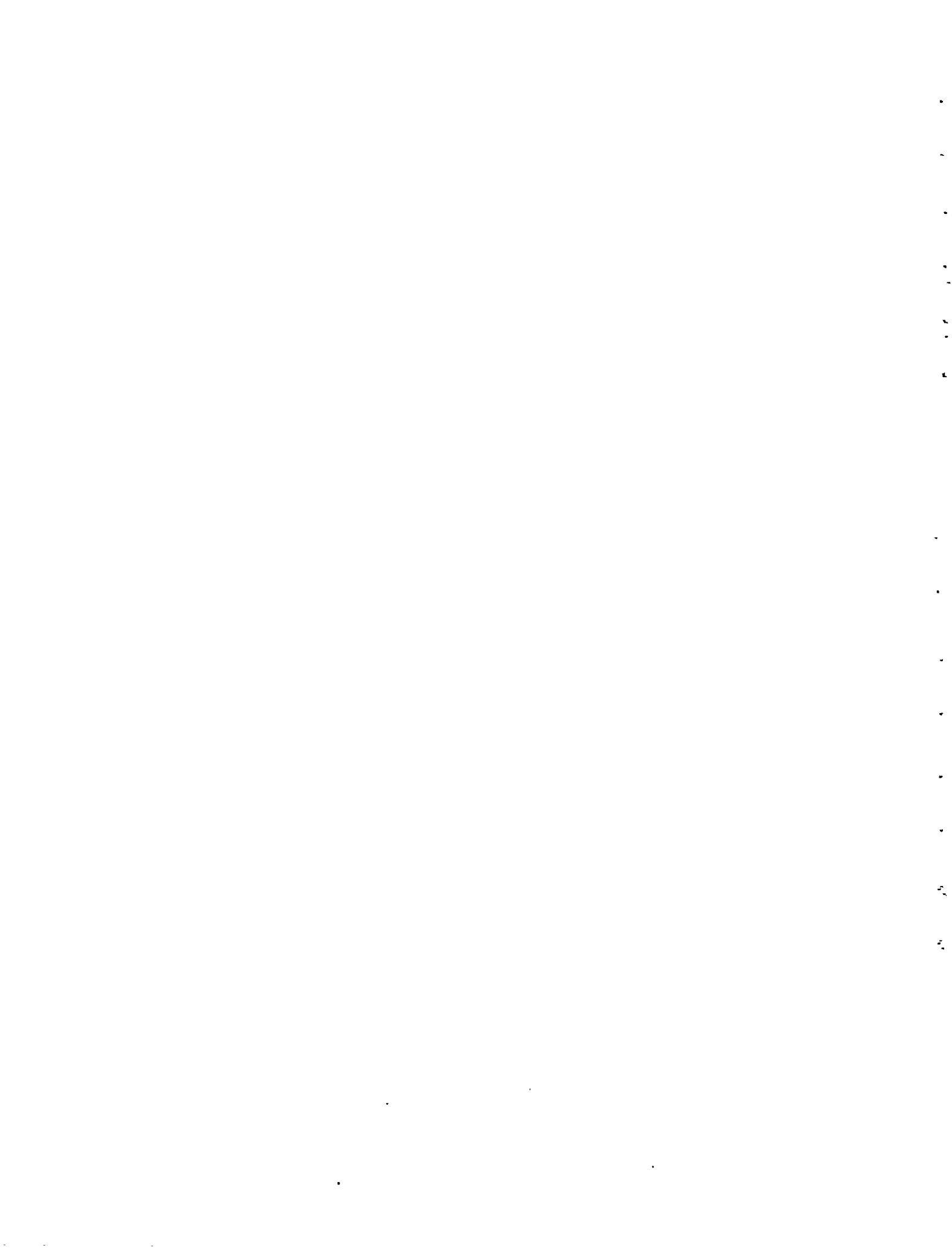
- a. The indicators recommended were chosen based on program content and in-country research on the behavioral determinants of improved health outcomes resulting from water and sanitation activities. The relative importance of indicators will vary with culture, climate, and socio-economic status. Care should be taken in applying the same indicators in other settings. Where conditions permit, local research should be conducted to determine which behavioral indicators will be used for program monitoring.
- b. The monitoring instruments and the conceptual framework should be tested in a variety of sites so that they might be further developed, refined, and simplified.
- c. The model could be expanded to address the entire water and sanitation system. For example, specific indicators relating to the maintenance of the water system could be developed. A preliminary effort resulted in the list of indicators presented at the end of Appendix C.





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**Appendix A**  
**SCOPE OF WORK**



## SCOPE OF WORK

### Guatemala

#### BACKGROUND

Evaluation of WS&S programs has been focused primarily on mid-term and final evaluations and has focused on direct inputs (money, commodities, labor), implementation activities, and direct outputs (primarily hardware and hygiene education activities). Health impacts are often discussed but seldom measured for reasons of cost and technical difficulty. Hygiene behavior change is recognized to be the link between direct outputs, such as hardware services, and health impacts. Hygiene education programs have been included in WS&S programs to ensure health impact, but hygiene behavior change has proved to be a difficult and complex process and effectiveness of hygiene education programs to change behavior is seldom measured. In order to maximize the health impact of WS&S programs, programs should be expanded to include monitoring as well as a process for using monitoring data for prospective evaluation, problem identification and solution development, leading to program change and continuous program improvement. Such an activity would pull together recent advances in defining and monitoring hygiene behaviors; management information systems; and program management methodologies for continuous improvement.

In August 1991, Masee Bateman (WASH), Mary Beth Powers (CARE/NY), and Peter Heffron (CARE/Guatemala) held discussions regarding the above topic. In November 1991, a request with Scope of Work was sent to the AID/LAC, forwarded to AID/R&D, and WASH was asked to carry out the assignment. This scope of work is based on the original with some modification and expansion of the specific technical tasks.

#### OVERVIEW OF THE SCOPE

This task will be undertaken by WASH with the collaboration of the Quality Assurance project. WASH will provide the overall management and support for the task, including managing the team planning meeting, fielding the team, and producing the report. The QA Project will support the task by providing a team, in Washington, who will adapt tools and methods developed by the QA project to the CARE WS&S project in Guatemala. The general approach will be further developed during background work in Washington, D.C. and during a team planning meeting.

A management specialist and behavioral scientist will work together in Guatemala to develop an integrated approach to the definition of WS&S project monitoring indicators, monitoring format and methods, and project improvement techniques using the information gathered during monitoring. It is understood that the team will meet with other interested organizations identified by CARE, as feasible, for the purpose of idea sharing and brainstorming.

### MAIN TASKS - Facilitator

1. Interview appropriate individuals from WASH, CARE/NY, CARE/Guatemala (by phone), URC/Quality Assurance project, AID, and the consultants.
2. Facilitate a 3-day team planning meeting in Rosslyn, VA.

### MAIN TASKS - Management Specialist

1. Review background documents supplied by CARE, WASH, and URC.
2. Participate in a 3 day team planning meeting at WASH.
3. Assess the current situation/management structure of the CARE WS&S project in Guatemala, including assessments of:
  - the current project management structure, including an institutional and organization analysis
  - institutional and individual responsibilities for the engineering components of the project
  - institutional and individual responsibilities for the health components of the project
  - resources available
4. Assist the initial development of potential project monitoring indicators, together with the behavioral scientist and CARE.
5. Incorporate "Quality Assurance" techniques, as appropriate, into the design of a system for project monitoring and improvement. Options range from modest, incremental changes in the health component of the project to full-scale implementation of total quality management structures for both the engineering and health components of the project.
6. Assist in the design of the baseline survey.
7. Help design the project monitoring format, including indicators.

8. Assist in the development and definition of subsequent technical assistance needs, including timing and scope of work.
9. Draft sections of the field report. Assume primary responsibility for the completion of the report.
10. Serve as team leader.

### MAIN TASKS-Behavioral Scientist

1. Review background documents supplied by CARE, WASH, and URC.
2. Participate in a 3 day team planning meeting at WASH.
3. Assist the initial development of potential project monitoring indicators, together with the management consultant and CARE. Determine baseline data needs to further define or select behavioral indicators.
4. Assist in the development of a baseline survey, including:
  - development of the instrument(s)
  - selection of the survey methodology(ies)
  - determination of personnel needs and organization of the survey
  - assist in training of personnel, if possible
5. Help design the project monitoring format and methodology, including indicators.
6. Assist in the development and definition of subsequent technical assistance needs, including timing and scope of work.
7. Draft sections of the field report.

### OUTPUTS

1. A management information system for CARE WS&S programs focused on problem identification and program improvement, based on an analysis of current program structure and processes, with the purpose of maximizing health impact. This system will include the following elements:
  - a. Baseline data collection methodology, including the instrument, methodology, definition of staffing requirements and initial training of staff in use of the methodology.

- b. Monitoring indicators, format and methodology, for ongoing use in assessing program performance, assuring quality and health impact and identifying needed program changes.
2. A field report outlining the findings of the CARE WS&S program analysis and the development and content of the management information system.

**SCHEDULE**

Jan. 13-15, 1992	Team planning meeting at WASH
Jan. 29-Feb. 13, 1992	Field work in Guatemala (Draft report left with CARE and USAID)
Feb. 20, 1992	Debriefing at WASH
Feb. 28, 1992	Final draft of field report for review
March 15, 1992	Finalize field report

**PERSONNEL**

Management specialist -- Lori DiPrete, University Research Corporation  
Behavioral scientist -- Elena Hurtado, INCAP Guatemala



## **Appendix B**

### **PERSONS INTERVIEWED AND SUMMARY OF FIELD ACTIVITIES**

#### **CARE Guatemala**

Jay Jackson, Director of CARE

Rick Henning, Sector Coordinator, Health Programs

Peter Heffron, Sector Coordinator, Water and Sanitation (W&S) Programs

Roberto Lemus, Water and Sanitation Project Coordinator

Ileana Melendreras, Trainer

Henry Avila, Technical Assistant W&S

Salome Osorio, Technical Assistant W&S

Francisco Garcia, Promotor Tecnico/ Technical Promoter W&S

Walter Cotzaiay, Promotor Tecnico/ Technical Promoter W&S

Alejandro Cali, Asistente de Extensionista W&S

Luis Vasquez, Asistente de Extensionista W&S

Amabilia Almengor, extensionista W&S

Maria de Rosario Lopez, extensionista

Marina Feliciano Vasquez, extensionista

Silvia Roldan, extensionista

Belsi Duran, extensionista

Eugenia Vasquez, extensionista

Nora Alejandrina Pec Coy, extensionista Alta Verapaz

Maria Lopez, extensionista

Irma Chavez, extensionista Alta Verapaz

Irma Bailon, extensionista

Carla Sarceno, extensionista

Maria Inocenta Lopez Domingo, extensionista, Huehuetenango

Elizabeth Yac, extensionista

Ello Palacios, Proyecto Agroforestal, Quezaltenango

Vinicio Ramirez, Coordinator Child Survival Project

Mario Lima, Chief Food for Work Project

Mario Barrios, Coordinator Food for Work Projects/ Alimentos por Trabajo

Carlos Gonzalez, Coordinator Communal Banks Project/ Bancos Comunales

#### **AID Guatemala**

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Alfredo Zarata

Marco Tulio Lopez

#### **CARE Peru**

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#### **Other Institutions and Persons**

Julio Xocon, UNEPAR/CARE

Blanca Camposeco, UNEPAR

Ana Judith, UNEPAR

Roberto, UNEPAR

Rafael Morales, education consultant

### **Communities**

**Members of the Water Committee Cheoi. Subinal. San Marcos (5)**

**Nicolasa Verdugo Perez. water promoter Cheoi**

**Bonifacio Francisco Mejia, first fontanero**

**Moises Morales Bartolon, third fontanero**

**(note: promoters and fontaneros are members of the Water Committees. so we really met with 8 committee members in this case, but the promoter and fontanero are singled out as informants)**

**Members of the Water Committee Agua Tibia, Comitancillo, San Marcos (4)**

**Maria Natalia Lopez Marroquin, water promoter Agua Tibia**

**Teresa Feliciano, water promoter Agua Tibia**

**Fidelia Lopez, water promoter Agua Tibia**

**Leonel Ramirez, fontanero**

**Members of the Water Committee Santa Isabel, San Juan Atitan, Huehuetenango (5)**

**2 promoters**

**Juan Funes Perez, fontanero Santa Isabel**

### **Summary of Field Activities**

**This work was carried out from January 30 through February 12. The itinerary is summarized below:**

- January 30-31** Planning and orientation meetings with CARE staff and A.I.D. Clarified objectives and carried out document review and interviews with staff. Began the process of reviewing and refining indicators with CARE staff.
- February 2-7** Field visits in Quetzaltenango. During this week we made two fact finding visits to communities served by the projects, designed a baselines survey instrument and monitoring instrument, and tested the instruments in two communities. Developed monitoring framework.
- February 8-10** Revised instruments and prepared a one day seminar to orient CARE staff about the new monitoring system.
- February 11** Carried out one-day seminar on Program Monitoring and Improvement in Quetzaltenango.
- February 12** Held de-briefing at A.I.D.

## Appendix C

# GOALS AND INDICATORS OF THE RURAL WATER AND HEALTH PROJECT

### *Overall Objective:*

By June 1993, 22 rural communities in the Occidente region of Guatemala, with a combined population of 11,000 people, will be skilled in the independent use and proper maintenance of potable water systems, latrines, and a health promotion program, making a positive impact on the health of their communities.

