FIELD REPORT

FOLLOW-ON ASSESSMENT OF A BEHAVIOR-BASED MONITORING SYSTEM FOR THE HEALTH EDUCATION COMPONENT OF THE RURAL WATER AND HEALTH PROJECT

CARE-Guatemala

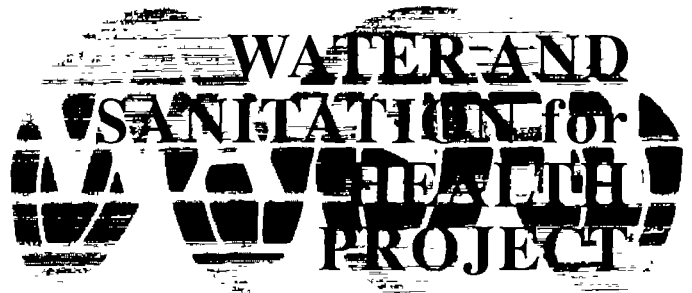WATER AND SANITATION for HEALTH PROJECT

WASH Field Report No. 385

FOLLOW-ON ASSESSMENT OF A BEHAVIOR-BASED MONITORING SYSTEM FOR THE HEALTH EDUCATION COMPONENT OF THE RURAL WATER AND HEALTH PROJECT

CARE-Guatemala

by

Lori DiPrete Brown
Elena Hurtado
Steve Esrey

February 1993

Related WASH Reports

Development of a Behavior-based Monitoring System for the Health Education Component of the Rural Water and Health, Project CARE—Guatemala. Field Report No. 364, July 1992. Prepared by Lori Di Prete Brown and Elena Hurtado.

CONTENTS

ACKNOWLEDGEMENTS

ABOUT THE AUTHORS

Lori DiPrete Brown has an M.S. from the Harvard School of Public Health, and has worked in the field of international health and social services as a manager and applied researcher for over eight years. Her areas of expertise include quality assurance, supervision systems, operations research, survey methods, and rapid sampling approaches. She works for the Center for Human Services on the technical staff of the Quality Assurance Project.

Elena Hurtado has an M.P.H. from the School of Public Health, University of California. Her areas of expertise include medical and nutritional anthropology, intervention-related research, qualitative research, rapid ethnographic assessment, and observational procedures. She is an expert on behavioral issues surrounding improved water and sanitation. She has also been a researcher for the Division of Health and Nutrition of the Institute of Nutrition of Central America and Panama (INCAP) in Guatemala.

Steven A. Esrey has a Ph.D. from Cornell University, is presently on the faculty at McGill University, and maintains an adjunct appointment at Johns Hopkins University, School of Hygiene and Public Health. Dr. Esrey has published widely on the topic of health outcomes in relation to water supply and sanitation.

ACRONYMS

GOG	Government of Guatemala
LAC	Latin American and Caribbean Bureau of A.I.D.
LQAS	Lot Quality Assurance Sampling
MOH	Ministry of Health
PAYSA	Guatemala Rural Highlands Water and Sanitation Project
RWH	Rural Water and Health Project
QFD	Quality Function Deployment
UNEPAR	Unidad Ejecutora del Programa de Acueductos Rurales
URC	University Research Corporation
USAID	United States Agency for International Development
WASH	Water and Sanitation for Health Project
Xela	Quezaltenango

EXECUTIVE SUMMARY

During August and September, 1992, the WASH Project provided technical assistance to CARE-Guatemala and to USAID/Guatemala for three separate but related activities. The WASH team reviewed a participatory CARE monitoring system, developed in February 1992 by a WASH Project technical team. A workshop, which utilized an innovative quality assurance strategy, was held on latrine use and design. The WASH team also provided recommendations to USAID for a monitoring system to be used in the new, comprehensive Highlands Water and Sanitation Project. This project will be implemented jointly by the Ministry of Health in Guatemala, and is designed to provide household water supplies, improved sanitation demanded by users, and comprehensive hygiene education. This project is also intended to be environmentally friendly. Financial support was provided by the LAC Bureau as part of a larger initiative to combat diarrheal diseases and cholera in the region.

Field activities included visiting project sites, reviewing monitoring activities, conducting a participatory workshop on how to design latrines that will be demanded by and acceptable to users, and making recommendations to improve monitoring activities and suggestions for future workshops on latrine design.

The monitoring system for CARE-Guatemala (developed under WASH Task 334) has been implemented in April and May 1992. CARE project personnel had obtained information, analyzed results, and identified problems in a short time period. Minor modifications were made to the monitoring system; clearer definitions were provided for specific indicators; and a quarterly monitoring cycle was adopted.

The workshop on latrines presented the Quality Function Deployment (QFD) technique, which originally was developed for industrial products. This technique was adapted to combine information from users on desirable characteristics of latrines with information from engineers on technical and financial issues surrounding latrine design. All participants, which included engineers and extensionists working in communities, benefitted from the workshop. The participants also felt that QFD, or a simplified version, would be a useful participatory tool to increase the demand for and the use of latrines, by adults and children, in Guatemala.

The draft of the monitoring system proposed for the USAID/PAYSA project was comprehensive and well thought-out. However, due to the PAYSA project's scope—over 300 communities served in five years—the monitoring system should be altered to include a simpler method of data management.

The improved monitoring systems should enable both CARE-Guatemala and USAID/PAYSA to track health and hygiene behaviors, assess project goals and objectives, and streamline messages designed to improve hygiene practices. The monitoring system and quality assurance techniques could be adapted to other settings in Latin America, Africa, and Asia.

Chapter 1

INTRODUCTION

1.1 Background

Over 1,000 Guatemalans die every month as a result of severe diarrhea. Major problems leading to these deaths include poor sanitary conditions, unhygienic practices, and the lack of access to clean and plentiful water. It is generally recognized that well-managed water supply and sanitation interventions can make a difference. A recent review of health impacts suggests that diarrheal mortality and morbidity can be significantly reduced by improved water and sanitation and better hygiene practices (Esrey *et al*; 1990). Thus, CARE-Guatemala and USAID/GOG have planned or implemented efforts to reduce diarrheal mortality and morbidity by installing improved water supplies, improving sanitation facilities, and promoting better hygiene practices.

1.1.1 CARE Monitoring System

Since 1965, CARE has been working in Guatemala to alleviate problems related to water, hygiene, and sanitation. In 1989, CARE added health education to its water and sanitation program, and in 1991, with assistance from USAID/Guatemala implemented a two-year Rural Water and Health Project (RWH) which expanded the scope of CARE's work from 10 to 22 Highland communities. All communities have received health education via health promoters. As part of this project, a monitoring system was established by a WASH team (DiPrete and Hurtado, 1992) to broaden health education, maintenance, and community participation. Data on certain key indicators were collected, and these data were designed to assess and improve the health education component of the CARE/Guatemala water and sanitation project.

1.1.2 Quality Function Deployment Defined

CARE-Guatemala, USAID, and representatives of PAYSA feel that the rate of latrine use in Guatemala is inadequate, and would like to explore ways to improve design so that latrines are more acceptable and used. As a result of February 1992 discussions about the potential of QFD, the WASH team was invited to present a seminar as a preliminary exercise in exploring the utility of the methodology for latrine design.

Quality Function Deployment (QFD) is a relatively new technique that has been applied successfully in industrial design to provide better quality products. QFD is also an innovative technique which reduces time between a product's design phase and its appearance on the market. This technique, which has been pioneered in Japan for industrial purposes, improves the quality of the product by combining information from the user and producer. The concept

behind QFD (Akao, 1990) should be adaptable to other uses, such as exploring latrine design and acceptability of latrines by community members.

Quality Function Deployment is based on data and employs a variety of matrices and quantitative methods to organize and rank information, and to explore correlations between the various elements. By using the method, priorities for design improvement and innovation can be determined, the process of redesign can be structured, and cost and reliability can be built into the final product. This seminar in Guatemala focused on the first phase of the QFD process, quality deployment, which helps to determine which product characteristics are priorities for design improvement. The product in this instance was latrines.

1.1.3   USAID/Highlands Water and Sanitation Project

USAID/Guatemala will soon begin a five-year project to provide improved water, hygiene education, and improved sanitation to over 300 communities, with populations ranging from 200-1200, in six departments in the Western Highlands of Guatemala. The implementing agency will be the Environmental Sanitation Division of the Ministry of Health (MOH). The project is designed to reduce the diarrheal morbidity and mortality rate among pre-school children. To insure a measurable health impact the project intends to adapt a monitoring system similar to the one designed for CARE to assess and improve the health education component of the project.

1.2   Objectives

In this assignment several objectives were specified. First, the CARE monitoring system was reviewed and recommendations on how to improve the system were provided. Five activities related to CARE were addressed during the week:

- the determination of which monitoring activities were properly implemented and which should be improved;

- the use of Quality Function Deployment in the productions of an acceptable latrine;

- the sustainability of the project to ensure continual   benefits after its formal end; and

- the issue of training monitoring personnel in qualitative research techniques.

Second, a workshop was held to demonstrate how to use QFD for producing an acceptable latrine. Third, a review of the proposed USAID/PAYSA monitoring system was conducted.

- The PAYSA project paper and the Health Education Workshop report were reviewed.

- USAID/PAYSA project personnel participated in the review of, training for, and critique of the CARE/Guatemala monitoring system.

- Recommendations for the implementation of a similar monitoring system were made to USAID/Guatemala.

Chapter 2

REVIEW OF THE PROGRESS OF THE CARE MONITORING SYSTEM

Discussions were held about the monitoring system in which CARE and PAYSA staff as well as the WASH team participated. In addition, a community was visited and discussions were held with key officials, members of the water committee, promoters, and extensionists. Finally, the agenda for the workshop on qualitative research techniques was set.

