WASH FIELD REPORT NO. 147

CARE-BELIZE WATER SUPPLY AND SANITATION
BASELINE SURVEY

Prepared for the USAID Mission to Belize
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by

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Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRONYMS</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>v</td>
</tr>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>vii</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. PROJECT BACKGROUND</td>
<td>5</td>
</tr>
<tr>
<td>2.1 General Description</td>
<td>5</td>
</tr>
<tr>
<td>2.2 Project Staffing</td>
<td>5</td>
</tr>
<tr>
<td>3. THE VLWS PROJECT APPROACH AND ACTIVITIES</td>
<td>7</td>
</tr>
<tr>
<td>3.1 VLWS Project Approach</td>
<td>7</td>
</tr>
<tr>
<td>3.2 Village Water and Sanitation Profile</td>
<td>8</td>
</tr>
<tr>
<td>3.3 Selection of Project Villages</td>
<td>9</td>
</tr>
<tr>
<td>3.4 Village Meetings</td>
<td>11</td>
</tr>
<tr>
<td>3.5 Baseline Household Survey</td>
<td>12</td>
</tr>
<tr>
<td>3.6 Household Survey Tabulation and Analysis</td>
<td>13</td>
</tr>
<tr>
<td>3.7 Monitoring and Evaluation</td>
<td>14</td>
</tr>
<tr>
<td>4. CONCLUSIONS</td>
<td>19</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>21</td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>A. List of Contacts</td>
<td>23</td>
</tr>
<tr>
<td>B. Usefulness of the Goode/MOH/USAID Water and Sanitation Survey for</td>
<td>27</td>
</tr>
<tr>
<td>Corozal and Orange Walk Districts</td>
<td></td>
</tr>
<tr>
<td>C. Village Water and Sanitation Profile Form</td>
<td>31</td>
</tr>
<tr>
<td>D. Sample Letter to Village Councils Regarding Implementation of the</td>
<td>39</td>
</tr>
<tr>
<td>Village Water and Sanitation Profile</td>
<td></td>
</tr>
<tr>
<td>E. Ranking Sheet for Village Water and Sanitation Profiles</td>
<td>43</td>
</tr>
<tr>
<td>F. Household-Level Water and Sanitation Survey</td>
<td>47</td>
</tr>
<tr>
<td>G. Water and Sanitation Inspection Form</td>
<td>55</td>
</tr>
<tr>
<td>H. Household Survey Tabulation Worksheet</td>
<td>61</td>
</tr>
</tbody>
</table>
ACRONYMS

lcd  Liters per capita per day
MOH  Ministry of Health
O&M  Operations and maintenance
REAP Relevant Education for Agriculture Production
RWS  Rudimentary Water System
UNICEF United Nations International Children's Emergency Fund
USAID United States Agency for International Development
VLWS Village-Level Water and Sanitation Project
WASH Water and Sanitation for Health Project
WHO  World Health Organization
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In the United States, WASH (Jim Jordan and Ray Isely) and CARE-New York staff (Rudi Horner) assisted by making helpful comments on many drafts of both the survey and final report. Bill Davidson, an anthropologist, helped to orient the WASH consultant about the vagaries of working in Belize.
EXECUTIVE SUMMARY

From January through June 1985, a consultant sponsored by the Water and Sanitation for Health (WASH) Project made three trips to Belize to work with CARE-Belize on the design and implementation of a baseline household water and sanitation survey. This assignment was based on a request from the USAID Mission in Belize and authorized by AID's Office of Health in Washington. The WASH consultant worked with CARE, the U.S. Agency for International Development (USAID), Ministry of Health (MOH) and UNICEF staff in designing the household water and sanitation survey. At this time the survey is being used only in two districts (Corozal and Orange Walk) where CARE is implementing the Village-Level Water and Sanitation (VLWS) project. Ultimately, the survey will be used throughout Belize on all rural water and sanitation projects. To date, it has also been utilized in the Toledo and Stann Creek Districts with only slight modifications.