### **Health Impact**

#### ■ *Goal*

The prevalence of diarrhea in children age 5 and under in the 22 communities served will be reduced by 30 percent by June 1993.

#### ■ *Indicators*

- percentage of children age 5 and under with diarrhea in the last two weeks
- percentage of children 5 and under who have diarrhea at the time of the survey (baseline and final)<sup>1</sup>
- Number of deaths due to diarrhea

### **Health Knowledge**

#### ■ *Goal*

By June 1993, 80 percent of mothers will have basic knowledge of personal and domestic hygiene, appropriate use and maintenance of latrine, and appropriate use of ORT.

#### ■ *Indicators*

Personal and Domestic Hygiene

---

<sup>1</sup> Example of how to operationalize indicators: If there are 2,000 children under 5 in the population of 11,000, and if 700 of these children have had diarrhea during the last two weeks at the time of the baseline survey, we would expect the number of children with diarrhea in the last two weeks to decrease to at least 490 by the end of the project with a 30 percent reduction.

- percentage of mothers who can name at least three measures to prevent diarrheal disease
- percentage of mothers who can name at least two situations in which it is important to wash their hands

#### Appropriate Use of Latrine

- percentage of mothers who can name at least two things that they can do to prevent the latrine from smelling bad

#### Use of ORS

- percentage of mothers who recognize an ORS packet
- percentage of mothers who can explain what ORS is used for
- percentage of mothers who can name the ingredients and quantities needed to make *suero casero* (home remedy)

### **Health Behaviors**

#### ■ *Goal*

By June 1993, basic health practices in personal and domestic hygiene, appropriate use and maintenance of latrine, and appropriate use of ORT (including *suero casero*) will be in place in 60 percent of households.

#### ■ *Indicators*

##### Personal and Domestic Hygiene

- percentage of households where food is kept covered
- percentage of households where stored water is kept covered
- percentage of households that are free of human and animal feces (including patio)
- percentage of households in which all animals are kept out of the house
- percentage of households in which all animals are tied or penned (excluding dogs and cats)
- percentage of households which are free of trash (including patio)
- percentage of mothers who have visibly clean hands at the time of the interview
- percentage of mothers who can demonstrate effective hand-washing (running water, soap, dry with clean cloth or in air)

- percentage of children age 5 and under with visibly clean hands and face (to be defined as behavioral indicator)

#### Appropriate Use and Maintenance of Latrine

- percentage of latrines that have door closed at the time of observation
- percentage of latrines that are covered at the time of observation
- percentage of latrines which are free of feces and cleaning materials on the floor or outside of the latrine
- percentage of latrines that show signs of use (dust or footprints, stains on the inside of the seat, signs of wear on the seat, etc.)
- percentage of latrines that are free of bad odor
- percentage of children ages 3 to 5 that can demonstrate how to use the latrine or a sanitary alternative

#### Appropriate Oral Rehydration Therapy

- percentage of mothers who have ever tried ORS
- percentage of mothers who have ever tried suero casero
- percentage of mothers who used ORS during the last diarrhea episode in children under age 5
- percentage of mothers who used suero casero during the last diarrhea episode in children under age 5
- percentage of mothers who can demonstrate correct preparation of ORS (measures a liter of water, uses the whole package of salts, stirs, does not add anything else)
- percentage of mothers who can demonstrate correct preparation of suero casero (1 liter water, 8 teaspoons sugar, 1 teaspoon salt or equivalent)
- percentage of mothers who say they would continue feeding during diarrhea
- percentage of breastfeeding mothers who say they would continue breastfeeding during diarrhea
- percentage of communities that have a functioning ORT center

### **Project Outputs and Sustainability**

#### ■ Goal

By April 1993, in all 22 communities there will be a potable water system, approximately 100 household latrines (total number of latrines will range from 800-1000), a water committee, two

*fontaneros* (plumbers), and at least one health promotor for every sector of the community that has more than 40 households. The water system will provide a minimum of 60 liters of clean water per person per day.

■ *Indicators*

Water Systems

- number of communities with new water systems
- percentage of water systems which provide a minimum average of 60 liters of clean water per person per day
- percentage of water systems that show evidence of appropriate maintenance (to be defined)
- percentage of households that have a tap
- percentage of taps that provide running water at the time of the observation
- percentage of mothers who report having a steady supply of water during the last two weeks
- percentage households that have a drain

Latrines

- number of latrines built
- percentage of households that have latrines
- percentage of latrines that are constructed according to program specifications (depth, distance from house, see manual)
- percentage of latrines that have doors
- percentage of latrines that have roofs
- percentage of latrines that have sturdy walls

Water Committees

- number of communities that have a water committee
- percentage of water committees that have completed training in administration, operations, and management
- percentage of water committees that include the health promoters as members
- percentage of water committee members who have served for more than one year

- percentage of committees that have defined the monthly fee for water use
- percentage of households that have paid last month's water fee
- percentage of water committees that have a bank account
- percentage of water committees that maintain their accounting books in order (define)
- percentage of water committees that have had a meeting in the last 30 days
- percentage of committees that have a basic supply of tools and materials available for the repair and maintenance of the system (to be defined)
- percentage of water committees that describe what they would do if they had to replace or train a fontanero
- percentage of water committees that describe what they would do if they had to replace or train a health promoter
- percentage of committees that have replaced a fontanero, if necessary
- percentage of committees that have replaced a health promoter, if necessary

#### Fontaneros

- percentage of communities that have at least two fontaneros
- percentage of fontaneros who have successfully repaired part of the water system at least once
- percentage of fontaneros who have been unable to successfully repair a water system malfunction
- percentage of fontaneros who receive payment for their services
- percentage of fontaneros who say that they are willing to serve for at least one more year as a fontanero
- percentage of fontaneros who say that they would be willing to train a replacement
- percentage of fontaneros who are satisfied with their jobs
- percentage of fontaneros who have an instructional guide or checklist for the routine maintenance of the water system
- percentage of fontaneros who can name a health promoter from the Ministry of Health

#### Health Promoters

- percentage of communities that have at least one promoter for every sector of the community with more than 40 households

- percentage of mothers who know at least one promoter
- percentage of households that have been visited by a promoter during the last month
- percentage of mothers who have been to at least one educational session
- percentage of mothers who have been to an educational session during the previous month
- percentage of mothers who say that the promoter has talked to them about ORS
- percentage of mothers who say that the promoter has talked to them about suero casero
- percentage of mothers who say that the promoter has helped them to prepare suero or ORS when one of their children had diarrhea
- percentage of promoters that receive payment for their services
- percentage of promoters who say that they are willing to serve for at least one more year as a promoter
- percentage of promoters who say that they would be willing to train a replacement
- percentage of promoters who feel capable of training another person to be a promoter
- percentage of promoters who are satisfied with their jobs
- percentage of promoters who have an instructional guide or checklist for use during household visits
- percentage of health promoters who can name at least one fontanero
- percentage of health promoters who can name a health promoter from the Ministry of Health
- percentage of promoters who can name at least three things that a promoter does

#### Reforestation

- percentage of communities that have a tap designated to provide water to a vivero (nursery)
- percentage of communities in which the vivero is in use
- percentage of communities that have planted a minimum of 100 trees in the area around the water source



## **Preliminary Draft Indicators for Water System Maintenance**

### **Tasks of the Plumber**

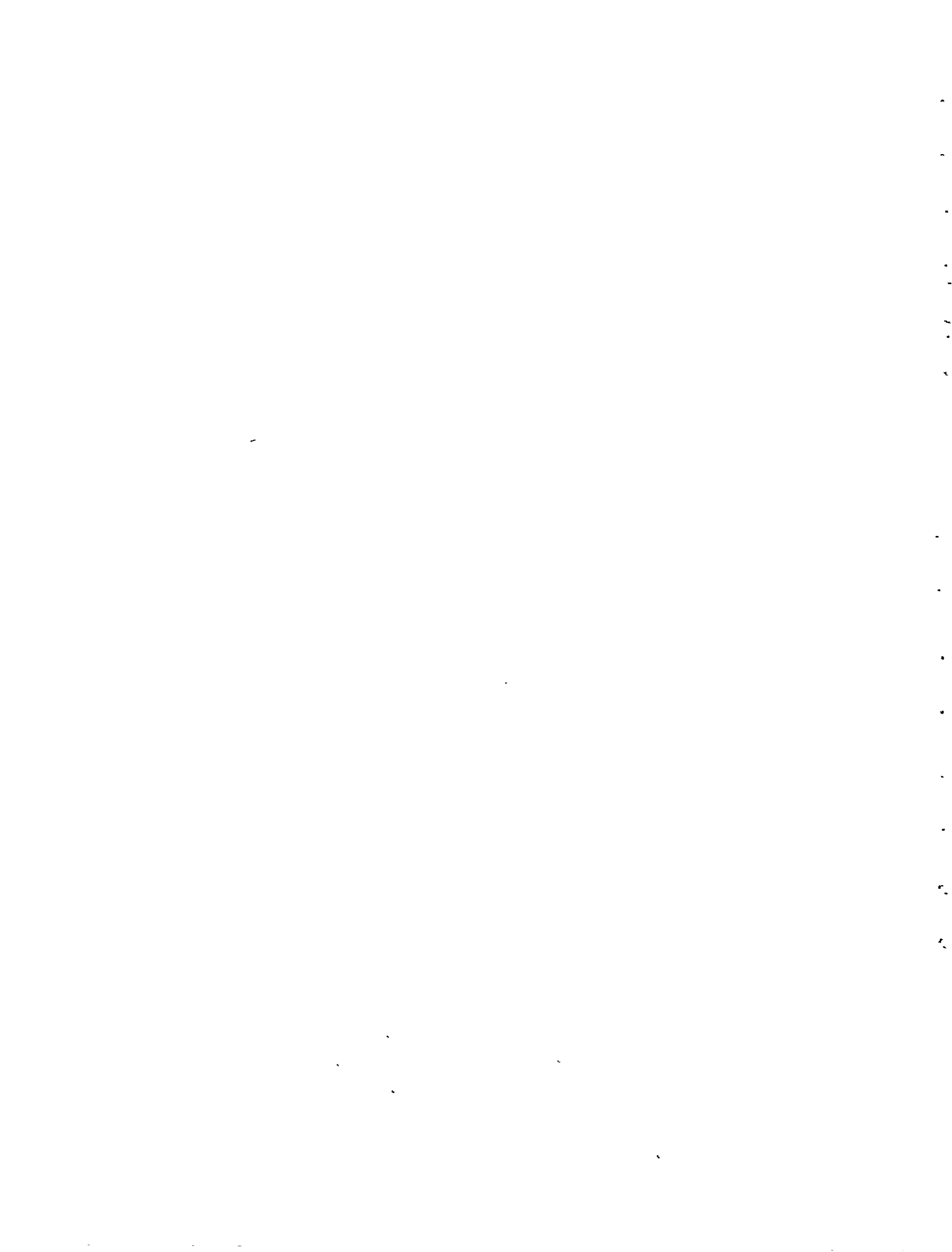
For each of the following tasks, find the appropriate drawing and describe in a pamphlet the most important steps.

- **Catchment**
  - Clean the catchment tank
  - Inspect the fence
  - Inspect the ditch
  - Look for seepage
  - Inspect the vegetation
  
- **Catchment gauging**
  - Perform the gauging (time it takes to fill the bucket)
  - Record data in "registry sheet"
  
- **Pipeline**
  - Walk the line
  - Clean the line
  - Look for leaks or seepage
  - Look for unplugged pipes
  
- **Flow collection box (junction box)**
  - Perform cleaning
  
- **Boxes**
  - Perform cleaning
  - Oil valves
  - Oil and protect padlocks

- **Distribution tank**
  - **Perform cleaning**
  - **Inspect ditch**
  - **Look for seepage**
  - **Inspect overflow**
  - **Inspect vegetation**
  - **Do vegetation**
  - **Perform gauging**
  - **Record gauging data in “registry sheet”**
  
- **Distribution line**
  - **Walk line**
  - **Clean line**
  - **Look for leaks or seepage**
  - **Look for unplugged pipes**
  - **Control the use of water**
  - **Inspect taps**
  - **Inspect drainage mechanisms for running water (sumps)**