2.1 Six-step Monitoring System

Discussions revolving around the monitoring activities focused on the six-step monitoring system (See Figure 1, below). In the first two steps, the data of the cycle were evaluated, measured, tabulated, and analyzed. Then, the remaining steps in the monitoring system were carried out. Lastly, issues about the indicators used in the evaluation were addressed.

Evaluation and Measurement

Action Taken

Development of Solutions

Tabulation and Analysis of Data

Problem Identification

Problem Analysis
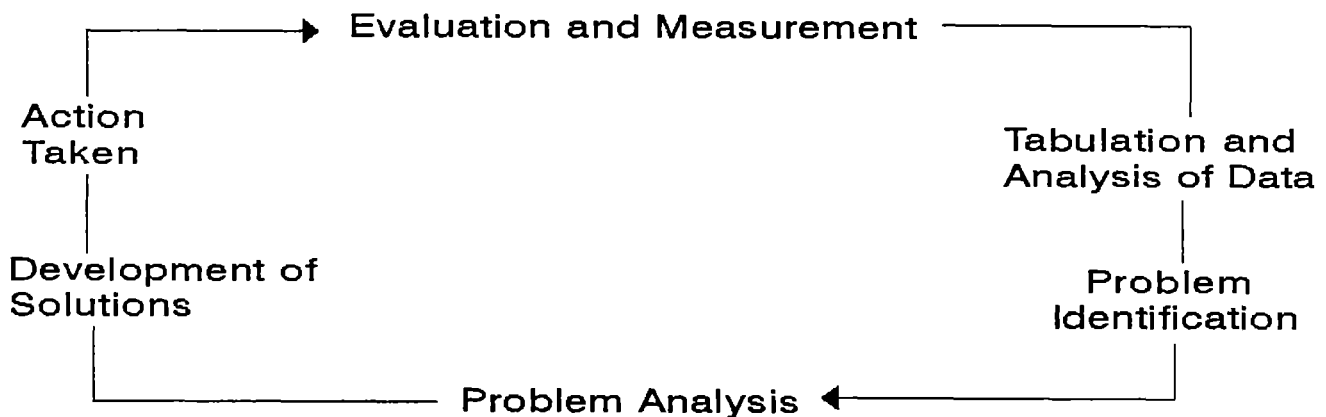
Figure 1

The Monitoring System

2.1.1 What Has Been Implemented

Due to delays by the counterpart, UNEPAR, the 10 new project sites were not selected until August 1992, just at the time the WASH team arrived in the country. These delays resulted in the new WASH monitoring system not being fully implemented.

5

Despite the short time elapsed since the monitoring system was developed, the team already conducted a baseline survey in all 22 communities. In an additional 15 communities, an effort funded by CARE-Germany, in the Oriente, pretested the survey instruments.

The baseline survey took six weeks (April-May 1992) to cover all 22 communities, and each household visit lasted about 20-25 minutes. Even though not all extensionists in project communities had the proper forms with appropriate instructions, a reasonable amount of time was spent to collect the data. Thus, the monitoring team had collected data, tabulated the data on specific forms, and completed preliminary analysis of the data for the baseline.

2.1.2   Critique of What Has Been Done

Problems identified by the team could be classified as follows: community level, data management, problem analysis, use of monitoring instruments, and definitions for indicators.

2.1.2.1   Community-level Problems

At the community level the promoters did not have a job aid, or specific definitions of indicators. Thus, reporting and recording were as systematic as possible. Some families were difficult to find or houses were empty because several families in the area were migratory residents, others moved away, and some families were away for the day. A complete list of problems encountered while administering the survey is provided below.

2.1.2.2   Data Management Problems

CARE reviewed the data immediately after they were collected; however, some cleaning of the data was still being performed during the WASH visit in September. For example, family lists and family identification numbers were still being compiled. Data management was problematic on several counts. Mistakes were found on some forms, including coding problems, and data entry was not readily understood. Some of these problems can be overcome in the future by systematically training interviewers and by providing an instruction manual. Preliminary data were also analyzed and presented in tabular form (Bergeron, 1992) by an external consultant. This may have been efficient in the short term, but the monitoring personnel were unable to obtain timely feedback in order to promote certain actions. CARE personnel preferred in-house analysis; however, they were able to communicate with the consultant/analyst. After initial results were provided, the monitoring personnel requested other analyses, including graphs which would indicate achievement of goals visually and a basic plan to assist in the production of frequency distributions. Due to the LQAS techniques, individual community summaries were not appropriate to show progress toward goals. Instead, a pooled summary of all monitored communities was required.

6

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│           Problems Encountered While Administering the Baseline Survey │
│                          (CARE Monitoring Survey)                      │
│                                                                       │
│   1.  Though each survey took an appropriate amount of time, too little time was available │
│       to conduct all the household surveys.                            │
│                                                                       │
│   2.  Households were dispersed throughout in the communities.         │
│                                                                       │
│   3.  People were absent from homes.                                   │
│                                                                       │
│   4.  Houses were vacant due to seasonal migrants and people moving within a │
│       community.                                                       │
│                                                                       │
│   5.  Instruction manuals were incomplete (in some cases):             │
│                                                                       │
│       a. Certain codes were unclear.                                   │
│                                                                       │
│       b. No standardization.                                           │
│                                                                       │
│   6.  Some people who did not have a latrine used the neighbors'.      │
│                                                                       │
│   7.  The use of an ORS packet in each house was not feasible.         │
│                                                                       │
│   8.  The order of survey questions and observations could have led to inaccurate data. │
│       For example, because observations were conducted after the interview, the latrine │
│       could have been cleaned by someone else during the interview.    │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```

2.1.2.3   Problem Analysis

Problem analysis was a weak link in the six-step monitoring cycle. Information about problems was generated, but there was no systematic attempt at analysis. In many cases, alternative solutions or consequences to potential solutions were not considered. In addition, the community was not always consulted. For example, in one community chickens were found frequently in the home. However, after they were penned outside of the home, they were stolen. The tools presented in the February workshop were not utilized because they were thought to be too time consuming.

Upon completion of the baseline survey, certain health problems were identified in several communities (See Appendix G for more detail). Animals were found in the homes. Handwashing was infrequent or absent. Latrine use, particularly by children, was a major problem. Food and water were often left uncovered in households. Waste disposal was also a problem, and efforts to convince people to bury trash had not been successful. The presence of animal feces, although not reflected in the indicators, was a problem.

2.1.2.4   Use of Monitoring Instruments

On the basis of the survey lists, all extensionists made the "fichas" (cards with the identification number of each family) that were used in conducting a random sample. Three of the six extensionists field-tested the monitoring procedures by drawing the sample and applying the instrument to 19 randomly selected families.

Problems were encountered in selecting the sample. Several identification codes were incorrect. Some families actually were in other communities than indicated on the cards. The data from one community may not have been entered into the computer. It was not entirely clear whether extensionists should train promoters to fill out the instruments. Although monitoring was initially designed to be completed every six months, it was conducted to repeat monitoring twice as frequently; in November 1992, February 1993, and May 1993. An indicator—eating utensils—was added to the original list because it was part of the education campaign run by extensionists and promoters.

The job aids and pictorial monitoring instruments have not been used, and no decisions have been made regarding how these tools would be produced. However, in the working meeting with extensionists a decision was made to distribute copies of all these forms so that promoters could use them every month to monitor progress. The extensionists will train the promoters in monitoring according to how advanced the promoters are in the project. In November 1992, promoters will be implementing in follow-up communities monitoring by promoters, while monitoring in new communities will start when the water supply and sanitation component of project is completed.

2.2   Sustainability Assessment and Strategy

The indicators on the sustainability forms (Instruments 8, 9, and 10 for the water committee members, promoter, and fontanero, respectively) developed in the previous assignment (DiPrete & Hurtado, 1992) were reviewed, and minor changes were made. Instrument 9 for promoters was pretested with three promoters in Poza Grande, Chiquimulilla. The revised instruments are presented in Appendixes H, I and J.

One remaining problem with the sustainability assessment is that the creative indicators from the previous consultants' assignments are not necessarily sensitive or valid in this case. In the absence of well-defined sustainability strategies, indicators are difficult to determine.

A deterrent to successful sustainability is the way in which communities obtain water. UNEPAR is in charge of the formation of water committees and the construction of systems, and after the water supply and sanitation facilities are in place, CARE deals exclusively with promoters. As interpreted from statements by people in communities, UNEPAR does not actively promote community participation or dialogue between technicians and community members. UNEPAR requires the formation of a water committee and assigns the committee responsibilities, including changing unhygienic practices. According the water committee in Nueva

Independencia, the people in the communities accept UNEPAR's conditions because they want water, not because they are committed to better hygiene.

CARE emphasizes community awareness and participation, while UNEPAR does not. However, since communities deal on a long-term basis with UNEPAR in regard to the functioning of the water committees and the functioning of the water and sanitation systems, community participation should be addressed.

2.3 Training of CARE Staff

The content of the workshop was discussed with extensionists prior to the workshop. The following points were considered. The workshop for training CARE staff in qualitative research techniques was successfully conducted. Qualitative research was presented in the context of initial community assessment, specific steps of the monitoring cycle, product testing, and the update of the initial community assessment. The techniques of direct observation, in-depth interviews, and focus group discussions were practiced in the community.

In addition, a simple research protocol using qualitative research techniques to investigate the disposal of feces of children under five was presented. The reasons for not using latrines and possible solutions for unhygienic feces disposal were explored.