Initially the assignment was to design and implement the baseline household survey. However, in response to suggestions from the MOH, CARE and USAID, the scope of work was expanded to include assistance in developing a system for selecting and ranking villages to be involved in the water and sanitation programs. This work included:

- refining village selection criteria with project staff;
- designing and implementing village water and sanitation profiles in 58 villages; and
- developing scoring sheets and a process for analysis of the village profiles by CARE and MOH staff for selecting 16 project villages in Corozal and Orange Walk districts.

Upon completion of these activities, a baseline household survey was designed and implementation begun in two project villages, although initially it was expected that the WASH consultant would implement the survey for all 16 CARE project villages. Based on the need to work in a more systematic and consistent process with project villages, a new approach was determined. This included training project staff in all aspects of survey design, enumeration and analysis, and establishing a process whereby village residents were involved in all phases of the survey and profile activities. Emphasis was placed on making sure that local residents understood how the project was being implemented, how decisions were to be made, and what village involvement in decision making could be expected. Villagers were also directly involved in survey design (through pretesting), in survey enumeration (working as part of a two-person team with CARE staff), and in use of the survey results for designing a local water and sanitation program. Ultimately, this approach would mean that labor-intensive methods of survey tabulation and analysis rather than computers could be used.

The baseline survey and village water and sanitation profile were designed with all seven districts of Belize in mind. Also, a system for project monitoring and evaluation utilizing the household survey form or a more abbreviated household sanitary survey form was suggested. Revised indicators for project progress were also provided.
Chapter 1
INTRODUCTION

As originally described in the Village-Level Water and Sanitation (VLWS) Project proposal presented to the U.S. Agency for International Development (USAID) in 1984, the Water and Sanitation for Health (WASH) Project was requested to assist CARE-Belize in undertaking a series of village-level surveys to obtain information regarding:

- Environmental health knowledge -- How great is local awareness of the connection between clean water, proper excreta disposal and good health?

- Water use and sanitation attitudes -- What is water valued for? What sources of water are best for which purposes? Are there cultural beliefs related to excreta disposal or personal hygiene? What is the importance of ill health, especially in children?

- Water usage and sanitation practices -- What are current water sources? What is water used for and in what quantities? How is excreta disposed of? What are the major problems connected with meeting daily household water and sanitation needs? What are the seasonal variations?

The scope of work prepared by WASH requested that a baseline survey specialist develop and execute a survey to gather information on the current attitudes and practices concerning water usage and methods of excreta disposal in rural communities in the Orange Walk and Corozal districts of Belize. The survey would identify sources and quantities of water used in these communities. The following were accomplished:

- review of project documentation and discussion with CARE, the Government of Belize (GOB) and USAID, as appropriate, to obtain a clear idea of project goals and objectives;

- review of data collected by USAID vis-a-vis socioeconomic conditions in villages involved in the rural roads project (for Orange Walk and Corozal only);

- review of data collected by USAID vis-a-vis nationwide inventory of handpumps and latrines (for Orange Walk and Corozal only);

- development of scope of work and budget for initial baseline survey;

- development of baseline survey instruments including the village profile to cover the data needed for ongoing monitoring and final evaluation;

- recruitment and training of field personnel for data collection;

- pretesting and revision of survey instrument;
• execution of baseline survey in one village;
• design of information feedback system for collecting the data necessary for ongoing monitoring;
• analysis of data from the one village and preparation of report, including financial accounting for expenses incurred for survey; and
• training of CARE's two district coordinators to conduct further baseline and follow-up surveys.

Work on this project was begun in January 1985 with three trips made to Belize between February and June 1985. During the first trip (February 1985), work was principally with the VLWS CARE project coordinator (at that time, Sylvano Guerrero) and with the CARE public health education specialist (Douglas Clark). This team also received input and guidance from other staff at CARE, MOH, USAID, Peace Corps and UNICEF (see Appendix A for a list of contacts). This first trip focused on reviewing relevant documents, becoming familiar with the project areas, providing water and sanitation project implementation advice, and producing a village water and sanitation profile form and a draft baseline household-level survey.

In the time between the first and second trips, CARE staff, after circulating the form to other organizations involved in water supply and sanitation, visited all 58 villages in Corozal and Orange Walk districts and completed a village water and sanitation profile of each village. MOH representatives accompanied the CARE staff on visits to 10 of the 58 villages. At the same time, the preliminary household survey was circulated for comments among the staff at CARE, Peace Corps, UNICEF, MOH and USAID, as well as AID/Washington and the WASH office.