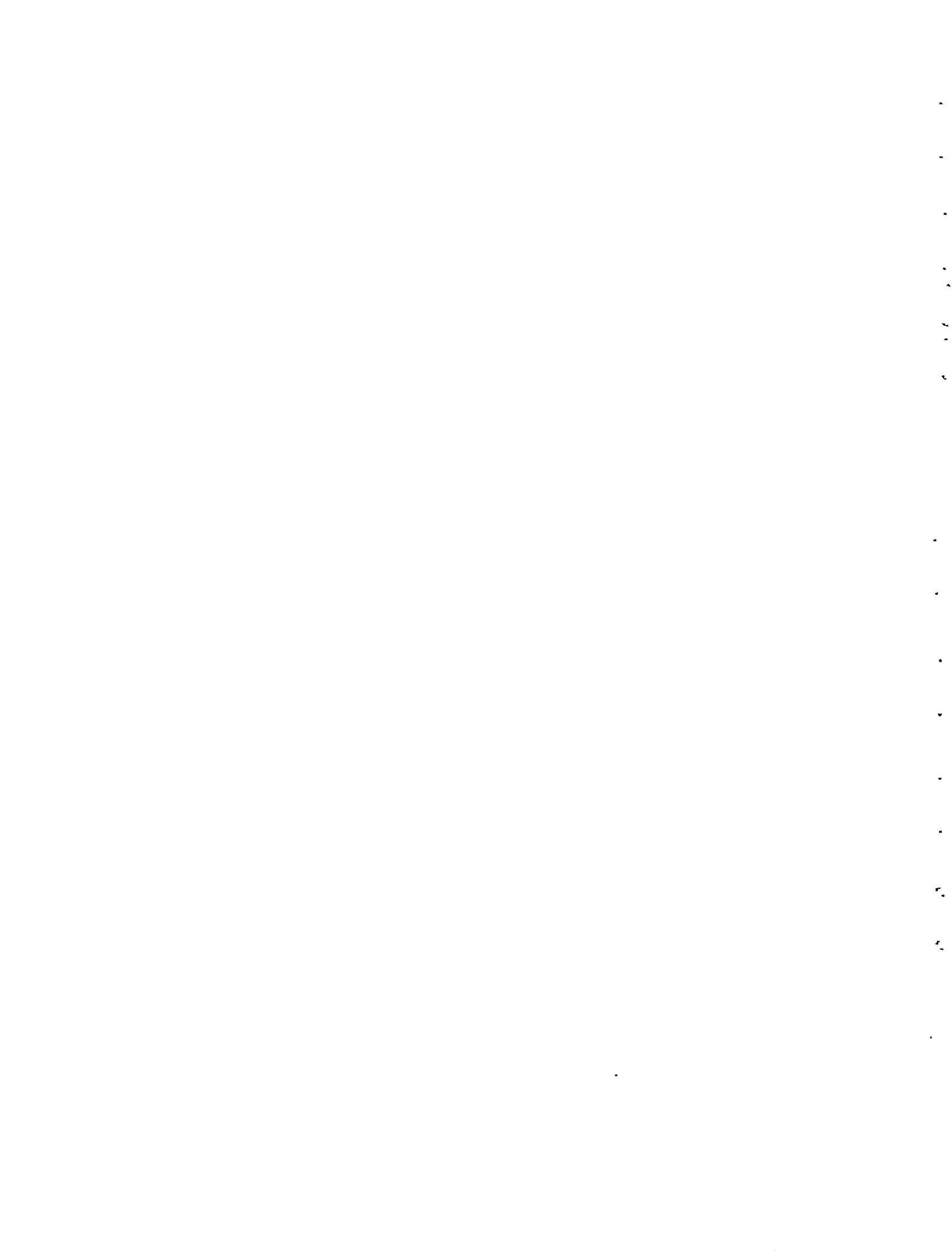
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**Instrument 1**

**BASELINE SURVEY INSTRUCTIONS, HOUSEHOLD QUESTIONNAIRE**



**Rural Water and Health Project  
Baseline Survey  
Instructions**

**Purpose**

This instrument has a dual purpose: a) to gather census data on the population residing in the communities participating in the project, and b) to gather information on some of the knowledge, attitudes and practices of families with regard to personal and domestic hygiene and oral rehydration therapy. The same instrument will be used at the completion of the project to measure the achievements attained under the educational component.

**Methodology**

**Universe:** This instrument will be administered in all of the housing units included in the study. Preferably, the individual to be interviewed will be the mother of the family. When two or more families live in the same housing unit, it will be preferable to interview the youngest mother because it will be this mother who will be most likely to have children aged 5 years and younger.

**Technique:** Various information gathering techniques will be used for this survey. The survey interview (structured) technique will be used for most of the questions. For the section on demonstrations, both interview and observation techniques will be used. Lastly, for the section on observations, only the technique of observation will be used.

**Frequency:** The instrument will be administered at the beginning of the project and upon its completion.

**Personnel:** The extensionist will administer this survey.

**General Instructions**

■ This is a precoded, closed-end survey. This means that, generally speaking, for each question there are established response categories which are differentiated by means of a number or code. The extensionist should circle the code corresponding to the response provided by the individual interviewed and record it in the CODE column in the right-hand margin of the paper. For example:

14. Did you continue to breastfeed the child with diarrhea?     1  
    0. NO  
    1. YES  
    9. DOES NOT SUCKLE

■ In the few open-ended questions included in the instrument, the extensionist should record verbatim the answer provided by the person

interviewed. She should do likewise with regard to the OTHER response category when this category is followed by a line. For example:

32. (YES) What is the promoter's name? Nicolasa Pérez 1
- 0. NO (INCORRECT)
  - 1. YES (CORRECT)
  - 8. DOES NOT KNOW

■ When a word in parentheses precedes a question, it means that that question is conditioned on the preceding question. For example:

27. Where do you go to relieve yourself? 1
- 0. OUTSIDE PROCEED TO QUESTION 31
  - 1. LATRINE
  - 2. OTHER

28. (LATRINE) Do the children under age 3 always use the latrine? 0
- 0. NO
  - 1. YES

In the preceding example, question 28 is asked only of that respondent who indicates that she goes to the LATRINE to relieve herself. With regard to the respondents who answered OUTSIDE or OTHER, the interview continues with question 31, as indicated by the word PASE (proceed).

■ This form uses the convention that which is written in lower case text is what the extensionist asks the mother. Anything written in UPPER CASE TEXT represents instructions for the extensionist and response codes.

■ Knowing how to probe or delve deeper into the responses given by the individual interviewed constitutes an important technique. As a rule, in those questions in which the respondent is expected to give more than one response, it is necessary for the extensionist to probe in order to give the interviewee the best possible opportunity to respond. The probing should be neutral and impartial, by means of questions such as "Anything else?" For example:

13. The last time one of your children had diarrhea, what did you give him?

For this question, the extensionist should probe: "Did you give him anything else?" She should never suggest the responses.

■ With regard to observations, the extensionist will apply her senses (primarily sight and smell) to gather information. SEE INSTRUCTIONS FOR MONITORING INSTRUMENT. The codes for recording the results of the observation are always the same.

- 0. NO The condition described was not present at the time of the observation.



- |                   |   |
|-------------------|---|
| 1. YES            | The condition described was present at the time of the observation.   |
| 2. NOT OBSERVED   | For some reason, the condition described could not be observed.   |
| 9. DOES NOT APPLY | Observation is not required in this situation. For example, if a housing unit does not have a latrine, it will be impossible to observe whether the latrine is covered. |

### Specific Instructions

THESE CAN BE DEVELOPED BY THE EXTENSION ASSISTANT WITH THE AID OF THE EXTENSIONIST. AN EFFORT HAS BEEN MADE TO PROVIDE SPECIFIC INSTRUCTIONS FOR EACH QUESTION/OBSERVATION ITEM IN THE SURVEY. ONLY A FEW EXAMPLES ARE PROVIDED BELOW.

**Community.** The name of the community is recorded and assigned an identification number. The identification number is recorded in the CODE column in the right-hand margin of the paper. That particular community will always be identified on all forms by means of that number.

**Extensionist.** The extensionist writes her name. She records her identification number in the CODE column in the right-hand margin of the paper. She will always be identified on all forms by means of that number.

**1. What is the name of the head of the family?**

In this question, after the extensionist has recorded the name of the person deemed to be the head of the family, the family is assigned an identification number, beginning with 001 for the first family and continuing in sequence with 002, 003, etc. This is the family identification number.

**10. Are you currently breastfeeding a child?**

The extensionist asks if the individual interviewed (generally the mother) is breastfeeding a child. The response is codified as follows:

- 0. NO She is not breastfeeding now
- 1. YES She is breastfeeding now
- 9. DOES NOT APPLY The person interviewed is not the mother

**13. The last time one of your children had diarrhea, what did you give him?**

The question refers to the last case of diarrhea in children 5 years of age and younger in the family. The extensionist will circle the response code or codes provided by the interviewee and will record it (them) in the CODE column. The extensionist should probe: "Did you give him anything else?" The response codes are as follows:

- |    |                             |  |
|----|-----------------------------|--|
| 0. | NOTHING                     | Nothing at all was given to the child with diarrhea.   |
| 1. | HERBAL REMEDIES             | This refers to home remedies such as tea made with mint, basil, camomile, <i>pericón</i> .   |
| 2. | PHARMACY REMEDIES           | Refers to medicines or drugs which are purchased, for example, antacids, antidiarrheal medication, antibiotics, analgesics, antiparasitics, sulfas, etc. |
| 3. | HOME MADE ORAL SOLUTION     |  |
| 4. | ORAL SOLUTION FROM A PACKET | Oral rehydration salts.  |
| 5. | OTHER                       | Any other response.  |

**14. Did you continue to breastfeed the child with diarrhea?**

This question refers to whether, during the most recent case of diarrhea, the mother continued to breastfeed the sick child. The response is codified as follows:

- 0. NO She did not continue to breastfeed the child
- 1. YES She did continue to breastfeed the child
- 9. DOES NOT SUCKLE The child no longer takes the breast, does not suckle, has been weaned.

**15. (DOES NOT SUCKLE) Do you continue to breastfeed a child who does take the breast when he has diarrhea?**

This question is asked only when the response to question 14 is that the child who was ill does not suckle. The question is hypothetical and attempts to determine what the mother would do in that situation. The response codes are as follows:

- 0. NO She would not continue to breastfeed the child
- 1. YES She would continue to breastfeed the child
- 8. DOES NOT KNOW She does not know whether she would continue to breastfeed or not in that situation.

**22. (YES) What is used to prepare the homemade solution?**

This question is asked only when the response to question 21 is "YES". Using the codes, the extensionist will indicate whether the mother mentions each ingredient.

- 0. DOES NOT MENTION
- 1. DOES MENTION

For each of the ingredients water, sugar and salt, the extensionist will record whether the mother mentioned that ingredient or not. If the mother mentions another ingredient (for example, orange juice), the extensionist will record the answer in

d) 1

37. *Señora*, could you please show me how you usually wash your hands.

This question requires the mother to perform a concrete action: wash her hands. The mother's response is recorded as follows:

- 0. NO For some reason, the mother does not wish to wash her hands (for example, because she is ill). To the extent possible, the extensionist should insist that the mother demonstrate her hand washing technique.
- 1. YES The mother agrees to wash her hands.

38. CODES 0. NO 1. YES

These are the codes which the extensionist will use to record her observation. For each item, there must be a code, as follows:

a) Uses running water

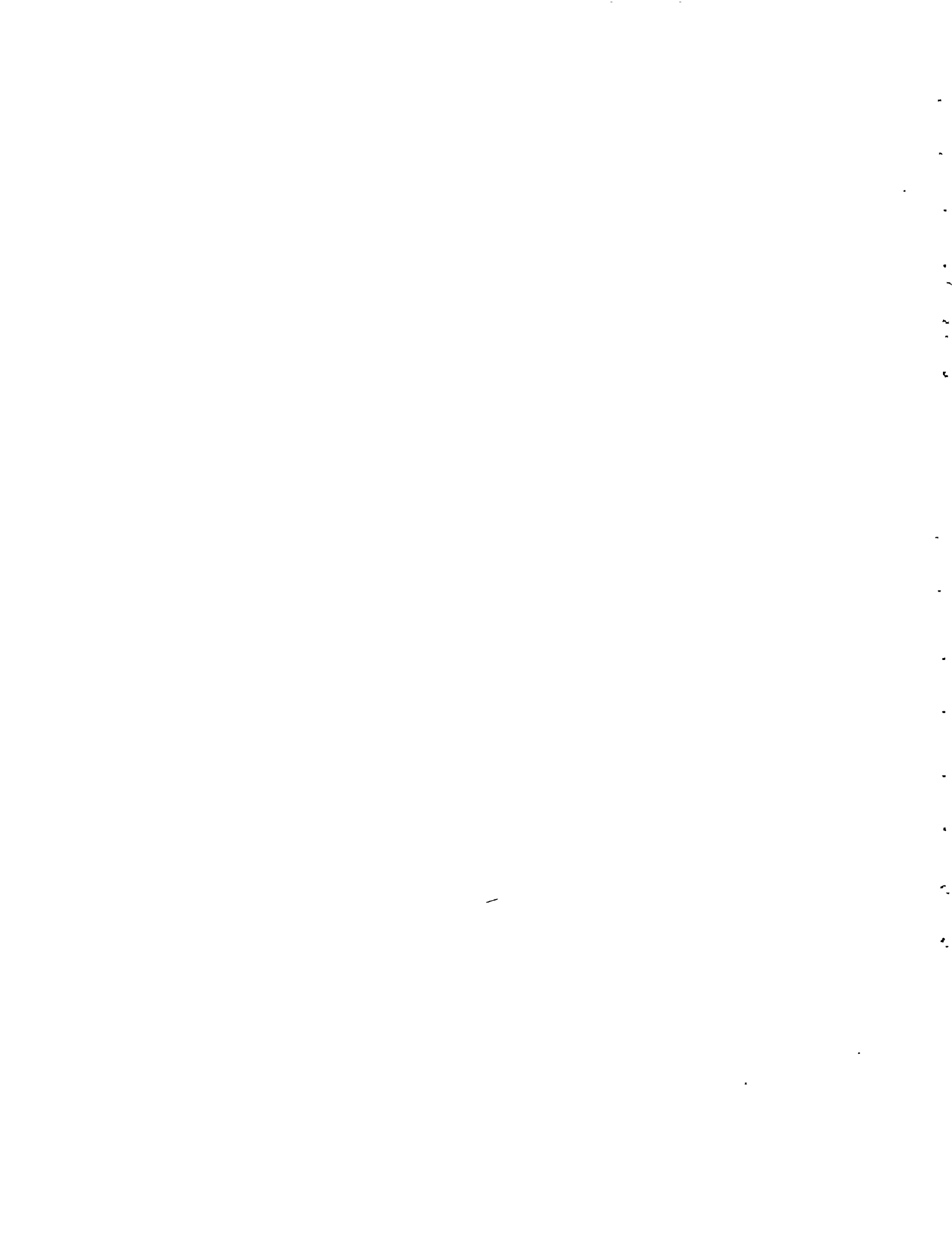
- 0. NO Does not use running water (perhaps she places her hands in a container)
- 1. YES Does use running water, whether from the tap or some container

b) Uses soap or ashes

- 0. NO Does not use soap or ashes
- 1. YES Does use soap or ashes to wash her hands

c) Uses a clean rag or air dries her hands

- 0. NO Does not use a clean rag to dry her hands nor does she air dry them (perhaps she dries them on a dirty apron)
- 1. YES Does use a clean rag to dry her hands nor does she air dry them