Finally, the manual used by extentionists for conducting educational activities was examined, particularly in light of the indicators in the monitoring checklist. Discussion covered public health communication and social marketing principles such as facilitation of knowledge and adoption of resources and skills necessary to achieve positive consequences (motivational points). (See Appendix K for the workshop's agenda and the handouts describing field practices conducted during the workshop.) The extensionist's educational manual was revised (Appendix L).

Chapter 3

QUALITY FUNCTION DEPLOYMENT

CARE, PAYSA, and WASH personnel visited the village of Nueva Independencia on September 1, 1992. This village had received improved water and sanitation during the previous year. During this visit, which formed the basis for the September 2, QFD workshop held at CARE's office in Quezaltenango (Xela), the community members discussed latrines with members of the team.

3.1 Objectives of the Workshop

The purpose of the workshop was to orient participants in the use of QFD as a tool in latrine use and design. Lori DiPrete Brown, with technical assistant from Elena Hurtado and Andrew Karp, led the workshop. The workshop's specific objectives focused on enabling the participants to:

- understand the basic concepts of QFD;

- evaluate the utility of the methodology for applications to latrine design;

- explore user requirements and user perspectives relating to latrine design;

- analyze the technical characteristics of latrine design;

- construct a quality planning chart for latrines;

- construct a quality chart for latrines.

3.2 Results of the Workshop

3.2.1 Introduction to QFD

This session presented the objectives and agenda for the day and introduced basic QFD principles. QFD was defined, and the steps in developing a quality chart were outlined. The user-perspective and the importance of basing the analysis on data were emphasized. Overall the session went well. The participants showed interest and seemed to follow the presentation easily. Overheads 1-7 (Appendix E) were used for this session.

3.2.2   Exploring Customer Requirements for Latrines

A simulated focus group discussion was held. CARE extensionists acted as women living in a community that is served by the water project, and the remainder of the participants observed. The extensionists were asked by Elena Hurtado, the focus group facilitator, to respond to questions based on their experiences in the community. The complaints about the latrine that resulted from the simulation were as follows:

- Latrines are difficult to clean. Women would like to be able to clean them quickly with running water.

- Latrines are unsafe for children. Because they can fall in, children must be accompanied by their mothers.

- It is important to note that use of a corn cob rather than toilet paper or newspaper is the customary practice in this area. If corn cobs are used as a cleaning material, the latrine fills very quickly, requiring that a new hole be dug.

- Latrine use may be frightening because the latrine is a deep, dark hole, and in rain, worms sometimes crawl up the sides of it.

- The latrine has a foul odor.

Following the focus group discussion, five positive quality characteristics of users were listed—easy to clean, safe for children, allows use of corn cobs without filling quickly, isn't scary to sit on, and doesn't smell bad—and ranked in order of importance. Andy Karp gave a brief presentation about the existing, pit latrine, which was then compared to two competing products, the open air and force-flush latrine, which are available in some parts of Guatemala. The group developed the quality planning chart (See Appendix E, overhead 12) to summarize the findings.

Since the above information was based on simulation rather than discussion with actual community members, actual QFD design efforts should not be based on this analysis. However, because the extensionists do have a good knowledge of the user, this information is pertinent in developing surveys or modifying the discussion guide. Overhead 8 (Appendix E) was used to reinforce the importance of research from the users' perspective.

3.2.3   Exploring Technical Requirements for Latrines

Andrew Karp led a participatory exercise in which the three engineers who were present delineated the technical components of a latrine such as the bowl, pit, superstructure, slab, and ventilation pipe. This information served as the horizontal axis of the quality planning chart (Appendix E, overhead 12). The session went well, although neither the technical details were covered in-depth nor were alternative technical issues discussed. Nevertheless, during this session it became apparent that inadequate health education was not the only reason

12

simple low-cost latrines were not used. The conclusion was made that consideration should be given to the modification of latrines to satisfy user demand.

3.2.4   Constructing a Quality Planning Chart

The quality planning chart was introduced and key concepts such as quality goals, rate of improvement in latrine quality, sales points, absolute weights, and demanded quality weights were described. For each of the five user demand characteristics, the quality goals, improvement rates, sales points, absolute weights, and demanded quality weights were determined and recorded in a quality planning chart.

Overheads 9-11 (Appendix E) were used to demonstrate the purpose of formulas and each calculation. Overhead 12 (Appendix E) is the product derived from all participants. In retrospect, performing the calculations in small groups, instead of in one large one, may have enabled more people to practice the skills required. However, the participants easily grasped the concepts and were able to use the formulas presented.

3.2.5   Constructing a Quality Chart

The results of the workshop to date, including the demanded quality characteristics, the technical elements, and the demanded quality weight, were presented on a quality planning chart. The group determined the correlations together and identified priority areas for design work. The results are presented on overhead 13 (Appendix E).

3.2.6   Innovations in Latrine Design

Andrew Karp provided workshop participants with an overview of various latrine designs used throughout the world, including the respective merits, disadvantages, and costs. A lively discussion about latrines was generated. The conclusion was reached that no single latrine design was optimal, and if possible programs should attempt to provide more than one option.

3.2.7   Evaluation of the QFD Methodology

The utility of the QFD methodology was evaluated by two closed-ended questions and a group discussion. All 23 participants felt they had learned about latrine design or about the design process; 12 learned many things, 10 reported learning some things, and one learned only a few things. When asked if they would like to use this method in the future, 22 said yes, and one did not respond.

Nearly all of the participants felt they learned something about latrines. Although the QFD technique was complex, participants felt that a modified version would be helpful.

Participants offered the following comments:

- The methodology helped us to be systematic about some obvious things; that is helpful.

- I was the person who said I learned very little. It's because I've used the method before in environmental work. I still enjoyed the seminar, and I think the methodology is useful.

- The method is interesting and could have many applications, even as a training tool.

- It [QFD] helps us get away from being technocrats and focus on the user. In that sense it is truly participatory, because the user is there from the beginning.

- One limitation is that I would have liked to have received a bibliography about the method so that I could study more. Also, the analysis of the technical elements wasn't that clear. I still think we should have distinguished the improved pit latrine from the force-flush latrine at the outset.

- This has been productive, but I would need more time to really learn it [QFD]. Maybe we should have a pilot project.

- The seminar was very useful, but it would have been better if someone had done the user study first. Then we could have done our analysis based on real information.

- The method is commercial and needs to be adapted to the area of health.

- We needed more time for explanation. Also, it might have been better to break into small groups.

The workshop covered only the fundamentals of QFD techniques, which are very complex and require a thorough and open-minded investigation of user preferences, technical inputs, and cost. In an attempt to discuss these issues, Andrew Karp discussed sanitation systems around the world, including cost and other economic considerations and the merits and disadvantages of each type of system. His expertise and experience proved valuable in demonstrating the difficulty of constructing cheap latrines that will be used regularly. Some participants felt that a variety of latrines should be offered because of economic, cultural, and environmental concerns.

Chapter 4

USAID/PAYSA

The PAYSA Project Paper and the Health Education Workshop Report were reviewed, and full participation of the USAID/PAYSA project personnel was included in the review and critique of the CARE/Guatemala monitoring system. The previous evaluation of the CARE monitoring system was pertinent to the evaluation and review of the monitoring system proposed for the PAYSA project. Joint PAYSA and MOH discussions about the project paper and workshop report were planned but did not occur because of travel plans at MOH. Instead, an all-morning meeting among Pat O'Connor and Baudilio Lopez, Alfredo Szarata, and Gary Cook of USAID was held.

No important elements were missing from the proposed monitoring system; however, some issues required clarification, and details were added. Rather than provide a synopsis of these documents, the issues that still need attention are highlighted in the following chapter.

Chapter 5

RECOMMENDATIONS

Recommendations have been listed according to the three separate activities: recommendations for the CARE Monitoring System; issues and recommendations surrounding the QFD Workshop; and the USAID/PAYSA recommendations on the monitoring system proposed in the Health Education Workshop Report, with the PAYSA Project Proposal as background material.

5.1 CARE

5.1.1 Baseline Survey

■ Data cleaning should be completed and family listings should be corrected.

■ Data should be cross-tabulated by community.

■ Survey instruments should be revised for the final evaluation.

■ The instruction manual should be finalized.

5.1.2 Monitoring System

■ Problem analysis tools should be reintroduced and reevaluated. This can be done during the workshop on qualitative research.

■ Community meetings should be held to present and discuss the results of data collection efforts.

■ Problems in each community should be prioritized.

■ Obstacles to solutions should be analyzed systematically.

■ Different solutions should be considered and tried.

■ Local resources should be sought when solving problems.

■ The action plan for promoters and extensionists should be reviewed.

■ Monitoring should be completed quarterly: November 1992, February 1993, and May 1993.

■ Extensionists should finalize the instruction manual.

■ The job aids for the promoters should be finalized and produced.

- Technical assistance should be considered during March/April, 1993 to review the six-step monitoring system after it has been completed in its entirety.

5.1.3 Sustainability

- CARE should develop a strategy for each of the activities that take place at the community level.

- Incentives for health promoters should be sought (e.g., school fees, in-kind services, certificate from CARE, or receive MOH health care training); the involvement of young women as health promoters should be considered because they have time and are forming ideas about how to run households.

- The plumbers need to connect to the UNEPAR system in order to avoid major problems with the water system.

- Advice on where to get technical help should be provided.

- Members of the water committees need to collect water fees, set up service for new residents, and manage the finances of the community.

- The instruments and forms should be finalized.