The second trip began on March 13, 1985, and lasted two weeks. Activities included:

1. selection by CARE and MOH staff of the villages in each district where the CARE project will focus, using the village water and sanitation profile completed by CARE and MOH staff;
2. finalizing and pretesting the household survey form;
3. training CARE staff in the implementation of the household survey;
4. discussing with USAID, UNICEF and MOH staff the progress of the CARE project to date, survey methodologies, the village selection process, and intended activities.

In the time between the second and third trips, CARE staff, with assistance from local villagers, implemented the baseline household survey in the first project village, Buena Vista. Villagers worked in a team fashion with CARE staff visiting each household and completing the survey. One hundred percent of the households in the village were covered.

The third trip, from April 18 to May 8, 1985, included tabulation and analysis of the survey data from Buena Vista, further training of CARE and MOH staff,
and communication of general program recommendations to CARE-Belize as to how the survey data would be used to design projects in the villages. Staff orientation for work on similar baseline studies for the UNICEF and USAID water and sanitation projects with the MOH was also provided.

In reference to the scope of work, it is important to note that it was decided not to attempt completion of the household survey in all villages at this time. To do so would be difficult logistically, would place a great burden on the already overextended CARE-Belize technical and support staff, and would not allow enough time for the project to put in sufficient "groundwork" (presurvey orientation, public meetings, forming water and sanitation committees, etc.) in each village. Rather, emphasis was placed on indepth training of CARE and MOH staff such that they will be able to implement all aspects of the survey work in the future.
Chapter 2
PROJECT BACKGROUND

2.1 General Description

The CARE Village-Level Water and Sanitation (VLWS) Project is a three-year project focusing on roughly 1,600 households in Corozal and Orange Walk districts in northern Belize. The water supply component of the project will include activities such as the development and rehabilitation of 160 tubewells and the installation of 160 (1 per 10 families by UNICEF standards) Mark II handpumps (made in India). The Mark II handpump has been chosen by the MOH as the standard handpump for all new government-funded projects. There is also a possibility that the project may assist some villages in the installation of small, centralized potable water systems, or rudimentary water systems (RWS). The sanitation component of the project plans to construct and/or rehabilitate 1,600 latrines (1 per family).

The overall project places a strong emphasis on health education for all age groups including both formal school-based programs and nonformal, community-based education. The strong project emphases on health education and community "self-help" distinguish it from past efforts by the GOB in the water and sanitation sector which usually donated to the village all the necessary materials, technical assistance and operations and maintenance resources. The village profile was designed to help project staff select villages for water supply installations, while the household survey was designed to provide baseline and follow-up data on selected villages.

2.2 Project Staffing

CARE project staff working full-time on the project include:

1. a project coordinator from Belize who resides in Belize City;
2. a health education adviser from the United States who resides in Corozal, but will work in both districts;
3. a water and sanitation engineering adviser from the United States who resides in Orange Walk, but will work in both districts;
4. a Belizian coordinator for Orange Walk district (resident of the district); and
5. a Belizian coordinator for Corozal district (resident of the district).

On the MOH side, the chief public health inspector, stationed in Belize City, will provide central-level support and guidance to the project. MOH has also designated a special water and sanitation project coordinator who is also a public health inspector and is based in Belize City. This coordinator is to work with all three of the MOH's current rural water and sanitation projects which are being supported by CARE, UNICEF and USAID. In the field, each
district public health inspector will work with CARE on all aspects of project implementation. Finally, the MOH will have a health education specialist at the national level who will work with the CARE health education specialist.
3.1 VLWS Project Approach

As outlined above, the CARE project is expected to provide potable water and improved sanitation facilities for 1,600 households in Corozal and Orange Walk districts. Following are the project activities that are expected to result in improved water and sanitation conditions in each project village:

1. Implementation of a village water and sanitation profile for all villages in the Corozal and Orange Walk districts by CARE and MOH staff, with assistance from villagers, Relevant Education for Agricultural Production (REAP) district councils and district health teams;

2. Using the village water and sanitation profile, selection of project villages by MOH, USAID/Belize and CARE-Belize, based on specified selection criteria (discussed in Section 3.3);

3. After selection of villages, conduct of general village meetings in each project village to fully explain the project purpose, the CARE and MOH contributions envisioned, and the expected input from the villages; and

4. Implementation of a baseline household survey of water and sanitation conditions for project design, monitoring and evaluation purposes. The baseline survey focuses not only on technical aspects of water and sanitation (e.g., latrine conditions, water quality, etc.), but also community development and socioeconomic conditions in each village.