Rural Water and Health Project  
Baseline Study  
Household

CODE

Community: \_\_\_\_\_

Extensionist: \_\_\_\_\_

Date of Interview: \_\_\_/\_\_\_/\_\_\_

**A: CENSUS**

1. What is the name of the head of the family:

\_\_\_\_\_

2. What is the name of the person being interviewed:

\_\_\_\_\_

3. The person being interviewed is

1. MOTHER

2. OTHER

4. How many people live in the house?

5. How many families live in the house?

6. How many mothers live in the house?

7. How many children between 0 and 3 years of age live in the house?

8. How many children between 4 and 5 years of age live in the house?

9. How many children age 5 years and younger have died in your family?

10. Are you currently breastfeeding a child?

0. NO

1. YES

9. DOES NOT APPLY

**B. MORBIDITY**

11. How many of the children age 5 years and younger had diarrhea during the past two weeks?

12. How many of the children age 5 years and younger have diarrhea today? \_\_\_\_\_
13. The last time one of your children had diarrhea, what did you give him? \_\_\_\_\_
- 0. NOTHING \_\_\_\_\_
  - 1. HERBAL REMEDY \_\_\_\_\_
  - 2. PHARMACY REMEDY \_\_\_\_\_
  - 3. HOMEMADE SOLUTION \_\_\_\_\_
  - 4. ORAL SOLUTION FROM A PACKET \_\_\_\_\_
  - 5. OTHER \_\_\_\_\_
14. Did you continue to breastfeed the child with diarrhea? \_\_\_\_\_
- 0. NO \_\_\_\_\_
  - 1. YES \_\_\_\_\_
  - 9. DOES NOT SUCKLE \_\_\_\_\_
15. (DOES NOT SUCKLE) Do you continue to breastfeed a child who does take the breast when he has diarrhea? \_\_\_\_\_
- 0. NO \_\_\_\_\_
  - 1. YES \_\_\_\_\_
  - 8. DOES NOT KNOW \_\_\_\_\_
16. Did you continue to feed the child with diarrhea? \_\_\_\_\_
- 0. NO \_\_\_\_\_
  - 1. YES \_\_\_\_\_
  - 9. DOES NOT EAT \_\_\_\_\_
17. (DOES NOT EAT) Do you continue to feed a child who has resumed eating when he has diarrhea? \_\_\_\_\_

**C. - ORAL SOLUTION (ORS AND HOMEMADE)**

18. Are you familiar with this? (SHOW ORS PACKET) \_\_\_\_\_
- 0. NO PROCEED TO QUESTION 21 \_\_\_\_\_
  - 1. YES \_\_\_\_\_
19. (YES) What is it used for? \_\_\_\_\_
- 1. DIARRHEA/DEHYDRATION \_\_\_\_\_
  - 2. OTHER \_\_\_\_\_
  - 8. DOES NOT KNOW \_\_\_\_\_
20. (YES) Have you ever used the solution in packets? \_\_\_\_\_
- 0. NO \_\_\_\_\_
  - 1. YES \_\_\_\_\_
21. Are you familiar with homemade solution? \_\_\_\_\_
- 0. NO \_\_\_\_\_
  - 1. YES \_\_\_\_\_

22. (YES) What is used to prepare the homemade solution?
0. DOES NOT MENTION      1. DOES MENTION
- a) WATER ..... a) \_\_\_\_\_
- b) SUGAR ..... b) \_\_\_\_\_
- c) SALT ..... c) \_\_\_\_\_
- d) OTHER ..... d) \_\_\_\_\_
23. What can be done to prevent diarrhea?
0. NOTHING \_\_\_\_\_
1. WASH ONE'S HANDS \_\_\_\_\_
2. USE THE LATRINE \_\_\_\_\_
3. COVER FOOD \_\_\_\_\_
4. COVER WATER \_\_\_\_\_
5. KEEP ANIMALS OUTSIDE \_\_\_\_\_
6. DISPOSE OF GARBAGE PROPERLY \_\_\_\_\_
7. OTHER \_\_\_\_\_
8. DOES NOT KNOW \_\_\_\_\_
24. When do we have to wash our hands?
1. BEFORE EATING \_\_\_\_\_
2. BEFORE COOKING \_\_\_\_\_
3. AFTER USING THE LATRINE \_\_\_\_\_
4. AFTER CHANGING DIAPERS \_\_\_\_\_
5. OTHER \_\_\_\_\_
8. DOES NOT KNOW \_\_\_\_\_
25. Where do you get your water for drinking and cooking?
1. NATURAL SPRING OR WELL \_\_\_\_\_
2. RIVER \_\_\_\_\_
3. OWN WELL \_\_\_\_\_
4. FILLS JARS \_\_\_\_\_
5. HOUSEHOLD TAP \_\_\_\_\_
6. OTHER \_\_\_\_\_
26. (TAP) Have you had water at all times during the past two weeks?
0. NO \_\_\_\_\_
1. YES \_\_\_\_\_
27. Where do you go to relieve yourself?
1. OUTSIDE      PROCEED TO QUESTION 31 \_\_\_\_\_
2. LATRINE \_\_\_\_\_
3. OTHER \_\_\_\_\_
28. (LATRINE) Do the children under age 3 years always use the latrine?
0. NO \_\_\_\_\_
1. YES \_\_\_\_\_

29. (LATRINE) Do the children between ages 3 and 5 years always use the latrine? \_\_\_\_\_  
 0. NO  
 1. YES
30. (LATRINE) What can be done to prevent the foul odor in the latrine? \_\_\_\_\_  
 0. NOTHING \_\_\_\_\_  
 1. KEEP IT COVERED \_\_\_\_\_  
 2. COVER WITH MANURE \_\_\_\_\_  
 3. WASH IT \_\_\_\_\_  
 4. OTHER \_\_\_\_\_  
 8. DOES NOT KNOW \_\_\_\_\_

**D. RURAL WATER AND HEALTH PROJECT**

31. Do you know the promoter from the water project? \_\_\_\_\_  
 0. NO PROCEED TO DEMONSTRATIONS \_\_\_\_\_  
 1. YES \_\_\_\_\_
32. (YES) What is the promoter's name? \_\_\_\_\_  
 0. NO (INCORRECT) \_\_\_\_\_  
 1. YES (CORRECT) \_\_\_\_\_  
 8. DOES NOT KNOW \_\_\_\_\_
33. In the past four weeks/month, has the promoter visited you? \_\_\_\_\_  
 0. NO \_\_\_\_\_  
 1. YES \_\_\_\_\_
34. Have you ever attended a meeting at the invitation of the promoter? \_\_\_\_\_  
 0. NO \_\_\_\_\_  
 1. YES \_\_\_\_\_
35. During the past four weeks/month, have you attended a meeting at the invitation of the promoter? \_\_\_\_\_  
 0. NO \_\_\_\_\_  
 1. YES \_\_\_\_\_
36. Has the promoter ever helped you to prepare homemade oral solution or solution from a packet? \_\_\_\_\_  
 0. NO \_\_\_\_\_  
 1. HOMEMADE SOLUTION \_\_\_\_\_  
 2. SOLUTION FROM A PACKET \_\_\_\_\_



E. DEMONSTRATIONS  
ASKING AND OBSERVING

FAMILY CODE .....

\_\_\_

37. *Señora*, could you please show me how you usually wash your hands?

\_\_\_

- 0. NO
- 1. YES

38. CODES 0. NO 1. YES

- (YES) a) USES RUNNING WATER ..... a)
- b) USES SOAP OR ASHES ..... b)
- c) USES A CLEAN RAG OR AIR DRIES HER HANDS ..... c)

\_\_\_  
\_\_\_  
\_\_\_

39. *Señora*, can you show me how you prepare this packet of oral solution?

\_\_\_

- 0. NO
- 1. YES
- 9. DOES NOT APPLY

40. CODES 0. NO 1. YES

- (YES) a) MEASURES ONE LITER OF WATER ..... a)
- b) USES SOAP OR ASHES ..... b)
- c) USES A CLEAN RAG OR AIR DRIES HER HANDS ..... c)
- d) OTHER \_\_\_\_\_ d)

\_\_\_  
\_\_\_  
\_\_\_  
\_\_\_

1. CORRECT 2. INCORRECT 3. DANGEROUS

\_\_\_

41. *Señora*, can you show me how you prepare homemade solution?

\_\_\_

- 0. NO
- 1. YES
- 9. DOES NOT APPLY

42. CODES 0. NO 1. YES / 1. TABLESPOONS 2. TEASPOONS

- 43. (YES) a) MEASURES ONE LITER OF WATER ..... a)
- b) SUGAR ..... b)
- c) SALT ..... c)
- d) OTHER \_\_\_\_\_ d)

\_\_\_  
\_\_\_  
\_\_\_  
\_\_\_

1. CORRECT 2. INCORRECT 3. DANGEROUS

\_\_\_

44. *Señora*, can you ask your child aged 3 to 5 years to show me how he uses the latrine? \_\_\_\_\_  
 0. NO  
 1. YES  
 9. DOES NOT APPLY

45. (YES) Does the child use it with ease? \_\_\_\_\_  
 0. NO  
 1. YES

OBSERVATIONS

FAMILY CODE ..... \_\_\_\_\_

OBSERVATION CODE  
 0. NO  
 1. YES  
 2. WAS NOT OBSERVED  
 9. DOES NOT APPLY

HOUSE

1. Is food covered? \_\_\_\_\_

2. Is water which is stored inside the house covered? \_\_\_\_\_

3. Is the ground in the house and yard clean and free of poo-poo/excrement? \_\_\_\_\_

4. Is the ground in the house and yard clean and free of garbage? \_\_\_\_\_

5. Are the animals outside the house? \_\_\_\_\_

6. Are the animals tied or penned up? \_\_\_\_\_

7. Are the mother's hands visibly clean? \_\_\_\_\_

LATRINE

8. Does the house have a latrine? \_\_\_\_\_

9. Is the latrine enclosed in an outhouse (walls)? \_\_\_\_\_

10. Does the latrine have a roof? \_\_\_\_\_

11. Does the latrine have a door? \_\_\_\_\_

12. Is the door to the latrine closed? \_\_\_\_\_

13. Is the latrine (bowl) covered? \_\_\_\_\_

14. Is the latrine clean (free of cleaning materials and feces)? \_\_\_\_\_

15. Does the latrine show signs of use? \_\_\_\_\_
- discolored bowl
  - worn bowl
  - some odor
  - floorboard soiled with dirt
  - cleaning materials
16. Does the latrine have a moderate odor (no strong odor)? \_\_\_\_\_
- TAP
17. Does the house have a water tap in the yard? \_\_\_\_\_
18. Does water flow from the tap at this time? \_\_\_\_\_
19. Does the tap faucet shut off tightly (does not drip)? \_\_\_\_\_
20. Once drawn, does the water drain well (no puddles, no mud)? \_\_\_\_\_

CONSTRUCTION MATERIALS FOR THE HOUSE

21. Roof \_\_\_\_\_
- 1. STRAW
  - 2. TILES
  - 3. ROOFING SHEETS
  - 4. OTHER \_\_\_\_\_
22. Walls \_\_\_\_\_
- 1. CANE
  - 2. WATTLE AND DAUB
  - 3. ADOBE
  - 4. BLOCK
  - 5. OTHER \_\_\_\_\_
23. Floor \_\_\_\_\_
- 1. EARTHEN
  - 2. CEMENT
  - 3. OTHER \_\_\_\_\_
24. Is the kitchen separate? \_\_\_\_\_
- 0. NO
  - 1. YES

OTHER OBSERVATIONS

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## Instrument 2

### NARRATIVE REPORT ON EXTERNAL CONDITIONS

Community: \_\_\_\_\_

Extensionist: \_\_\_\_\_

Dates: \_\_\_\_/\_\_\_\_/\_\_\_\_    \_\_\_\_/\_\_\_\_/\_\_\_\_    \_\_\_\_/\_\_\_\_/\_\_\_\_

Quarterly, or whenever necessary, the extensionist will prepare a written account of ecological, political, demographic, health, socio-economic and cultural factors of importance to the community in order to update the initial assessment. These are factors which are extraneous to the project but which may influence its results. Accordingly, they must be identified. The following guide suggests a few subjects, but each extensionist must include what she considers appropriate and important in each case.