- Final assessment should be conducted by non-CARE, non-governmental personnel.

- The sustainability forms should be simple and short.

- All promoters should be on the water committee. This should be discussed with UNEPAR, which currently requires only one promoter on the water committee.

- Promoters should feel accountable to the community and the committee.

5.2 Quality Function Deployment

In general the QFD technique has merit, but because of its complexity should be simplified. Additional work on user demand and latrine design using QFD or an alternative technique should be explored. Because CARE-Guatemala and the PAYSA project are focused on increasing latrine demand and use, the following recommendations apply to both organizations:

- Further technical assistance should be provided before QFD is used in earnest. The application of QFD techniques to latrine design needs to be further developed. Additional opportunities to advance this work with CARE should be investigated. Other institutions in Guatemala, such as USAID, should also be encouraged to carry out work within its PAYSA project that could further develop the QFD process.

18

■ An interdisciplinary team should be assembled when conducting a QFD session. This team should be led by a QFD expert, a sanitary engineer, and a social scientist. Other engineers should be involved, and the social scientists should visit communities to discuss the user demands for latrines.

■ A study of latrine users should be completed. In preparation for the USAID-funded project, a study of the demanded quality characteristics of adult and child latrine use in Guatemala, compared to alternative latrine designs (including no latrine) should be carried out. The technical assistance of an engineer (latrine design), behavioral scientist (marketing research and behavioral analysis), and an expert on QFD may be needed for this exercise.

■ QFD should be simplified. A matrix of user demands by latrine design components should be completed, as was done in the workshop. The need for completeness in defining demand preferences and openness to alternative design solutions cannot be overstated. This will prioritize necessary design changes. For example, if a respondent says a latrine is hard to clean, find out why. Ask what do you have to clean; what is hard to clean; what would make it easier to clean; how would you like to clean it; how much time are you willing to spend cleaning; and how often do you want to clean?

■ QFD should be used for one design component at a time. For example, select one design issue, such as safety for children or elimination of odors, and follow QFD methods to resolve it. This approach allows the project to focus on the technology deployment phase in a specific area to solve a specific problem that is widely recognized.

■ Miniature prototype designs could be built so users could choose from several models. This process, although time-consuming in the design phase, should reduce the production phase and ultimately result in greater demand for and use of improved sanitation.

5.3   USAID/PAYSA

These recommendations are based on a review of the project paper for the Guatemala Highlands Water and Sanitation Project and the report of the orientation workshop for the educational component of the project (March 1992). The recommendations build on the key elements of the CARE monitoring system that should be replicated on a larger scale. They also discuss indicators, organizational issues, data management, and sampling issues as they relate to the upcoming project. Specific comments about the draft forms developed during the March workshop are also included. The draft forms in the workshop report are an excellent first step in the development of a monitoring system. The fact that they were developed in a participatory fashion goes a long way to insuring that they will be understood and used by the program staff.

In the fall 1992, a baseline survey will be undertaken in connection with the PAYSA project. This will be followed by a mid-term evaluation (two years later) and final evaluation (five years later). To coordinate data collected during the baseline and follow-up evaluations, technical assistance should be employed to analyze the monitoring system results vis à vis those of the baseline survey.

5.3.1   Elements of the CARE System That Should be Replicated

- use of behavioral indicators

- use of LQAS sampling for routine monitoring at the community level

- Analysis should be simple enough that hand tabulation can be carried out at all levels.

- Monitoring should be aligned with program goals and objectives and linked to the use of data for program management and problem-solving.

- A simple system of monitoring and problem-solving should be left in the community after the project ends.

- Try to employ QFD techniques.

5.3.2   Indicators

- The monitoring system should be reviewed to be sure that the indicators selected are aligned with the project goals and objectives, which are clearly stated in project documents. The indicators should be reviewed periodically, especially during the first phase of the project, to be sure that changes in strategy are reflected in the indicators.

- Indicators should be operationally defined, and the criteria to define them, clear and unambiguous. During the early phase of the project, PAYSA personnel should expect to refine the indicators based on the project staff's experience.

- The PAYSA project aims to increase knowledge as a step toward improving behaviors. PAYSA may want to consider adding a few key knowledge indicators.

- Some health indicators, such as the number of children in the household who have had diarrhea during the last 24 hours or seven days, should be included.

- Indicators about client/community attitudes regarding the recommended health practices and satisfaction with the project might be included. Opinions about community pride and sense of ownership would be helpful indicators of the program's success and sustainability.

- Many indicators will be measured. Selective monitoring could be used to explore some issues in more depth on a less frequent basis.

5.3.3　Organizational Issues

■ Because the PAYSA project will be developed on a larger scale and in a more complex organizational environment than the CARE project, the monitoring system will have to be adapted to this organization. The CARE system is applicable to the community health worker, water and sanitation extensionist, and supervisor at the health center and/or regional level. New components for the PAYSA monitoring system would have to be developed for the regional and national level, and adaptation would probably be required at the health center level.

■ The communication mechanism for the CARE project was based on the already existing supervisory and management system. Thus, rather than establishing a special meeting for monitoring, this task was included in the regular monthly meeting. We recommend that PAYSA also make an effort to integrate the monitoring activities with ongoing management activities. The meeting schedule proposed at the orientation workshop would be very appropriate for reviewing monitoring data.

■ Interpretation of monitoring data requires a consistent measurement of indicators. However, due to the size of the project, the monitoring system should be flexible to allow for local variation in certain conditions, and some consideration should be given to the addition of other indicators in some settings.

5.3.4　Data Management and Sampling

■ The proposed system of data analysis will be very time- consuming because it must move through three of the organization's levels, at each of which data summary and tabulation is required. Even in the best case, a minimum of two months would be required for the data to collected, analyzed, summarized, and returned to the community. During this interval, many opportunities for a timely response to problems may be missed. We recommend that a simple hand tabulation system be developed at each level so that monitoring data can be reviewed immediately. Then, upon completion the computer analysis could be sent to all levels with the goal of informing everyone about overall program performance, as well as performance by region, etc. The data flow of data should be periodically reexamined to increase efficiency.

■ Clarify who is responsible for data collection, data entry, tabulation, analysis, and interpretation at all levels.

■ The LQAS sampling methodology used in the CARE monitoring system could be used by the PAYSA extensionists and volunteers. The unit or "lot" should be the community. In general, it will not be appropriate, from a methodological point of view, to spread a lot across more than one community, especially if more than one community health worker is involved.

■ The LQAS sampling strategy will permit use of different thresholds, or number of households visited, for different indicators. While sample sizes also could be altered

over time, we recommend the use of one sample size throughout, so that if the various indicators are straightforward the compilation and sampling instructions can be kept simple.

■ The time between data collections should be long enough so the monitoring cycle can be completed before the next one begins. The care program determined that three to four months was a good interval for data collection.

5.3.5 Comments on Draft Monitoring Formats

■ The layout of the monitoring instruments should be revised so that they permit rapid and accurate data entry or tabulation.

■ Each form should have an instruction guide to explain the criteria for subjective observations and to make clear how to respond to specific questions. The forms should be as self-explanatory as possible.

The following recommendations apply to the draft forms:

Form	Question	Comment
■ F-1	1)	Children less than five years of age should have age reported in months (0 to 60).
	2)	Questions concerning use and maintenance of latrines should be separated, otherwise data will be difficult to interpret.
	5&6)	It is not clear how these should be answered.
	7)	If reducing diarrhea in people over age five is not a program objective, it is not necessary to collect data about that age group.
■ F-2	2)	Include attendance and topics covered as well as number of charlas. This could be done with a simple checklist. The information would be useful for estimating the coverage of messages, as well as for planning at the local level.
	3)	Specify the type of group and include attendance.
	4)	Education materials should include topic, channel, number produced, and number distributed.
■ F-3		How would this information be used? Is it essential? Is it the most important information to consolidate? Perhaps 2, 3, and 4 could be revised so that they measure the number of people who attended sessions, rather than the number of sessions.

■ F-4

Clarify the frequency of use, sampling, and data analysis. This could be developed as a job aid that the volunteer uses routinely during household visits, or data collection and tabulation could be done on a sampling basis. Collecting data during every visit is may change the nature of the visit from a conversational and educational one to one which focuses on data collection.

Clarify how to respond to each question (yes/no, scale 1-5, etc.).

The picture which represents health is related to illness, not always to the program. The health worker needs instruction about how and criteria with which to determine if the respondent knows what contamination is. The purpose of the second question (menciona 3 casos de diarrhea) is unclear. It might be most useful to ask how many children have had diarrhea during the last two weeks. In addition, a question about ORT use could be added here.

In order for the monitoring system to measure project objectives, the environmental questions should also explore whether any trees were cut down by the family for fuel or construction.

REFERENCES

Akao Y. Quality Function Deployment: Integrating Customer Requirements into Product Design, Productivity Press, Cambridge, Massachusetts, 1990.

Bergeron G. Resultados y tabulaciones de la Encuesta de Linea de Base, Report to CARE, July 1992.

Bergeron G. Seminario taller sobre el uso e interpretacion de la boleta Listado de monitoreo grafico (LMG). Manual for CARE extensionists, July 1992.

Diprete L, Hurtado E. Development of a behavior-based monitoring system for the health education component of the rural water and health project, CARE-Guatemala, WASH Field Report, No. 364, July 1992.

Esrey SA, Potash J, Roberts L, Shiff C. Health benefits from improvements in water supply and sanitation: survey and analysis of the literature on selected diseases, Technical Report No. 66, July, 1990.

United States Agency for International Development. Guatemala Highlands Water and Sanitation Project: Project Paper, LAC/DR/HN, Washington, D.C. 1991.