The CARE/MOH project is one of three new rural water and sanitation projects currently underway in Belize. The other projects are being implemented by the MOH with assistance from UNICEF (in Toledo district) and USAID (in rural Belize district, Stann Creek, and Cayo districts). In each case, it is possible that baseline surveys similar to this one will be conducted. Hence, an attempt has been made to coordinate the design of the CARE village profile and baseline household survey with the other organizations. As mentioned previously, in the time between the first and second trips, the village water and sanitation profile and the draft baseline household survey were circulated among the different organizations for their comments. It is hoped that the CARE village profile and household survey can be used either wholly or in part by project staff in other districts.

The MOH/CARE project represents the first comprehensive and systematic effort to improve water and sanitation conditions in Corozal and Orange Walk districts. The project also deviates sharply from past water and sanitation efforts in Belize in which the GOB has directed local water and sanitation projects and provided almost all labor and materials. In contrast, this project (as well as the USAID and UNICEF projects with MOH) places immense importance on community participation. In this context, this means that for the
first time villagers will be asked to cover most long-term operation and maintenance costs as well as a substantial portion of the capital costs (materials and labor) for installing improved water and sanitation systems. MOH and CARE will provide the villages with assistance for setting up operations and maintenance (O&M) programs including local mechanisms for funding long-term needs such as spare parts, mechanics, etc. Both CARE and MOH (as well as USAID and UNICEF) believe that the villages can, and should bear the costs of long-term O&M. With this in mind, CARE, UNICEF, MOH and USAID are now working together to establish a set of national policies that should clarify what participation means in terms of water and sanitation. For example, a policy is to be established which will clarify exactly what village contributions (labor and materials) are expected during a latrine construction program. The new CARE, UNICEF and USAID projects all plan to request maximum village contributions, going beyond previous efforts in which everything was usually donated to the village. It is hoped that this new philosophy will apply to all water and sanitation projects, including the installation of latrines, handpumps, and rudimentary water systems (RWSs) (see Section 3.3).

It was decided that Belizian district health officers, project coordinators and local residents would serve as survey enumerators. This serves a number of purposes. It enables new project staff (i.e., the newly hired CARE district coordinators) to become familiar with each village. It also means that longer-term concerns such as community participation and counterpart training are given the proper emphasis from the very beginning of the project. If adequately involved in developing the survey, local enumerators can ensure that questions are asked in an appropriate way and that important issues are addressed. Also, during survey implementation their knowledge of local customs, people, and water and sanitation practices can help to ensure that survey responses are realistic. At the same time, they can provide informal comments, often the most important part of a survey. Obviously, this kind of input is invaluable.

The involvement of nontechnical (from either a social science or water and sanitation perspective) enumerators creates special conditions for survey design and implementation. Care must be taken to ensure that the enumerators' perspectives do not impinge on the objectivity of the survey. To some extent this cannot be avoided; one can only attempt to minimize it. The nontechnical background of the enumerators also means that they must be given substantive training before formal survey work begins. Finally, it is very important that ample supervision take place during survey implementation. Past survey work in Belize (see Appendix B, the Goode/MOH/USAID water and sanitation survey) has demonstrated the importance of making sure that surveys are completed in sufficient detail, that writing is clear (especially numbers), and that village residents are given sufficient explanation of the purpose of such surveys.

### 3.2 Village Water and Sanitation Profile

A village water and sanitation profile (presented in Appendix C) was completed for all 58 villages in the Corozal and Orange Walk districts. This was accomplished through site visits to each village and collection of data from a variety of other information sources outside the village. The site visits were conducted primarily by the CARE-Belize VLWS project coordinator and the
consideration was given to having villagers themselves fill out the village water and sanitation profile. However, given that village selection is a major purpose of this form, it was felt that objectivity and accuracy would be compromised. Such a process would be difficult to defend to other government staff as well as other district residents. In addition, a substantial amount of project staff time would be required to orient each village on how to complete the form -- time that could be better spent on the baseline household survey and subsequent field activities.