The extensionist may record her notes in her notebook.

Political changes (in the office of the auxiliary mayor, for example)

Changes in the Water Committee

Conflicts (in the community, between groups, between individuals)

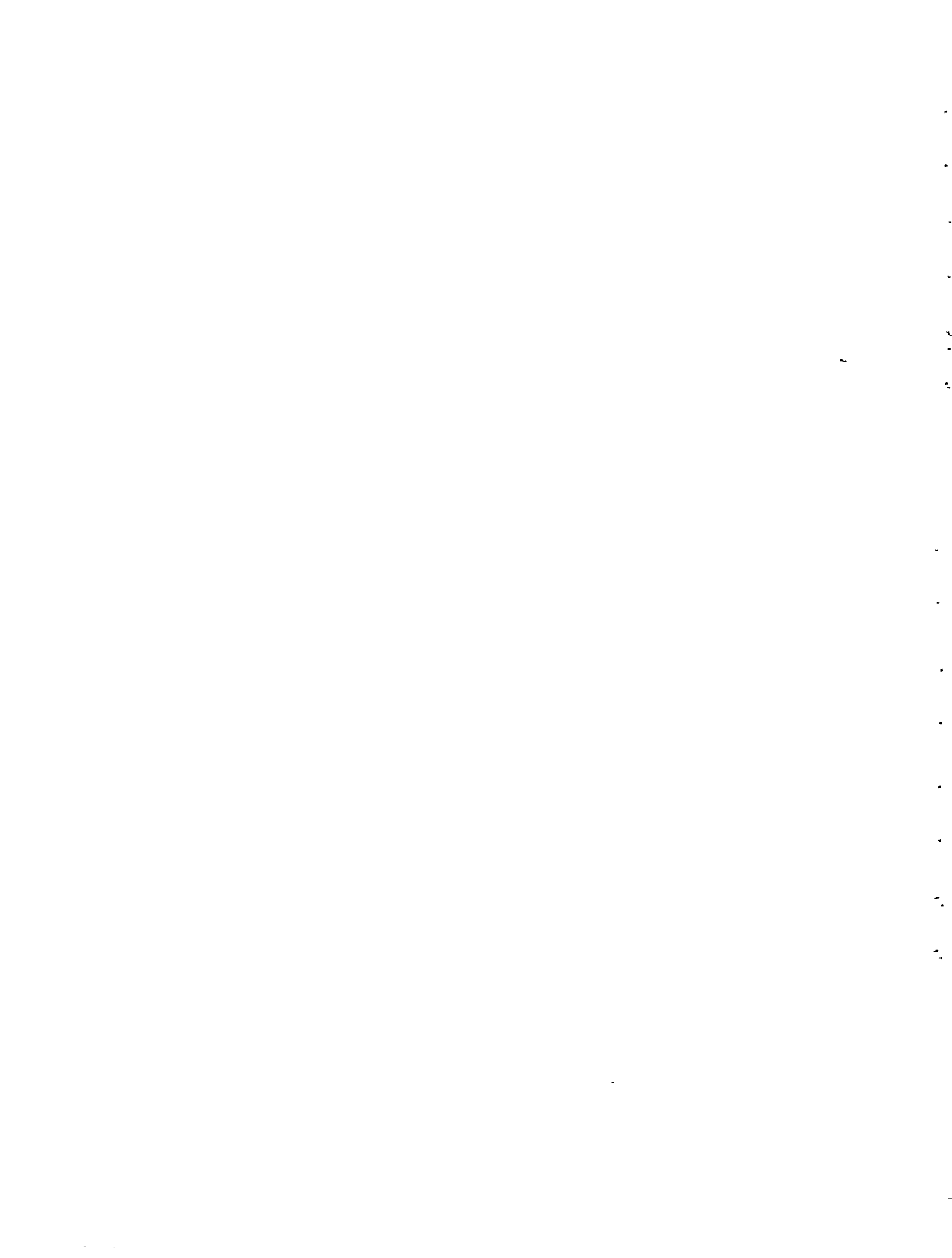
Legal matters (ownership of the source or right of way which might delay project implementation)

Migration

Epidemics (for example, measles, cholera)

Weather factors (drought, flooding)

Economy (new sources of employment, inflation)



### **Instrument 3**

#### **MONITORING CHECKLIST: INSTRUCTIONS FOR USING INTERVIEW QUESTIONS (EXTENSIONIST) AND THE PICTORIAL MONITORING CHECKLIST (PROMOTER)**

##### **Purpose**

The purpose of this instrument is to enable the extensionist to monitor or follow up on the progress of the Rural Water and Health Project by gathering information on certain key indicators. She will use the information gathered to discuss progress with the promoter and improve her action plan.

##### **Methodology**

**Sample:** The sample for the application of this instrument will be 19 housing units, each chosen randomly.

**Techniques:** The primary technique to be used by the extensionist to gather the information will be that of interviewing, together with direct observation.

**Frequency:** This monitoring instrument will be applied on a quarterly basis. However, it will be necessary to wait six (6) months following completion of the baseline study before the instrument can be administered for the first time.

**Personnel:** The extensionist, accompanied by the promoter, will be responsible for administering the instrument.

##### **General Instructions**

The interview will consist of two questions which must be exactly as they are written below, although for reasons of space, the instrument contains only words or phrases which will serve as reminders.

Observation requires certain additional explanations. To observe means to examine, with all of the senses, a given situation, object, or person in order to describe it in some way. In order to perform an appropriate observation, one must be very objective, i.e., impartial. One must also minimize to the extent possible the effect of the observer on what is being observed. Accordingly, it is necessary that one be discreet. In order to ensure discretion, it is advisable a) that the arrangement not attract attention, b) that the form used to record the observations not be visible to the family, and c) that the interviewer conceal the reason for the visit by conversing amicably with the mother while observing. It is often not possible to record the results of the observation while in the house being visited. In such a situation, the results must be recorded immediately after leaving the house so that this step will not be forgotten.

### Specific Instructions

THESE MUST BE WRITTEN BY THE ASSISTANT EXTENSIONIST WITH THE HELP OF THE EXTENSIONIST. AN ATTEMPT IS MADE TO EXPLAIN IN DETAIL EACH OF THE QUESTIONS AND OBSERVATION ITEMS.

### QUESTIONS

At the time of the visit, the extensionist should ask the following questions:

1. During the past two weeks/15 days, has any child in your family age 5 years or younger had diarrhea?
  0. NO
  1. YES
  
2. Does any child in your family age 5 years or younger have diarrhea today?
  0. NO
  1. YES

### OBSERVATIONS

At the time of the visit, the extensionist should make the following observations:

### OBSERVATION CODES

The codes used to record the results of the observation are always the same.

- |                     |   |
|---------------------|---|
| 0. NO               | The situation described is not present at the time of the visit. This "0" in all cases signifies a negative or "unhygienic" practice.   |
| 1. YES              | The situation described is that which is present at the time of the visit. The "1" in all cases signifies a hygienic practice.  |
| 2. WAS NOT OBSERVED | For some reason, the situation described could not be observed. For example, although she did everything possible, the extensionist was not able to observe whether the food in the kitchen was covered or not. |
| 9. DOES NOT APPLY   | There is no reason to observe the situation described. For example, if the  |



house has no latrine, there is no need to observe whether it is covered.

1. Is the food covered?

This refers to whether, at the time of the visit, the food in the kitchen is covered or not.

- |                     |   |
|---------------------|---|
| 0. NO               | The food is uncovered   |
| 1. YES              | The food is covered   |
| 2. WAS NOT OBSERVED | The extensionist was unable to observe whether or not there was covered food in the house at the time of the visit. |
| 9. DOES NOT APPLY   | The extensionist was able to observe that at that time of the visit there was no food in the house.                 |

2. Is water which is stored inside the house covered?

3. Is the ground in the house and yard clean and free of poo-poo/excrement?

4. Is the ground in the house and yard clean and free of garbage?

5. Are the animals outside the house?

6. Are the animals tied or penned up?

7. Are the mother's hands visibly clean?

8. Does the house have a latrine?

9. Is the latrine enclosed in an outhouse (walls)?

10. Does the latrine have a roof?

11. Does the latrine have a door?

12. Is the door to the latrine closed?

13. Is the latrine (bowl) covered?

14. Is the latrine clean (free of cleaning materials and feces)?

15. Does the latrine show signs of use?

- discolored bowl
- floorboard soiled with dirt
- cleaning materials
- bowl worn
- some odor

16. Does the latrine have a moderate odor (no strong odor)?
17. Does the house have a water tap in the yard?
18. Does water flow from the tap at this time?
19. Does the tap faucet shut off tightly (does not drip)?
20. Once drawn, does the water drain well (no puddles, no mud)?

#### **DEMONSTRATION**

The extensionist will ask the interviewee to please show her how she usually washes her hands.

21. Is the water running, whether from a container or the tap (without the mother immersing her hands in water)?
22. Does she use soap or ashes?
23. Does she dry her hands with a clean rag?

RURAL WATER AND HEALTH PROJECT  
MONITORING OF PRACTICES

Community: \_\_\_\_\_

Extensionist: \_\_\_\_\_

Dates: \_\_\_/\_\_\_/\_\_\_      \_\_\_/\_\_\_/\_\_\_      \_\_\_/\_\_\_/\_\_\_

OBSERVATION CODES:      0. NO  
                                 1. YES  
                                 2. WAS NOT OBSERVED  
                                 9. DOES NOT APPLY

Questions

Diarrhea 2 weeks

Diarrhea today

Observations

Food covered

Water covered

Ground clean  
(feces)

Ground clean  
(garbage)

Animals outside

Animals penned up

Hands clean

Latrine

Outhouse

Roof

Door

Closed

Covered

Clean (materials, feces)

Signs of use

Moderate  
odor

Tap

Water flowing

Shuts off tightly

Drains well

Demonstration

Running water

Soap or  
ashes

Clean rag

Demonstration





**Proyecto de Agua y Salud Rural  
Monitoreo Prácticas**










Comunidad: \_\_\_\_\_

Extensionista: \_\_\_\_\_









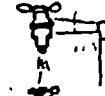
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CODIGOS DE OBSERVACION: 0. NO  
1. SI  
2. NO SE OBSERVO  
9. NO APLICA

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	S	N	
<b>Preguntas</b>																						
 Diarrea 2 semanas																						
 Diarrea hoy																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	S	N	U
<b>Observaciones</b>																						
 Comida tapada																						
 Agua tapada																						

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	S	N	U
 <b>Suelo limpio (heces)</b>																						
 <b>Suelo limpio (basura)</b>																						
 <b>Animales afuera</b>																						
 <b>Animales encerrados</b>																						
 <b>Manos limpias</b>																						
 <b>Letrina</b>																						
 <b>Caseta</b>																						
 <b>Techo</b>																						
 <b>Puerta</b>																						

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

 <b>Cerrada</b>																					
 <b>Tapada</b>																					
 <b>Limpia (materiales, heces)</b>																					
 <b>Evidencia uso</b>																					
 <b>Olor moderado</b>																					
 <b>Chorro</b>																					
 <b>Agua cal.</b>																					
 <b>Cierra bien</b>																					
 <b>Drena bien</b>																					





## **Instrument 4**

### **UPDATE OF COMMUNITY ASSESSMENT**

#### **Questions for Expanding the Community Health Assessment**

Listed below are several questions which will serve to expand the initial health assessment in the communities which are to participate in the new project.

To gather information, the extensionist should use qualitative techniques, such as informal conversation, in-depth interviews, participative observation, group discussion, etc.

#### **Reasons for Participating in the Water Project**

- Why do people wish to have water in their homes?
- How do they feel that water is going to help them?
- Why do some families not wish to participate?  
(explore reasons: distrust, lack of resources)

#### **Child Care**

- In addition to the mother, who participates in the care of young children?
- Can children be observed taking care of their younger siblings?
- What are the ages of the care-taking children and what are the ages of the children being cared for?
- What activities do the care-taking children perform with the younger children?

#### **Hand Washing**

- How do people, both adults and children, currently wash their hands?
- Do they use soap or not?
- If they do not, why not?
- Do they use ashes or some other substance to wash their hands?
- How do they dry their hands after washing them?
- At what times do people, both adults and children, wash their hands?
- How are the hands of young children washed?
- At what age do the children begin to wash their hands by themselves?

#### **Storage and Handling of Food**

- Is food covered when it is to be put away?
- If this is not done, why not?
- Do people think that it is possible to put away food which is covered?
- How? Where?

#### **Storage and Handling of Water**

- From where is water obtained?

- How far away is the source located?
- How much time does it take to get water, how many times per day?
- What is the water used for?
- Is water for different uses kept in different places?
- Is water kept inside the house? In what?
- What is it used for?
- Is that water covered?
- Why is the water covered or not covered?
- Do people think that it is possible to cover water inside?
- How?

### **Disposal of Excreta**

- Where do people, both adults and children, go to relieve themselves?
- What do they use to clean themselves?
- Do they wash their hands after defecating?
- If they have a latrine, do they use it or not?
- Who uses it, why is it not used?
- What do they like/not like about the latrine?
- Would they like to have a latrine? Why?