Appendix A

SCOPE OF WORK

Background: In 1991, CARE/Guatemala initiated its Rural Water and Health (RWH) project in 22 rural communities in the Occidente Region of Guatemala. The project brings water and sanitation services to 10 new communities in which construction of water and sanitation facilities was completed in the last phase of an earlier project. The RWH project intends to reduce mortality due to diarrhea, particularly among children under five years of age, through a multidisciplinary strategy that incorporates installation of gravity-fed water systems; construction of latrines; formation and training of community water systems; selection and training of community health workers; selection and training of community maintenance workers; formation of women's, men's, and youth's health education and promotion groups; community participation; and extension of health, maintenance and community participation. The strategy is expected to result in improved health and improved sustainability of health and sanitation interventions in the 22 communities.

USAID/Guatemala, which provides financial support to the project, submitted a request to the LAC Bureau for technical assistance for WASH through cholera funds to develop a system for monitoring the health education component of the project. WASH assembled a two-person team, comprised of Lori DiPrete Brown, from URC's Quality Assurance Project, and Elena Hurtado, a behavioral scientist based in Guatemala. The team visited Guatemala over February and March of 1992, and developed the monitoring system using Lot Quality Assurance Sampling (LQAS) techniques, and also assisted in the design of a knowledge, attitudes and practices baseline survey (See WASH Field Report 364).

CARE/Guatemala began implementing the monitoring system in June 1992, and initial reaction to the system by CARE staff is that it is innovative and practical. CARE has now asked USAID/Guatemala for follow-up technical assistance from WASH to ensure that the system is being properly implemented and to correct any observed problems. CARE believes its staff needs training to improve skills in utilizing the monitoring system. Also, CARE would like assistance in utilizing Quality Function Deployment (QFD), presented under the first technical assistance visit, as a design tool in developing a strategy for the selection of alternative latrine models. Finally, USAID/Guatemala wishes to incorporate elements of the monitoring system developed for the CARE project into its own Highland Water and Sanitation Project, and would like to initiate these activities during follow-up technical assistance to CARE's project. Follow-up technical assistance has been requested for August-September 1992.

Objective: The objective of this task will be to address both USAID/Guatemala's and CARE/Guatemala's expectations for follow-up technical assistance. First, the team will evaluate CARE/Guatemala's progress in implementing the monitoring system and make any adjustments or modifications necessary; provide training to CARE staff to improved skills in utilizing the monitoring system; develop a strategy for CARE staff to follow in utilizing a QFD

approach to identifying the monitoring system; and develop a strategy for CARE staff to follow in utilizing a QFD approach to identifying an appropriate latrine design for project area. Second, the team will review USAID/Guatemala's Highland Water and Sanitation project paper and related Health Education Workshop Report, and offer specific recommendations to the mission for implementation of the monitoring system in the project.

Tasks: A three-person team will carry out the following specific tasks with respect to CARE/Guatemala:

1. Evaluate the degree to which the new monitoring system is being properly utilized, based on the recommendations presented in WASH Field Report No.364.

2. Finalize the project sustainability format drafted during the first technical assessment visit in February/March 1992.

3. The RWH project proposes to experiment with alternative latrine designs. As a first step toward QFD applications for latrine selection, a one-day workshop in which principal CARE staff are assembled will be held (The workshop will be conducted by Lori DiPrete Brown).

4. Train CARE staff in qualitative research techniques so that their skills at implementing the monitoring system are improved.

5. With the involvement of CARE field staff and community representatives, critique the monitoring format developed during the February/March technical assistance visit.

The team will also carry out the following specific tasks with respect to the USAID/Guatemala Highland Water and Sanitation (PAYSA) Project:

1. Review the PAYSA project paper and the Health Education Workshop report of March 1992.

2. Arrange for the full participation of USAID PAYSA project representatives in the review, training of staff, and critique of CARE/Guatemala monitoring system materials.

3. Make recommendations to USAID/Guatemala and PAYSA for the implementation of the monitoring system.

Personnel: A Team Leader, a management specialist, a behavioral scientist, and a sanitary engineer will work together in Guatemala to carry out the above tasks. The team leader will be Dr. Steve Esrey. The management specialist is Lori DiPrete Brown, one half of the WASH team that provided technical assistance to CARE in February/March 1992. The behavioral scientist is Elena Hurtado, the other half of the WASH team that provided assistance to CARE. The sanitary engineer will be Andrew Karp who has had extensive experience in rural sanitation in Guatemala.

The team will divide up the work lead as follows: Dr Esrey, as team leader, will be responsible for the production of a field report outlining the findings, activities, and recommendations

relevant to both CARE/Guatemala and USAID/Guatemala. Dr. Esrey, who also is providing epidemiological technical assistance to USAID/Guatemala for the design and implementation of the baseline survey in the PAYSA project, will benefit from becoming acquainted with LQAS techniques applied in the CARE project.

Elena Hurtado will concentrate on the assessment of CARE's implementation of the monitoring system and the draft survey format for measuring project sustainability. Ms. Hurtado will also take the lead in providing training to CARE staff on qualitative research techniques.

Lori DiPrete Brown will take the lead in assessing the USAID/Guatemala PAYSA project paper, and on adapting the monitoring system to the project. She will also orient Steve Esrey in LQAS techniques.

Andrew Karp will assist in the methodology to select an appropriate latrine model. He will also provide technical support during the QFD workshop, and will submit a written summary of latrine design issues addressed to him during the workshop.

Schedule

Steve Esrey to brief at WASH	August 28, 1992
Steve travels to Guatemala	August 29, 1992
(Note: Elena Hurtado and Lori DiPrete Brown will already be in Guatemala)	
Complete team in the Field	August 31-September 4,1992
Draft Report to WASH	September 11, 1992
Elena Hurtado to work with CARE staff in implementing recommendations and conducting training	September 21-25, 1992
Draft Report Distributed	September 30, 1992

Level of Effort

Team Leader	11 days	Briefing 1 day, travel 2 days; field work 5 days; report writing 3 days

Management Specialist	9 days	Prep. work 1.5 days; field work 5 days; report writing 2.5 days
Behavioral Scientist	12 days	Fieldwork 10 days; report writing 2 days
Sanitary Engineer	2 days	Travel and Preparation 1 day; workshop 1 day

Final Products

1. A Field Report in English

2. This report will be translated to Spanish.

Appendix B

WEEKLY SCHEDULE OF ACTIVITIES

Aug 28	Fri	Steve Esrey briefed at WASH by Ann Hirschey, John Chudy and David Nicholas (URC).
Aug 29	Sat	Steve Esrey travelled to Guatemala.
Aug 30	Sun	Meeting of Steve Esrey, Lori DiPrete Brown, Baudilio Lopez (USAID/Guatemala and PAYSA), and Ana Obiols-Noval (CARE) to review the tasks, confirm the schedule for the SOW, discuss the roles of each team member and interested parties, and plan Monday's meeting at CARE.
Aug 31	Mon	The team met at CARE's headquarters in Guatemala City along with CARE personnel carrying out monitoring activities, USAID/Guatemala and PAYSA personnel.
Sep 1	Tue	The team drove to Xela, visited 1 community to a) observe monitoring activities, and b) extract data from the community on latrine preferences for the QFD exercise. In addition the team planned the QFD workshop.
Sep 2	Wed	The QFD Workshop was held at the CARE office in Xela.
Sep 3	Thu	Lori DiPrete and Steve Esrey visited and interviewed with officials from the MOH, USAID/Guatemala, and PAYSA personnel; Elena Hurtado held a meeting with promoters and extensionists to discuss monitoring and to plan instrument production and implementation.
Sep 4	Fri	Lori DiPrete and Steve Esrey verbally debriefed USAID/Guatemala and PAYSA personnel on recommendations for a monitoring system; Elena Hurtado met with extensionist's supervisors on sustainability issues, strategies and instruments; Steve Esrey and Elena Hurtado briefed CARE on preliminary findings and recommendations.
Sep 5	Sat	Steve Esrey departed for Montreal
Sep 22-24		Workshop on Qualitative research techniques was conducted by Elena Hurtado in Chiquimulilla.

Appendix C

SCHEDULE OF REVIEW OF THE CARE MONITORING SYSTEM

Monday, August 31 at CARE Offices in Guatemala

9:00	Introductory Remarks
9:15	Introduction to Monitoring System, Choice of Indicators, and Preliminary Results
10:00-11:00	Discussion (Elena Hurtado facilitator):
	Evaluation and Measurement
	Tabulation and Analysis of Data
11:00-11:15	Recap
11:15-12:15	Discussion (Lori DiPrete Brown facilitator):
	Problem Identification
	Problem Analysis
	Development of Solutions
12:15-12:30	Recap
12:30-13:00	Questions
13:00-14:15	LUNCH
14:15-15:00	Discussion:
	Problem-Solving
	Action Taken
15:00-16:30	Indicators
16:30-17:00	Recap

Attendees

WASH

Lori DiPrete Brown

Elena Hurtado

Steve Esrey

CARE

Ana Obiols-Noval

Francisco Garcia C.

Salome Osorio

Walter Cosajay

F. Alejandro Cali

Luis Vasquez

Zeke Rabkin

USAID

Jose Baudilio Lopez

Michael Richards

PAYSA

Carlos H. Calderon G.

Marco Tulio Lopez

Appendix D

WORKSHOP SCHEDULE OF QUALITY FUNCTION DEPLOYMENT FOR LATRINE

Design: A One Day Workshop, September 2, 1992, Quezaltenango, Guatemala

 9:00 Introduction to QFD (DiPrete Brown)

10:00 Exploring Customer Requirements for Latrines (Hurtado)

11:00 Exploring Technical Requirements for Latrines (Karp)

11:45 Constructing a Quality Planning Chart (DiPrete Brown)

12:30 Lunch

 2:00 Constructing a Quality Chart (DiPrete Brown)

 3:00 Innovations in Latrine Design (Karp)

 3:45 Evaluation of the QFD Methodology (Discussion)

 4:30 Evaluation of the Seminar

OVERHEADS USED IN THE QFD WORKSHOP

1   Applying Quality Function Deployment to Latrine Design

Key Questions:

What is QFD?

What quality characteristics are demanded by the users of latrines?

Which of these characteristics are most important?

How does the latrine offered compare with the user's other options?

What are the technical elements of a latrine?

Which aspects of the current latrine design are the most important to improve?

2 What is QFD?

The World of the Engineer

_____

The World of the User

•

3   The History of QFD

1968 Invented by Yoji Akao,
Japanese Engineer

1983 Introduction to the United States
(Industry)

1992 Application to Latrine Design
in Guatemala ???

4 How Can You Use QFD?

■ As a methodology to improve a new product

■ As a methodology to improve the design
   of an existing product

■ As a tool to explore the relationships among all
   the elements of the design

Design Process Without QFD

```
Design phase---     | |- test - redesign - test - redesign -| |
PRODUCT             | |          user involvement           | |
```

Design Process With QFD

```
                              | |                    | | HIGH
Design phase----              | |   - test - refine -| | QUALITY
(user involvement)            | |                    | | PRODUCT
```

5 Phases of QFD

- Quality Deployment
- Technology Deployment
- Cost Deployment
- Reliability Deployment

6 How to Make a Quality Chart

1. Study user requirements, complaints and preferences.
2. Organize information on Quality Planning Chart.
3. Determine Quality Goals.
4. Calculate the Rate of Improvement for each requirement.
5. Determine Key Points (Sales Points).
6. Determine the Absolute Weight and Demanded Quality Weight.
7. Determine the Technical Elements of the product.
8. Put the information on a Quality Chart (demanded quality characteristics, demanded quality weight, technical elements)
9. Evaluation the correlation between demanded quality and technical elements
10. Determine which aspects of the design are priorities for improvement.

7 Exploring Customer Requirements

■   What characteristics do they want
    in a product?

■   What importance do they assign
    to each characteristic?

■   How does your product compare with
    other options from the user's point of
    view?

8 The Quality Planning Chart Determine the Demanded Quality Weight

- Level of importance

- Competitive analysis

- Quality Goal

- Improvement Rate

- Selling Points

- Absolute Weight

- Demanded Quality Weight

9   Formulas

Improvement Rate = Quality Goal / Current Quality Rating

Selling Points   *** = 1.5 , ** = 1 , * = .5

Absolute Weight =   Importance * Improvement * Selling
                                   Rating   Rate   Points

Demanded Quality = Absolute weight
Weight   --------------   * 100
                        Total Absolute Weight

Appendix F

PEOPLE MET/CONTACTED/PARTICIPATED

Participants in the meeting with CARE staff, PAYSA and AID at CARE Aug. 31, 1992

Baudilio López AID

Michael Richards AID—Evaluation and Monitoring

Marco Tulio López PAYSA

Carlos Calderón PAYSA

Alejandro Calí CARE

Ana Lucía Obiols CARE

Salomé Osorio CARE

Walter Cotzajay CARE

Francisco García CARE

Luis Vásquez CARE

Lori DiPrete Brown (WASH)

Elena Hurtado (WASH)

Steven A. Esrey (WASH)

Visit to Caserío Nueva Independencia, Colomba, Quezaltenango

on Sept. 1, 1992.

Members of Water Committee

Germán Andrés Castro—President

Francisco René Martínez—Secretary

Bernabé López—Treasurer

Gonzalo Méndez—Vocal 2nd

Aura Marina Rojas—Vocal, Promoter

Calixto Romero Guzmán—Fontanero

Municipal Authorities

Jorge Alfredo Leu Martínez—Alcalde Auxiliar

Petronilo Hernández—2nd Alcalde

Alfonso Morales Soto—Auxiliar 2

José Huertas Matheu—Auxiliar 5

Marta Elubia—CARE promoter

Eloina Ochoa Maldonado—CARE promoter

CARE

Marta Leticia García

Ileana del Valle

Marina Feliciano

María del Rosario López

Amarilis Almengor

Francisco García

Salomé Osorio

Luis Vásquez

Alejandro Cali

PAYSA

Miguel Antonio de León

Frisbi Godoy Estrada

Edilberto Serrano

Marco Tulio López

WASH

Lori DiPrete Brown

Elena Hurtado

Steven A. Esrey

Participants in working meetings with extensionists and extensionists supervisors (assistants) at CARE Quezaltenango, Sept. 3-4, 1992

Alejandro Calí, Asistente de Extensionista

Luis Vásquez, Asistente de Extensionista

Extensionists:

Amabilia Almengor

Eugenia Vásquez

Silvia Roldán

Belsy Durán

Irma Chávez

Marina Feliciano Vásquez

Carla Sarceño

Nora Alejandrina Pec Coy

Clara Luz Ac de Sical

Ileana de Valle

Marta Leticia García

María del Rosario López

Participants in the Workshop on Qualitative Research Techniques held in Chiquimulilla, Santa Rosa, Sept. 22-24, 1992

Alejandro Calí, Asistente de Extensionista

Luis Vásquez, Asistente de Extensionista

Extensionists:

Amabilia Almengor

Eugenia Vásquez

Silvia Roldán

Belsy Durán

Irma Chávez

Marina Feliciano Vásquez

Carla Sarceño

Nora Alejandrina Pec Coy

Clara Luz Ac de Sical

Ileana de Valle

Marta Leticia García

María del Rosario López

New extensionists:

Leticia Velásquez

Marina Ofelia Rivas Urízar

Others

CARE

Peter Heffron

Zeke Rabkin

Jay Jackson

USAID/Guatemala

Gary Cook

Pat O'Connor

Alfred Szarada

PAYSA

Carlos H. Calderon G.

Marco Tulio Lopez

Juan Cobles

Miguel Angel Cajas

Sergio Molina

Erik Alvarodo

Miguel Antonio Leon

Frysli Godoy

WASH

John P. Chudy

Lori DiPrete Brown

Steve Esrey

Anne Hirschey

Elena Hurtado

Andy Karp

Appendix G

HEALTH PROBLEMS IDENTIFIED BY CARE BASELINE SURVEY

Handwashing

The practice of effective handwashing (with running water, soap and a clean cloth to dry hands) was infrequent in some communities. The CARE staff decided to try food recipe demonstrations combined with classes on handwashing to promote and demonstrate its practice.

Latrine Use

Lack of use of latrines by small children (2-5 years of age) is one of the biggest problems. Mothers are afraid of children falling into the latrines; children themselves are afraid to go; and some mothers state that they do not have the time to take the children to the latrine several times a day. Child seats of various types were discussed. The Treasurer of the Water Committee in Nueva Independencia has made a small latrine for his children (which we were able to see), which could be a feasible solution.

More information is needed by the CARE staff on latrine maintenance because contradictory advice has been given to them. Also, the method of putting horse or cattle feces into the latrines to prevent bad odor cannot be implemented in places like Nueva Independencia where people do not have horses or cattle. Solutions to bad smells should be considered.

Pens for Animals

In one community the promoter tried insisting on keeping animals outside in a corral. People said this was not feasible because animals need to roam about to get food. The promoter suggested tying the animals outside for the night. One family followed her suggestion and had their turkey stolen. Also, small chicks cannot withstand the cold at night or are eaten by other animals, so they cannot be kept outside. If the fence is too low, animals can jump out. Also, some felt that it was more expensive to feed the chickens in a pen because they couldn't pick up seeds and scraps around the house. One woman built a cave-like structure for her animals, which was effective. The extensionist involved has learned a lot from the experience and is more aware of the need to explore the situation carefully before taking action.

Covering Water and Food

It was hard for the group to decide what the criteria for effective covering of water and food entailed. Changing behavior in this regard is very difficult. They had a long discussion about whether tortilla dough should be covered or not. They also discussed reheating of food and tortillas as more appropriate indicators of food hygiene but not feasible to observe.

Covering water was a specific problem. Some in the group felt that drinking water should not be stored in the house once the tap is installed. Others noted that women continue to store water because they need it in close proximity to where they cook. In some cases it is necessary to boil water before drinking, because the water's good quality is not assured. However, water boiling is costly, so is chlorination of water, and people don't always accept it.

Waste

CARE extensionists and promoters have insisted that families dig holes to bury their trash. However, in Nueva Independencia, people feel that their plots are already too small so that they cannot afford to make holes that fill up quickly. They have suggested burning their trash, as is done in a neighboring farm. For this, they are planning to build communal dumping holes (instead of family holes) with a tin roof that will help to dry up the trash and then set them on fire. CARE staff plans to work on waste classification.

Animal Feces

Although it was not reflected in the indicators, in several communities people have expressed to extensionists that lambs' feces is a problem. CARE staff needs information on ways to treat animal feces.

REVISION OF INSTRUMENT 8

Instrument 8
Water and Health Project
Interview with a Member of the Committee
or Group Discussion with the Committee

Comunidad: _____

Entrevistador (a): _____

Fecha: ___/ ___ /___

1. Su comunidad cuenta con un nuevo sistema de agua potable?
        0. NO
        1. SI

2. Cuántos litros de agua por habitante por día proporciona su sistema?

3. Su comunidad tiene un Comité de Agua trabajando?
        0. NO
        1. SI

4. (SI) Cuántas personas lo forman?