### **Domestic Animals**

- What domestic animals are there in the community?
- Where is each type of domestic animal kept?
- What do the people think about tying or penning up domestic animals?
- Do they think that it will be possible?
- Why or why not?

### **Health Resources**

- Where do people go with their health problems?
- Are there medicine men (women) in the community? Who are they?
- What illnesses do the medicine men or women treat?
- Are there midwives in the community? Who are they?
- Is there any store that sells medicine in the community?
- What type of medicine? Does it sell oral rehydration packets?
- How far away is the closest health post or health center?
- How much time does it take to reach it? What transportation is available?
- Is there a rural health promoter at the health post or health center?
- What are her activities?

**Instrument 5**

**CASE ANALYSIS OF CHILD DEATHS**

Community: \_\_\_\_\_

Extensionist: \_\_\_\_\_

Name of Dead Child: \_\_\_\_\_

Date of Death: \_\_\_\_\_

Sex of Child        1. MALE  
                      2. FEMALE

Please, before conducting this interview, express your condolences to the mother and explain to her the reason for your visit.

1. Age of the child at death (PERFORM CALCULATIONS): \_\_\_\_\_

2. Do both parents of the dead child live in the house? Who?  
0. NEITHER  
1. MOTHER ONLY  
2. FATHER ONLY  
3. BOTH

3. How long was the child sick before dying (IN MONTHS AND DAYS)?

4. How did his illness begin? How did it progress? (COURSE OF THE ILLNESS)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Did the child have diarrhea before dying?  
0. NO            PROCEED TO QUESTION 13  
1. YES

6. (YES) What remedies did you use?  
0. NONE  
1. HERBAL REMEDIES  
2. MEDICATIONS  
3. HOME MADE ORAL SOLUTION  
4. ORAL SOLUTION FROM A PACKET  
5. OTHER: \_\_\_\_\_

7. (YES) Did you take him anywhere for treatment? Anywhere else?
0. NOWHERE
  1. A PERSON WITH KNOWLEDGE
  2. MEDICINE MAN (WOMAN)
  3. MIDWIFE
  4. PHARMACY
  5. HEALTH CENTER OR HEALTH POST
  6. HOSPITAL
  7. PRIVATE PHYSICIAN
  8. OTHER: \_\_\_\_\_
8. (YES) Were you breastfeeding the sick child?
0. NO
  1. YES
9. (YES) Did you continue to breastfeed the sick child?
0. NO
  1. YES
10. (YES) Were you feeding the sick child?
0. NO
  1. YES
11. (YES) Did you continue to feed the sick child?
0. NO
  1. YES
12. Were you visited by the safe water promoter?
0. NO
  1. YES
13. Have any other of your children died?
0. NO
  1. YES
14. (YES) How many? \_\_\_\_\_
15. Are there any other children in your house under age 5 who are sick today?
0. NO
  1. YES

16. (YES) Does he have diarrhea?

- 0. NO
- 1. YES

IF THE CHILD HAS DIARRHEA, THE EXTENSIONIST SHOULD PROVIDE EDUCATION ON DIARRHEA MANAGEMENT AND ASSIST THE MOTHER IN PREPARING THE SOLUTION. MAKE SURE THAT THE MOTHER KNOWS HOW TO PREPARE THE SOLUTION BY OBSERVING HOW SHE DOES IT.

- a) MEASURES ONE LITER OF WATER
- b) POURS IN THE ENTIRE CONTENTS OF THE PACKET
- c) STIRS
- d) GIVES IT ALL TO THE CHILD

### OBSERVATIONS

#### OBSERVATION CODES

- 0. NO
- 1. YES
- 2. WAS NOT OBSERVED
- 9. DOES NOT APPLY

#### HOUSE

- 1. Is the food covered? \_\_\_\_\_
- 2. Is water which is stored inside covered? \_\_\_\_\_
- 3. Is the ground in the house and yard clean and free of poo-poo/excrement? \_\_\_\_\_
- 4. Is the ground in the house and yard clean and free of garbage? \_\_\_\_\_
- 5. Are the animals outside the house? \_\_\_\_\_
- 6. Are the animals tied or penned up? \_\_\_\_\_
- 7. Are the mother's hands visibly clean? \_\_\_\_\_

#### LATRINE

- 8. Does the house have a latrine? \_\_\_\_\_
- 9. Is the latrine enclosed in an outhouse (walls)? \_\_\_\_\_
- 10. Does the latrine have a roof? \_\_\_\_\_
- 11. Does the latrine have a door? \_\_\_\_\_
- 12. Is the door to the latrine closed? \_\_\_\_\_
- 13. Is the latrine (bowl) covered? \_\_\_\_\_

14. Is the latrine clean (free of cleaning materials and feces)?

—

15. Does the latrine show signs of use?

—

- discolored bowl
- worn bowl
- some odor
- floorboard with dirt
- cleaning materials

16. Does the latrine have a moderate odor (no strong odor)?

—

TAP

17. Does the house have a water tap in the yard?

—

18. Does water flow from the tap at this time?

—

OTHER OBSERVATIONS

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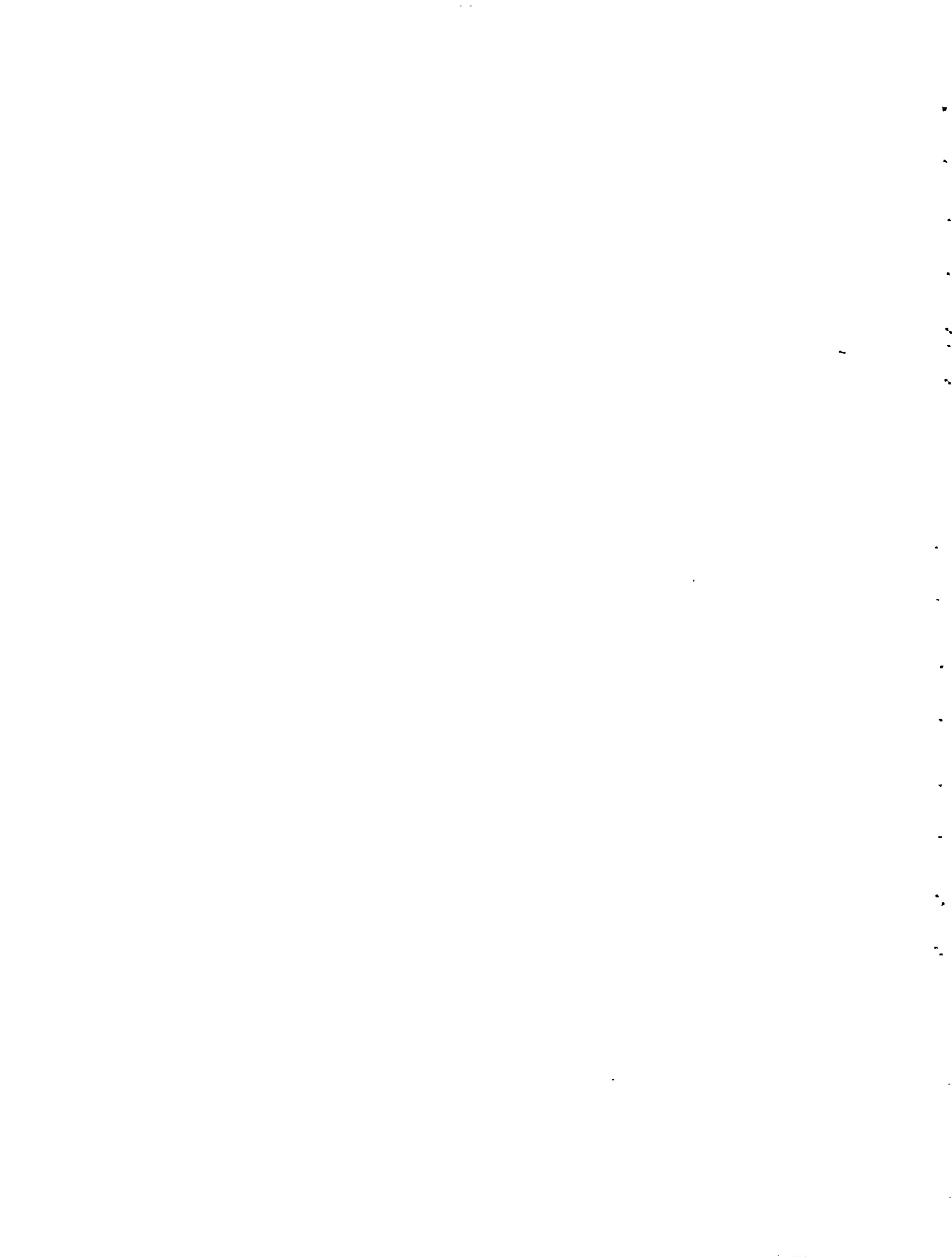
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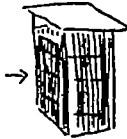










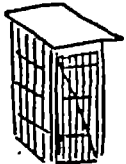



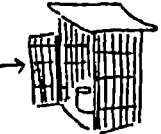
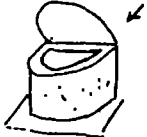

**Instrument 6**

**JOB AID FOR PROMOTER'S HOME VISIT  
(and HOW TO MAKE ORS)**

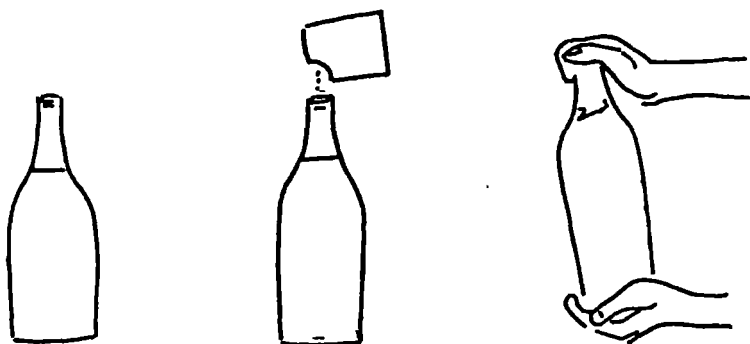




Comunidad: \_\_\_\_\_ Promotora: \_\_\_\_\_ Mes: \_\_\_\_\_

## Suero de sobre



## Suero de casa



4 cucharadas  
de azúcar



media cucharada  
de sal



1 litro de agua

## Pecho



## Comida

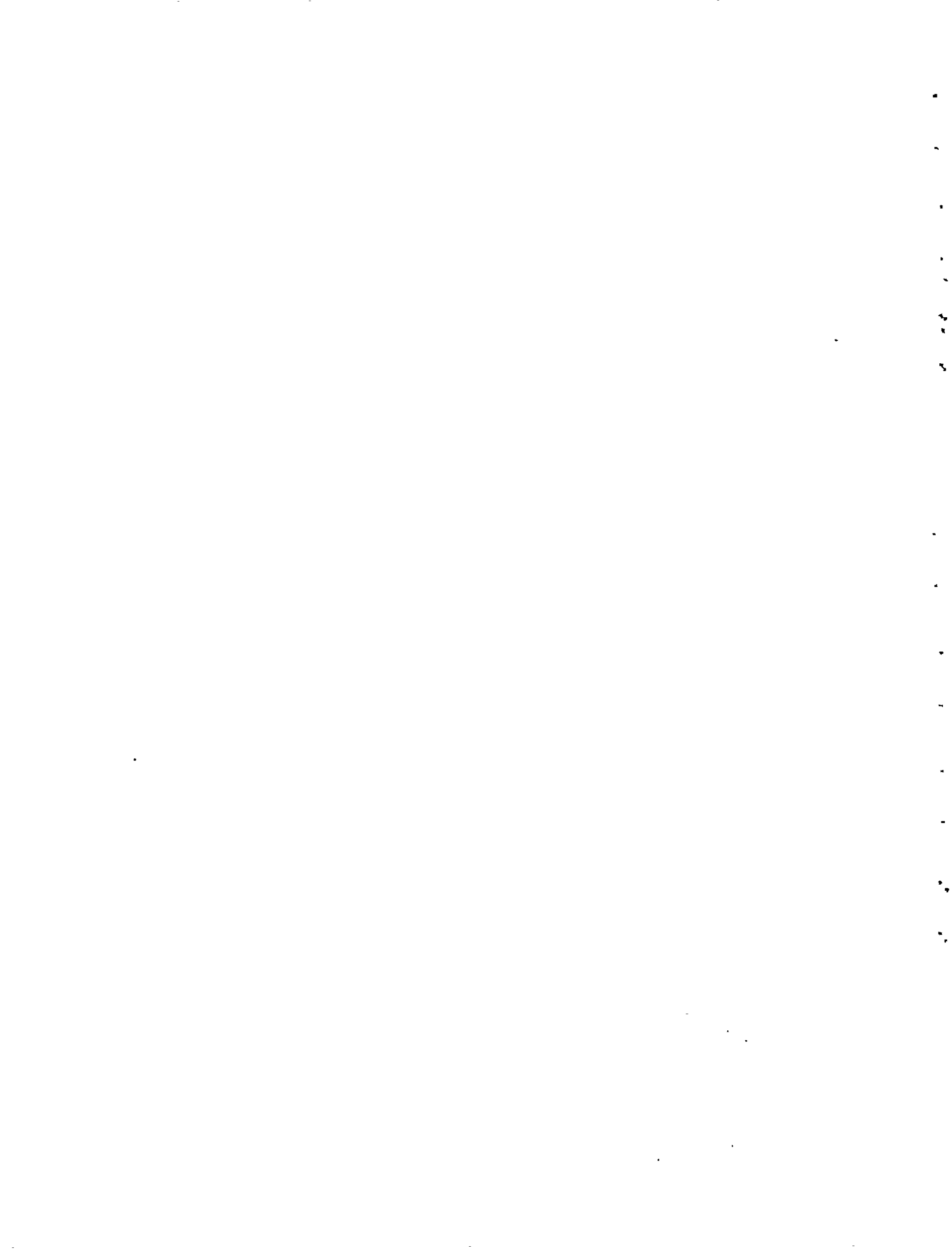


## **Instrument 7**

### **REGISTERS FOR PROMOTER**

In each of the following pictorial registers, the promoter will track her monthly activities.

- a. **Number of cases of diarrhea detected and treated in each month.** In this register, the promoter will mark (using a crayon or other method) one drawing of a child with diarrhea for each case that she detects and helps the mother treat using ORS or the home remedy.
- b. **Number of home visits in each month.** In this register, the promoter will mark one drawing of a house each time she visits a family during the month.
- c. **Number of mothers that attended meetings each month.** In this register the promoter will mark one drawing of a woman for each of the women who attended the meetings she organized that month.



# Casos de diarrea

Comunidad: \_\_\_\_\_ Promotora: \_\_\_\_\_ Mes: \_\_\_\_\_

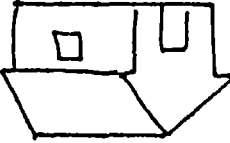
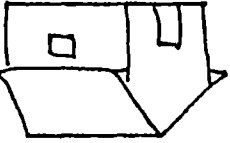
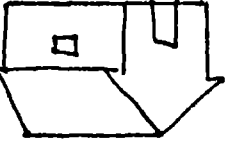
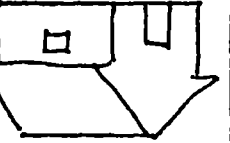

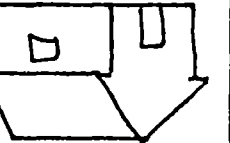

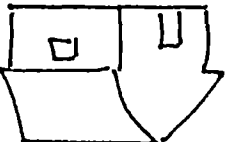

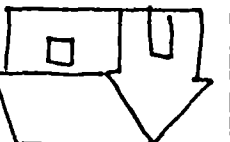
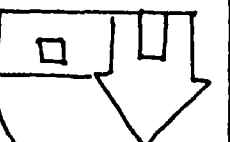
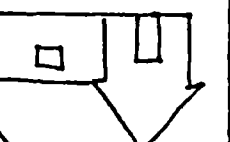
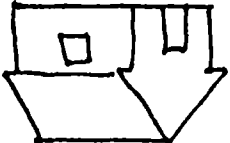
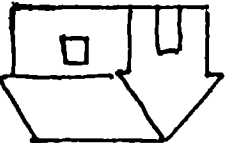
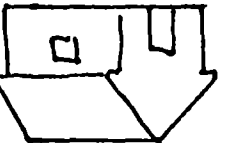
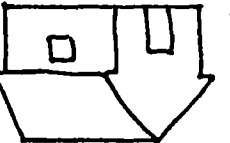
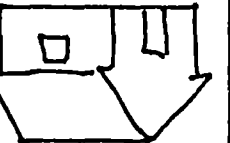
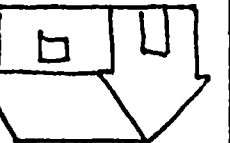
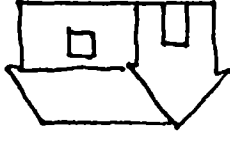
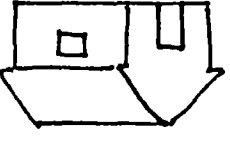
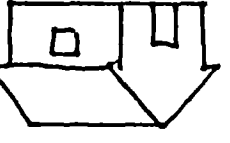
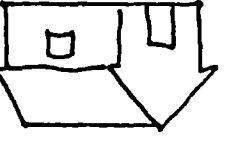
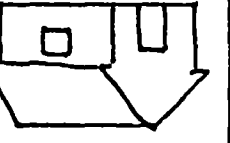
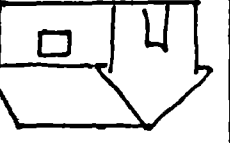



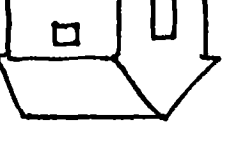

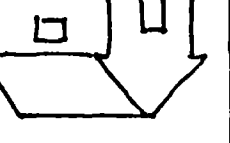





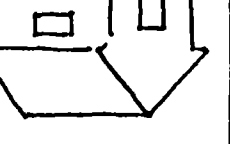
				
				
				
				

# Número de visitas

Comunidad: \_\_\_\_\_



















Promotora: \_\_\_\_\_

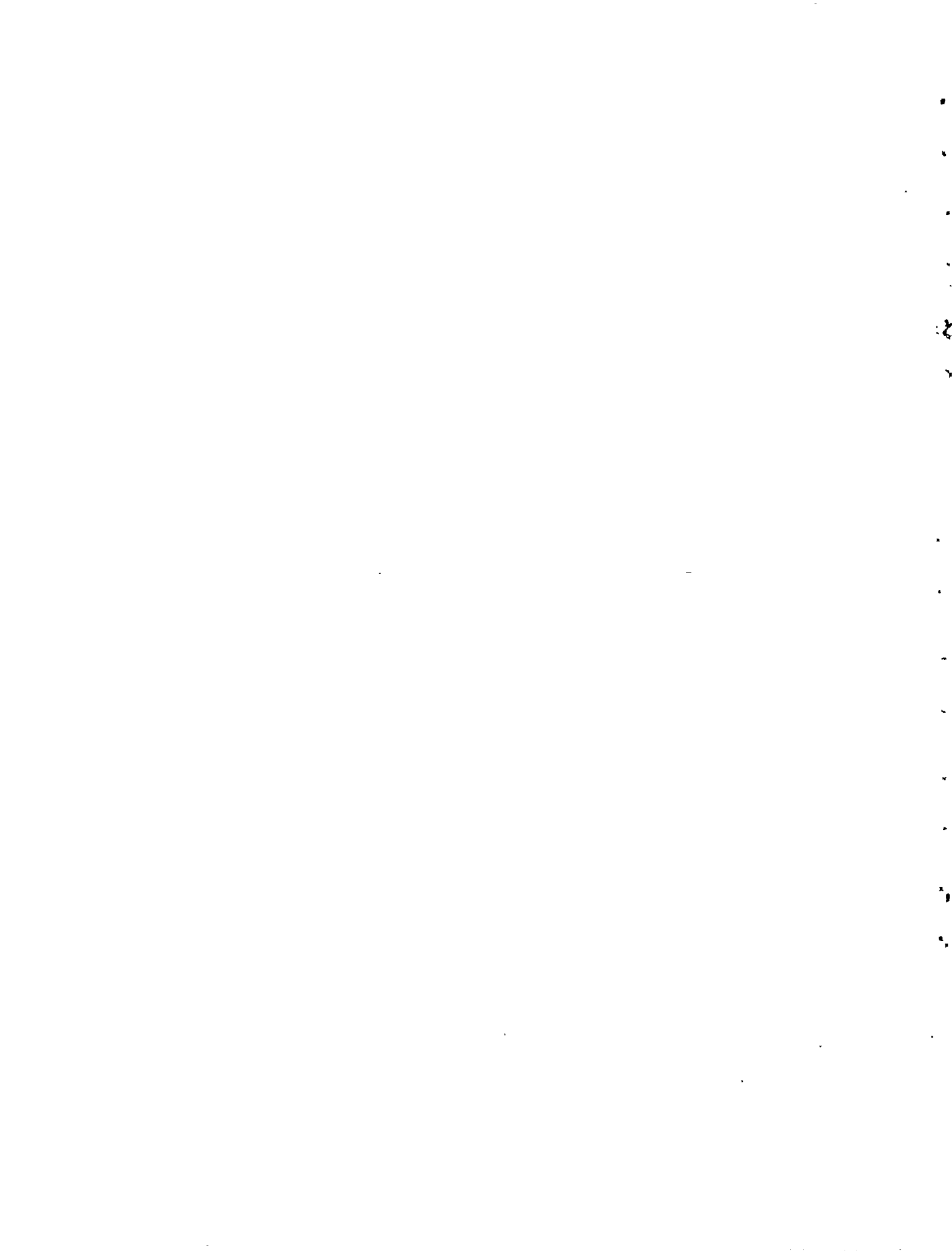
Mes: \_\_\_\_\_

# Asistentes a Reuniones

Comunidad: \_\_\_\_\_ Promotora: \_\_\_\_\_ Mes: \_\_\_\_\_

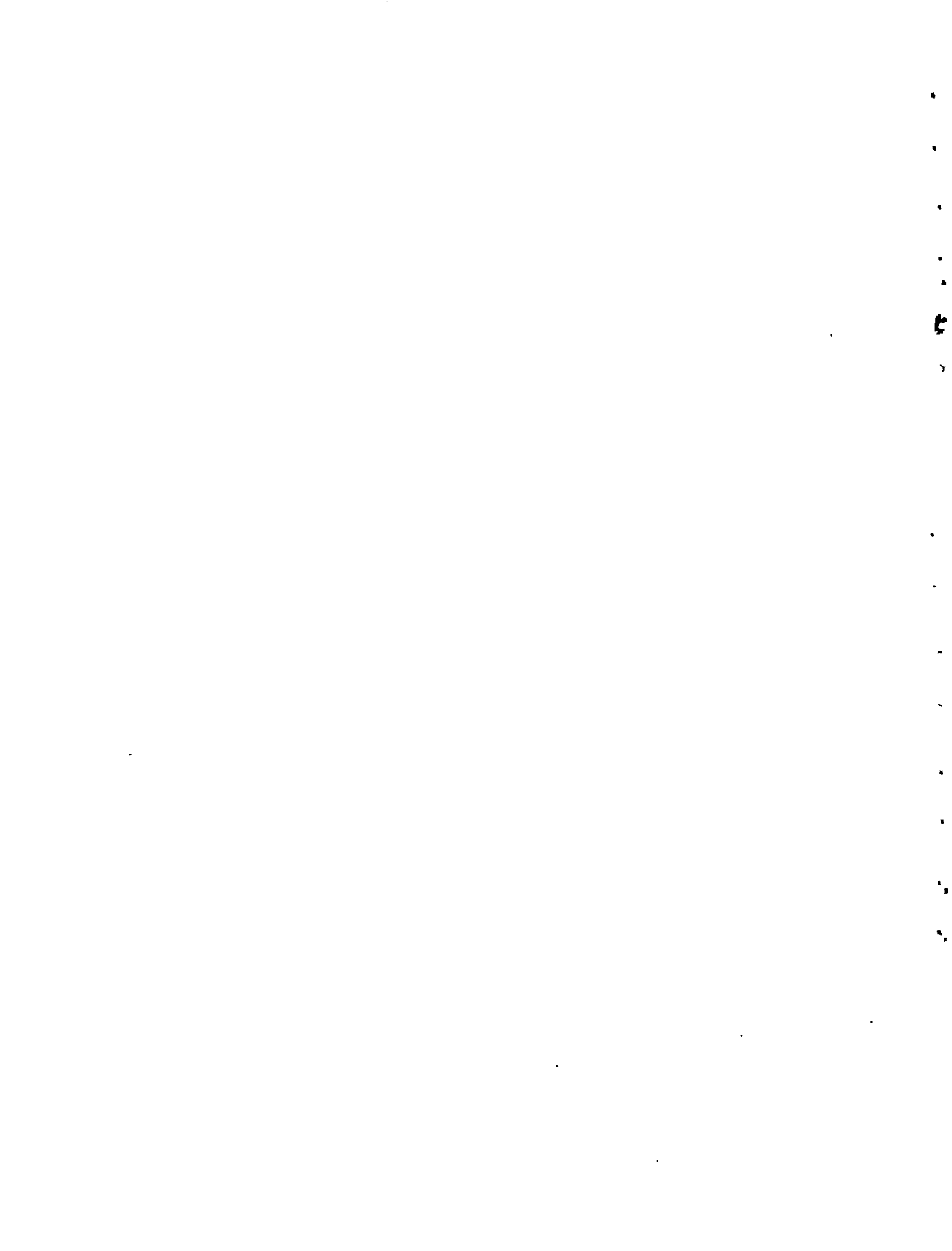
					
					
					





**Instrument 8**

**QUESTIONNAIRES FOR SUSTAINABILITY ASSESSMENT**



WATER AND HEALTH PROJECT  
INTERVIEW WITH A MEMBER OF THE COMMITTEE  
OR GROUP DISCUSSION WITH THE COMMITTEE

Community: \_\_\_\_\_

Extensionist: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

1. Does your community have a new safe water system?  
0. NO  
1. YES
2. How many liters of water per inhabitant per day does your system provide?
3. Does your community have a Water Committee?  
0. NO  
1. YES
4. How many persons are on it?
5. How many women?
6. Who are the members?
7. Have all of the members of the Committee completed training in Operation, Administration and Maintenance (OAM)?
8. How many water promoters are there in the community?
9. Are the promoters members of the Committee?  
0. NO  
1. YES
10. How many members of the Committee have served for more than one year?
11. Has the Committee established a water service fee?
12. Does the Committee have I-D stub books for the monthly fee?
13. How many beneficiaries have paid their water fee for the past month?
14. Does the Committee keep an orderly book of accounts (define criteria of orderliness)?  
0. NO  
1. YES

15. Does the Committee have a functional cash book?  
0. NO  
1. YES
16. Does the Committee have a bank account?  
0. NO  
1. YES
17. Does the Committee have funds at this time?  
0. NO  
1. YES
18. Did the Committee meet last month?  
0. NO  
1. YES
19. Does the Committee have a supply of basic tools and materials to maintain and repair damages to the system? (The list of basic tools and materials should be included, and either 0. NO or 1. YES should be indicated).
20. In the absence of a plumber, what would they do to replace and train another?
21. In the absence of a promoter, what would they do to replace and train another?
22. Has the Committee replaced a plumber when necessary?
23. Has the Committee replaced a promoter when necessary?
24. How many plumbers are there in the community?
25. Have the plumbers successfully repaired any damages to the water system?
26. Has there been any damage which the plumbers have been unable to repair?  
0. NO  
1. YES
27. (YES) In those cases, what have they done?
28. Are the plumbers paid for their services?  
  