5. Cuántas mujeres?

6. Quiénes lo forman?

7. Todos los miembros del Comité han completado la capacitación en Administración, Operación y Mantenimiento (OAM)?

8. Cuántos promotores de agua hay en la comunidad?

9. Cuántos promotores son miembros del Comité?

10. Cuántos miembros del Comité han servido en el mismo por más de un año?

11. El Comité tiene definida una tarifa por servicio de agua?

12. El Comité tiene talonarios I-D de tarifa mensual?

13. Cuántos beneficiarios han pagado la tarifa de agua del último mes?

14. El Comité mantiene en orden un libro de contabilidad (definir criterios de orden)?
    0. NO
    1. SI

15. El Comité tiene libro de caja operado?
    0. NO
    1. SI

16. El Comité tiene una cuenta bancaria?
    0. NO
    1. SI

17. En este momento tiene fondos el Comité?
    0. NO
    1. SI

18. (SI) Qué ha hecho/ piensa hacer el Comité con esos fondos?

19. El Comité tuvo una reunión el último mes?
    0. NO
    1. SI

20. El Comité tiene un abastecimiento de herramientas y materiales básicos para mantener y reparar desperfectos del sistema? (Debe incluirse la lista de herramientas y materiales básicos y observarse 0. NO   1. SI)

21. Qué harían en caso faltara un fontanero, para reemplazarlo y entrenar a otro?

22. Qué harían en caso faltara un promotor, para reemplazarlo y entrenar a otro?

23. El Comité ha reemplazado a un fontanero cuando ha sido necesario?
    0. NO
    1. SI
    9. NO HA HABIDO NECESIDAD

24. El Comité ha reemplazado a un promotor cuando ha sido necesario?
       0. NO
       1. SI
       9. NO HA HABIDO NECESIDAD

25. Cuántos fontaneros hay en la comunidad?

26. Los fontaneros han reparado con éxito algún desperfecto en el sistema de agua?

27. Ha habido algún desperfecto que los fontaneros no hayan podido reparar?
       0. NO
       1. SI

28. (SI) En esos casos qué han hecho?

29. Ha tenido el Comité relación con UNEPAR desde que se inauguró el proyecto de agua?
       0. NO
       1. SI

30. (SI) Con quién en UNEPAR? Cuándo? Por qué motivo?

31. Le pagan por sus servicios a los fontaneros?

32. Le dan algún reconocimiento por su servicio a los promotores?
       0. NO
       1. SI

33. (SI) Cuál? Desde cuándo?

34. El Comité ha iniciado algún otro proyecto de beneficio para la comunidad y relacionado al proyecto de agua?
       Vivero comunal
       Reforestación
       Unidad de Terapia de Rehidratación Oral Comunitaria

Reforestación (Las preguntas sobre reforestación debe hacerlas también a otra persona, como a un promotor forestal, y no sólo al Comité)

35. Hay en la comunidad algún chorro designado para proveer agua en un vivero?

36. Hay en la comunidad un vivero funcionando?

37. Cuántos árboles han sembrado en la minicuenca donde está la fuente?

REVISION OF INSTRUMENT 9

Instrument 9
Water and Sanitation Project
Interview with the Promoter

Comunidad: _____

Entrevistador (a): _____

Fecha: ___/ ___ /___

1. De cuántas viviendas es el sector que usted tiene a su cargo?

2. Cuántos hogares de su sector visitó usted en el último mes?

3. Tiene usted una guía de trabajo para usar durante las visitas a las familias?
    0.NO
    1.SI

4. Cuántas reuniones educativas con madres hizo en el último mes?

5. Cuántas madres asistieron a una reunión educativa en el último mes?

6. Cuántos casos de diarrea trató con suero oral el último mes?

7. Está usted dispuesta a trabajar como promotora por lo menos un año más?
    0.NO
    1.SI

8. Está usted dispuesta a entrenar a su suplente en caso usted se retirara?
    0.NO
    1.SI

9. Se siente usted capaz de entrenar a otra promotora?
    0.NO
    1.SI

10. Cuán satisfecha está usted con su trabajo como promotora? Está usted muy satisfecha, satisfecha o no está satisfecha?
   1. NO SATISFECHA
   2. SATISFECHA
   3. MUY SATISFECHA

11. Recibe usted algún pago o compensación por sus servicios como promotora?
   0. NO
   1. SI

12. (SI) Qué recibe? Cómo le parece?

13. Conoce usted a un fontanero en la comunidad?
   0. NO
   1. SI

14. (SI) Cómo se llama el fontanero?

15. Conoce usted a algún promotor de salud del Ministerio que trabaje en esta comunidad?
   0. NO
   1. SI

16. (SI) Cómo se llama el promotor?

17. Ha recibido usted algún curso de capacitación del Ministerio de Salud Pública?
   0. NO
   1. SI

18. (SI) Cuándo? Sobre qué?

19. Cuáles son las tres cosas más importantes que una promotora de agua debe hacer?
   1. VISITA DOMICILIAR
   2. DAR SUERO ORAL EN CASOS DE DIARREA
   3. REUNIONES EDUCATIVAS
   4. OTRA: _____

20. Es usted miembra del Comité de Agua?
   0. NO
   1. SI

21. (SI) Alguna vez ha informado usted al Comité de sus actividades como promotora?
    0. NO
    1. SI

22. (SI) Cuándo fue la última vez? Qué informó?

23. Tiene usted algún carnet o identificación que la acredite como promotora?
    0. NO
    1. SI

24. (SI) Me lo podría enseñar? DESCRIBIR

REVISION OF INSTRUMENT 10

Instrumento 10
Water and Sanitation Project
Interview with the Plumber

Comunidad: _____

Entrevistador (a): _____

Fecha: ___/ ___ /___

1. Hace cuánto tiempo es usted fontanero?

2. Ha reparado algún desperfecto en el sistema de agua? Cuántos?

3. Ha habido algún desperfecto en el sistema que no haya podido
    reparar? Cuáles?

4. Qué hizo en ese caso?

5. Ha tenido usted relación con alguien de UNEPAR desde que se
    inauguró el proyecto de agua?
        · 0. NO
        1. SI

6. (SI) Con quién?

7. Tiene una guía u hoja de registro para llevar control de las
    reparaciones que hace?
        0. NO
        1. SI

8. Está usted dispuesto a servir a su comunidad al menos por un
    año más?
        0. NO   -
        1. SI

9. Está usted dispuesto a entrenar a un suplente en caso usted ya
    no trabaje como fontanero?
        0. NO
        1. SI

10. Cuán satisfecho está usted con su trabajo de fontanero? Está usted muy satisfecho, satisfecho o no está satisfecho?
    1. NO SATISFECHO
    2. SATISFECHO
    3. MUY SATISFECHO

11. Conoce usted a una promotora de agua?
    0. NO
    1. SI

12. (SI) Cómo se llama la promotora?

13. Tiene usted una guía o lista de chequeo para llevar control del mantenimiento rutinario del sistema de agua?

14. Es usted miembro del Comité de Agua?
    0. NO
    1. SI

15. (SI) Ha informado usted al Comité de sus trabajos en la comunidad?
    0. NO
    1. SI

16. (SI) Cuándo fue la última vez? Recuerda qué informó?

17. El Comité le paga a usted por sus servicios?
    0. NO
    1. SI

AGENDA FOR THE WORKSHOP OF RESEARCH METHODS

```
TALLER SOBRE TECNICAS DE INVESTIGACION CUALITATIVA
              EXTENSIONISTAS DE CARE
          CHIQUIMULILLA, 22-24 SEPT. 1992
```

Objetivos

    Los objetivos de este taller son los siguientes:

1. Practicar   tres   técnicas   de   investigación   cualitativa:
    observación directa, entrevista abierta y grupo focal.

2. Elaborar un sencillo protocolo de investigación para probar un
    nuevo producto: letrina mejorada (SIL).

3. Revisar el manual de educación vis-a-vis (cara a cara) con
    algunos de los indicadores de monitoreo y utilizando
    principios de comunicación social en salud/ mercadeo social.

SON AMBICIOSOS, PERO NO IMPOSIBLES SI TODOS NOS ESFORZAMOS!

Agenda

    Para todos los días, la agenda del taller será la siguiente:

```
8:00      Breve introducción a una de las técnicas
9:00      Práctica en el campo (Poza de Agua)
11:00     Preparar notas de campo
11:30     Discutir la experiencia
12:30     ALMUERZO
2:30      Elaborar propuesta sencilla de investigación
4:00      Revisión del Manual - indicadores
```

Resultados esperados

    Esperamos que al final del taller:

1. Todos sepamos más acerca de la investigación cualitativa.

2. Tengamos una pequeña propuesta de investigación para probar las letrinas SIL en el lugar donde han sido construidas.
3. Hayan sugerencias escritas sobre como mejorar el Manual de educación.

PRACTICA DE CAMPO

Practica de Campo 1
OBSERVACION DIRECTA

Su tarea para esta mañana es hacer una observación directa, no estructurada, sobre el tema que deseen. Necesitamos que formen parejas, así dos extensionistas hacen la misma observación.

1. Escojan un tema de observación.

    Algunas sugerencias son:

    práctica de higiene
    práctica de alimentación infantil
    servicio que alguien presta
    práctica de curación
    práctica religiosa

2. Vayan al lugar que han escogido para observar, expliquen el propósito de su presencia y colóquense cada una en una posición adecuada para observar.

    Algunas sugerencias de lugares son:

    casa de alguna familia
    tienda, farmacia, servicio de salud
    iglesia

3. Hagan su observación sin causar demasiadas distracciones a las personas observadas, sin que alteren mucho su comportamiento. Si pueden, lo ideal es que tomen algunas notas durante la observación.

4. Cuando hayan terminado escriban cada una por separado sus notas. No se olviden de anotar lo siguiente:

    fecha de la observación
    lugar de la observación
    duración de la observación (hora en que empezó y terminó)
    notas detalladas de lo que observaron

Practica de Campo 2
ENTREVISTA ABIERTA

        Su tarea para esta mañana es hacer una entrevista abierta con
una persona de la comunidad sobre el mismo tema que escogió qyer
para realizar la observación.

1.   Haga una breve guía de entrevista abierta.

2.   Vaya al lugar y con la persona que ha escogido para hacer la
      entrevista, explique el propósito de la misma.

3.   Haga su entrevista. Si puede, lo ideal es que tomen algunas
      notas durante la entrevista.

4.   Cuando haya terminado escriba la información que le dio la
      persona entrevistada. No se olvide de anotar lo siguiente:

      fecha de la entrevista
      lugar de la entrevista
      persona entrevistada
      duración de la entrevista (hora en que empezó y terminó)
      notas detalladas de la entrevista

Practica de Campo 3
REUNION DE GRUPO FOCAL

Su tarea para esta mañana es hacer una reunión de grupo focal con personas de la comunidad sobre el tema que sea del interés del grupo.

1. Desde el lunes o martes deben hacerse las invitaciones para participar en el grupo focal. Vamos a hacer 1-2 grupos dependiendo de los locales con que contemos.
    A las personas que inviten les deben de decir:
    -propósito general de la reunión
    -hora y lugar de la reunión
    -qué se espera de ellos (que asistan, que estén 1 hora)

2. Hagan una breve guía de discusión de grupo focal. Decidan quién será la moderadora del grupo y quién será la redactora. Las demás serán observadoras.

3. A la hora indicada deben estar en el lugar de la reunión con todo preparado.

4. Hagan la reunión de grupo.

5. Cuando hayan terminado, juntas completen las notas de la reunión. No se olvide de anotar lo siguiente:

    fecha de la reunión
    lugar de la reunión
    número de personas que participaron; nombre; otros datos
    duración de la reunión (hora en que empezó y terminó)
    notas detalladas de la discusión

SPANISH APPENDIXES

DESPLIEGUE DE LA FUNCIÓN DE LA CALIDAD

Preguntas claves:

¿Que es DFC?

¿Cuales son las caracteristicas claves para el usario?

¿Cuales caracteristicas son mas importantes para el usario?

¿Como compara la letrina mejorada con otras opciones?

¿Cuales son los elementos técnicos de una letrina?
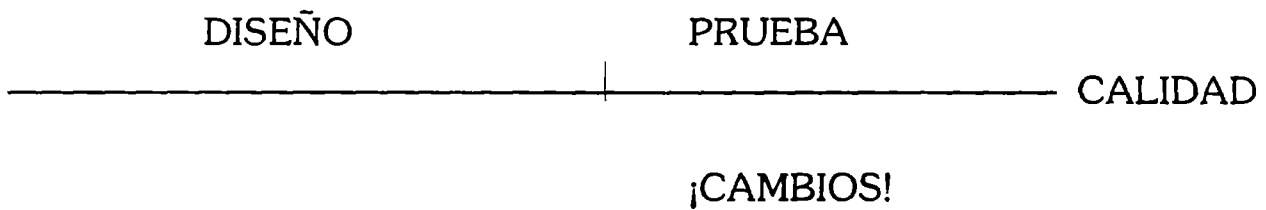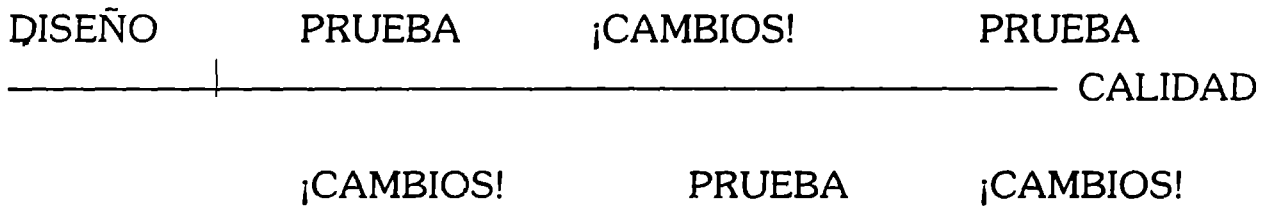
¿Cuales aspectos del diseño de la letrina son mas importante para mejorar?

HISTORIA DE DFC

- 1968   Inventado por Yoji Akao, Ingeniero Japonés

- 1983   Introducción en EEU (industria)

- 1992   Aplicación al Diseño de letrina en Guatemala!???!

¿QUE ES DFC?

- Un proceso para diseñar un nuevo producto

- Un proceso para mejorar el diseño de un producto

- Una manera de ilustrar las relaciones entro todos los elementos de un diseño

DISEÑO	PRUEBA	¡CAMBIOS!	PRUEBA	
				CALIDAD
	¡CAMBIOS!	PRUEBA	¡CAMBIOS!	

DISEÑO	PRUEBA	
		CALIDAD
	¡CAMBIOS!	

ELEMENTOS DE DFC

- ■ Despliegue de Calidad

- ■ Despliegue de Técnologia

- ■ Despliegue de Costo

- ■ Despliegue de Confiabilidad de Producto

COMO HACER UN MATRIZ DE DESPLIEGUE DE CALIDAD

1. Estudio de los deseos/demandas de los usarios

2. Registrar la información en la matriz

3. Determinar la meta de la calidad

4. Calcular el indice de mejoramiento

5. Determinar los puntos claves (puntos de venta)

6. Determinar el peso de las caracteristicas descadas

7. Determinar las caracteristicas del producto (elementos técnicos)

8. Formar el matriz (caracteristicas de calidad, elementos técnicos, y peso)

9. Evaluar las correlaciones

10. Determinar cuales aspecto del diceño son mas importante

DETERMINAR EL PESO DE LAS CARACTERISTICAS DESEAAS

- Grado de importancia

- Análisis Competitivo

- Plan de Calidad (meta)

- Porcentaje de mejora (indice)

- Punto Clave (punto de venta)

- Peso Absoluta

- Peso de Demanda (PESO)

ESTUDIO DE LOS USARIOS

- Cuales caracteristicas desean del producto

- Cual grado de importancia tiene cado caracteristica

- Como compara con otras opciones (la competencia)

	IMPORINANCIA	LETRINA	AIRE	LETRINA/ AGUA	META DE CALIDAD	INDICEDE MEJORA	PUNTO DE VENTA	CALIDAD ABSOLUTA	CALIDAD DE DEMANDA
FACIL DE LIMPIAR	4 6	3	5	4	5	1.6	✓	7.4	10.17
SEGURO PARA NINOS	5	2	5	5	5	2.5	★	18.5	24.82
PERMITE USAR DOTE SIN LLENAR RAPIDO	4.3	1.5	5	1	5	3.3	✓ ■	14.3	18.95
NE DA MIEDO SANTARSE	3.6	2.5	3	5	5	2	✓	7.2	9.53
SIN MAL OLOR	4 6	1	3	4	4	4	★	27.6	36.53

★ = SI (IS
✓ = TAL AC VEZ CZ
O = NO LIS

Calidad Absoluta Total = 75.55

FORMULAS

Indice de mejora $=$ $\dfrac{\text{meta de calidad}}{\text{calidad actual}}$

Punto Clave $=$ ★   ✓   ◯
                   (1.5)   (1.0)   (.5)

Peso absoluta $=$ grado de importancia **x**
                        indice de mejora **x**
                        punto clave

Peso de Demanda $=$ $\dfrac{\text{Peso absoluta de caracteristica}}{\text{Peso absoluta total}} \times 100$

Despliegue de la Función de Calidad
Diagrama de Calidad

Diagrama de Calidad	Características de Calidad	1er Nivel							
	de Calidad Despliegue del Diagrama	2do Nivel							
Diagrama De Despliegue de Calidad en Demanda	Grado de importancia	3er Nivel							
1er Nivel / 2do Nivel / 3er Nivel									

Leyenda: Grado de Correlación

★ Alta ✓ Alguna X No correlación ? No Sé

Plan de Calidad

	Peso		Plan			Análisis Competitivo				
	Calidad en Demanda	Calidad Absoluta	Punto de Venta	Porcentaje de Mejoría	Plan de Calidad	Nuestra Compañía	Otras Compañías — Compañía X	Otras Compañías — Compañía Z		Grado de Importancia

Solicitud de Calidad: 1er Nivel, 2do Nivel, 3er Nivel

ELEMENTO TECNICO		TAZA	PLANCHA	POSO	CASETA	LOCALIZACION	SELLO DE AGUA
USARIO .							
FACIL LIMPIAR	10	★	★	X	✓	✓	★
SEGURO PARA NINOS	25	★	✓	X	✓	✓	★
PERMITE USO DE ELOTRES SIN LLENAR RAP	19	X	X	★	X	X	★
NO DA MIEDO SENTARSE	10	★	✓	★	✓	✓	★
SIN MAL OLOR	37	★	✓	★	✓+	✓	★

★ ALTA   ✓ ALGUARIA   X NO CORRELACION   ? NO SE

82

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 to 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.