Reforestation (questions on reforestation should possibly be asked also of another individual, such as a forestry promoter, and not only of the Committee)
29. Is there any tap in the community designated for providing water to a nursery?
30. Is there a nursery operating in the community?
31. How many trees have been planted in the mini-basin where the source is located?

**Water and Health Project  
Interview with the Promoter**

Community: \_\_\_\_\_

Interviewer: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

1. How many housing units are there in the sector for which you are responsible?
2. How many homes did you visit during the past month?
3. How many educational meetings with mothers did you conduct in the past month?
4. How many mothers attended an educational meeting in the past month?
5. How many cases of diarrhea did you treat with oral solution during the past month?
6. Are you willing to work at least one additional year as a promoter?  
0. NO  
1. YES
7. Are you willing to train your replacement in the event that you resign?  
0. NO  
1. YES
8. Do you feel capable of training another promoter?  
0. NO  
1. YES
9. Are you satisfied with your work as a promoter or not? (define satisfaction)
10. Do you have a work guide to use during your visits to families?  
0. NO  
1. YES
11. Do you receive any payment for your services as a promoter?
12. Do you know a plumber in the community?  
0. NO  
1. YES
13. (YES) What is the plumber's name?

14. Do you know any health promoters from the Ministry working in this community?
0. NO
  1. YES
15. (YES) What is the promoter's name?
16. What are the three most important things that a water promoter must do?
1. HOME VISITS
  2. ADMINISTER ORAL SOLUTION IN CASES OF DIARRHEA
  3. EDUCATIONAL MEETINGS
  4. OTHER: \_\_\_\_\_

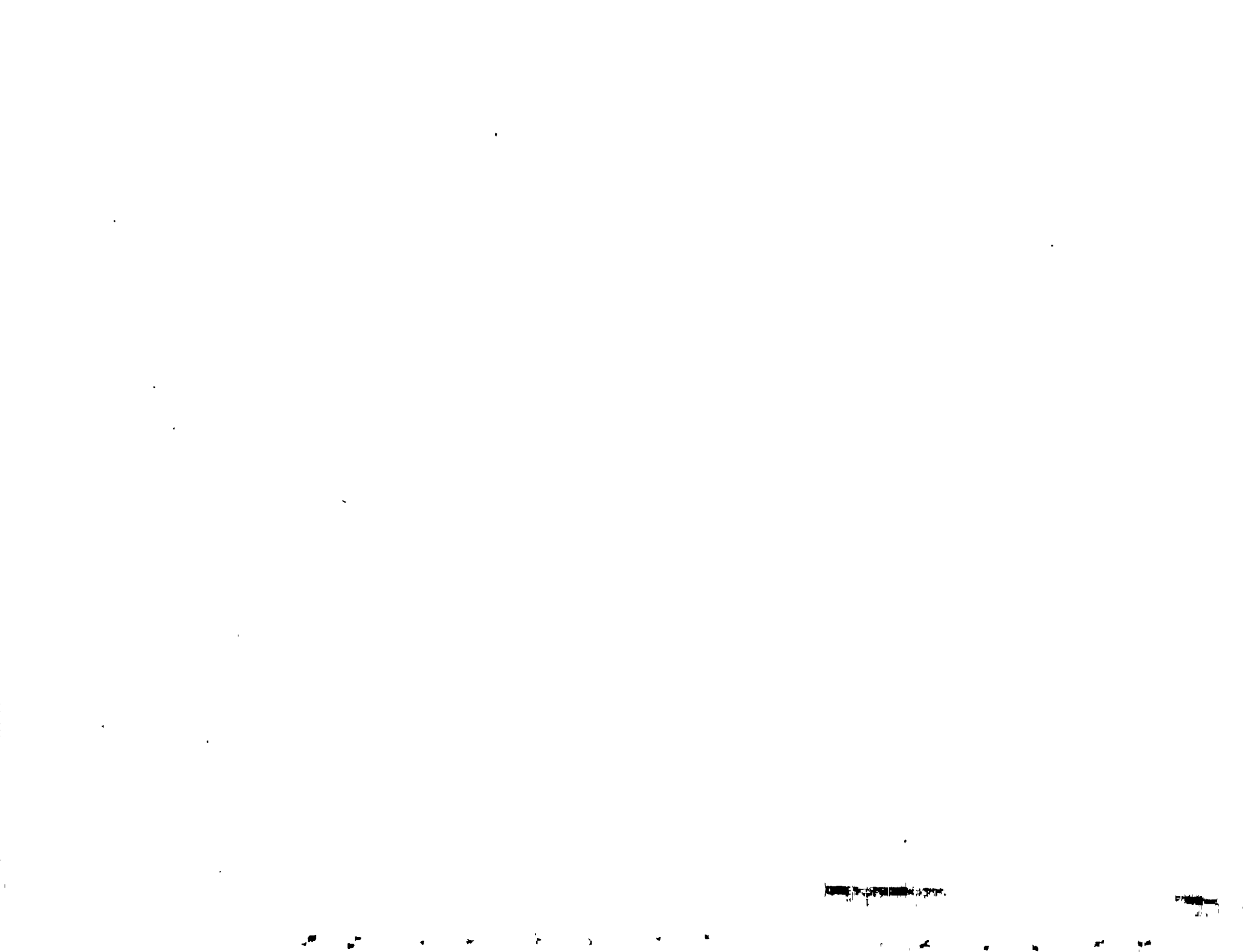
**Water and Health Project  
Interview with the Plumber**

Community: \_\_\_\_\_

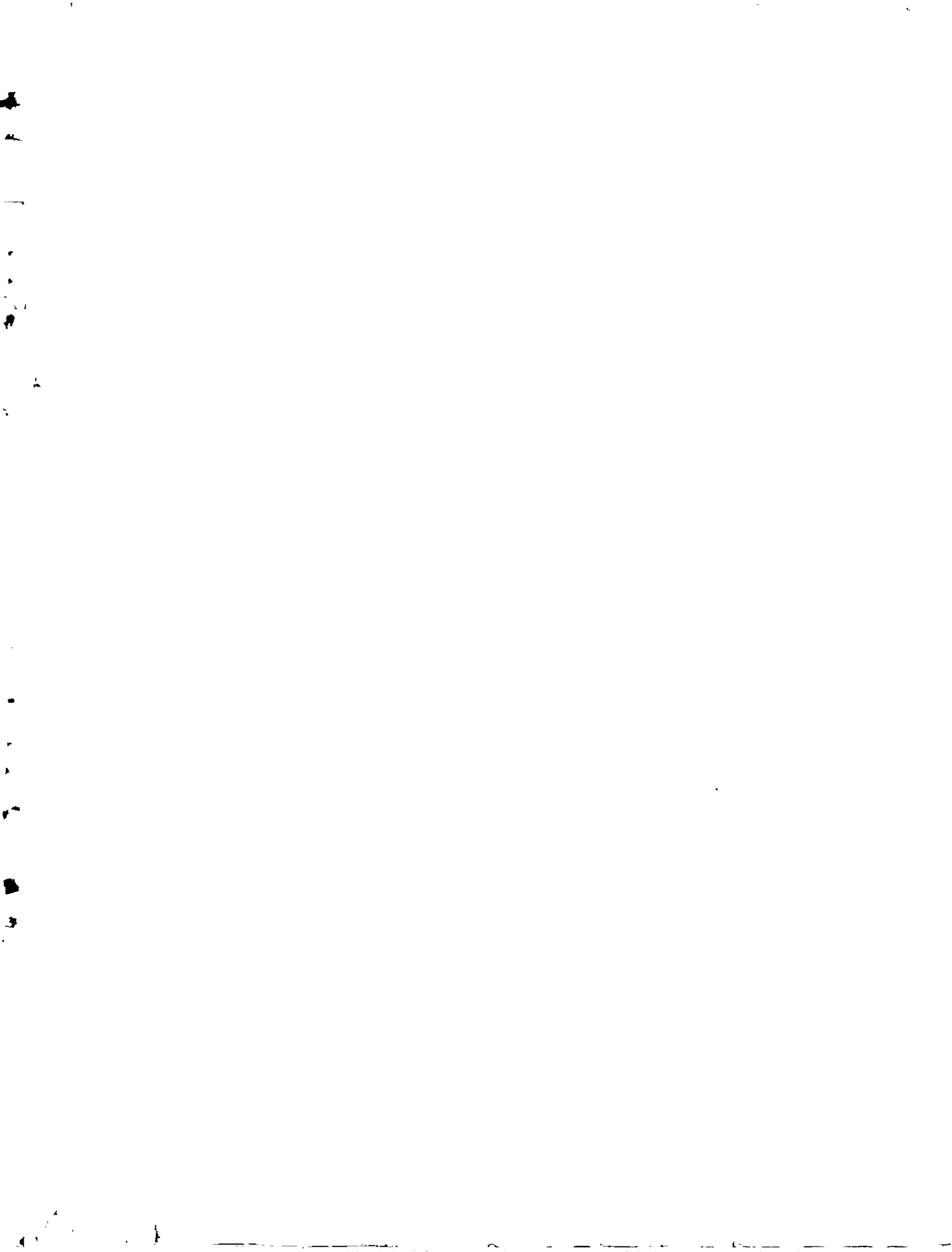
Interviewer: \_\_\_\_\_

Date: \_\_\_/\_\_\_/\_\_\_

1. How long have you been a plumber?
2. Have you repaired any damages to the system? How many times?
3. Has there been any damage to the system that you have not been able to repair? Which?
4. What did you do in that situation?
5. Do you have a guide or register sheet to keep a record with respect to the repairs which you perform?
  0. NO
  1. YES
6. Are you willing to serve your community for at least one additional year?
  0. NO
  1. YES
7. Are you willing to train a replacement in the event that you no longer work as a plumber?
  0. NO
  1. YES
8. Are you satisfied with your work? (define satisfaction)
9. Do you know a water promoter?
  0. NO
  1. YES
10. (YES) What is the promoter's name?
11. Do you have a guide or checklist for keeping a record with respect to routine maintenance of the water system?







**Camp Dresser & McKee International Inc.**  
Associates in Rural Development, Inc.  
International Science and Technology Institute  
Research Triangle Institute  
University Research Corporation  
Training Resources Group  
University of North Carolina at Chapel Hill

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## THE WASH PROJECT

With the launching of the United Nations International Drinking Water Supply and Sanitation Decade in 1979, the United States Agency for International Development (A.I.D.) decided to augment and streamline its technical assistance capability in water and sanitation and, in 1980, funded the Water and Sanitation for Health Project (WASH). The funding mechanism was a multi-year, multi-million dollar contract, secured through competitive bidding. The first WASH contract was awarded to a consortium of organizations headed by Camp Dresser & McKee International Inc. (CDM), an international consulting firm specializing in environmental engineering services. Through two other bid proceedings since then, CDM has continued as the prime contractor.

Working under the close direction of A.I.D.'s Bureau for Science and Technology, Office of Health, the WASH Project provides technical assistance to A.I.D. missions or bureaus, other U.S. agencies (such as the Peace Corps), host governments, and non-governmental organizations to provide a wide range of technical assistance that includes the design, implementation, and evaluation of water and sanitation projects, to troubleshoot on-going projects, and to assist in disaster relief operations. WASH technical assistance is multi-disciplinary, drawing on experts in public health, training, financing, epidemiology, anthropology, management, engineering, community organization, environmental protection, and other subspecialties.

The WASH Information Center serves as a clearinghouse in water and sanitation, providing networking on guinea worm disease, rainwater harvesting, and peri-urban issues as well as technical information backstopping for most WASH assignments.

The WASH Project issues about thirty or forty reports a year. WASH *Field Reports* relate to specific assignments in specific countries; they articulate the findings of the consultancy. The more widely applicable *Technical Reports* consist of guidelines or "how-to" manuals on topics such as pump selection, detailed training workshop designs, and state-of-the-art information on finance, community organization, and many other topics of vital interest to the water and sanitation sector. In addition, WASH occasionally publishes special reports that synthesize the lessons it has learned from its wide field experience.

For more information about the WASH Project or to request a WASH report, contact the WASH Operations Center at the above address.