A typical site visit lasted three to four hours. Prior to the site visit, a letter was sent to the village council chairman explaining the purpose of the visit (see example of letter in Appendix D). The site visit usually included meeting with the village council and teachers, and a quick reconnaissance of the village to observe water and sanitation conditions.

Outside the village, CARE also met a number of times with the executive committees of the REAP district council for each of the two districts. The REAP councils are made up of representatives from schools which have been cooperating with the CARE REAP project over the past 10 years. Because the REAP program has proven so successful, the VLWS has attempted to work with the REAP councils from the beginning of the project. Their recommendations on project villages -- as well as background information on all villages -- were sought, and the VLWS project plans to work in a number of villages where there are "REAP schools."

During the process of completing the village water and sanitation profiles, CARE staff also discussed the technical feasibility of working in candidate villages with various representatives from the MOH, including public health staff from Belize City, the handpump maintenance crew, and the drilling team in the region. These discussions included issues such as road access, the existence of shallow bedrock, an extremely deep water table, or a history of wells with unsuitable drinking water.

3.3 Selection of Project Villages

The 16 VLWS project villages were selected from 31 villages in Corozal district and 27 in Orange Walk, using the village water and sanitation profile. Using data from the profile as guidelines, selection criteria were agreed upon and a preliminary ranking of villages established. (The ranking sheet presented in Appendix E provided structure for selection criteria discussions. It should be emphasized that the ranking sheet was used primarily as a discussion focus; rankings changed significantly based on comments from MOH staff.) The preliminary ranking was then presented to MOH staff and discussed in two four-hour meetings. Another meeting was held with MOH, USAID, and UNICEF staff to review the selection process and the villages selected. Final written approval is now being requested of the CARE director, MOH/Belize City and USAID/Belize.
As discussed in the original CARE proposal, the project will focus on one suitable village from each district in Year 1, three suitable villages from each district in Year 2, and four villages from each district in Year 3. Villages are now being selected. The three-year schedule for working in the selected villages is now being resolved in discussions between the MOH and CARE-Belize. CARE and MOH are now in the process of notifying the villages of their decisions. The REAP district council and the district health team will also be notified.

During the selection process, the criteria for selection were the subject of considerable discussion. The original criteria included in the project proposal approved and signed by CARE, USAID and the MOH were as follows:

- Population between 100 and 250 families;
- All-weather access road;
- Existence of community infrastructures, both physical (school and/or clinic) and organizational (village council, REAP council, national or international service organizations), or a past history of commitment to community-based projects;
- Long distance to present water supply;
- History of repeated and/or frequent incidence of water-or excreta-related diseases; and
- Poorly functioning existing water supply for the village.

These original selection criteria present one major problem. The VLWS project is to utilize India Mark II handpumps and focus on villages with a population between "100 and 250 families." Given that families average about six people in Corozal and Orange Walk districts, this would mean villages of between 600 and 1,500 residents. This directly conflicts with the MOH standard (based on WHO and UNICEF standards) that any village over 250 residents should be considered a candidate for a "rudimentary water system" (RWS -- a basic centralized running water system using a deep well, a large pump that is usually gasoline- or diesel-driven, and providing piped water to most of the houses in a village), not handpumps. Under MOH standards, handpumps should be used only in villages with under 250 inhabitants. In addition, during the implementation of the village water and sanitation profiles, it became clear that in Orange Walk district (and parts of Corozal district) there is limited interest in the installation of handpumps and great need for assistance in the rehabilitation of RWSs.

Given the above, the option of expanding the VLWS project to allow work with villages on RWSs (or other technology options such as spring capping) as well as handpumps is now being reviewed. Specifically, the MOH, USAID and CARE are discussing revisions to the CARE project documentation to permit greater project flexibility. At the same time, MOH, USAID, UNICEF and CARE are working
together to develop a broader MOH policy regarding government, donor and village resource contributions to water and sanitation projects.¹

In Corozal district, the project will work, using handpumps, in a number of villages that are larger than the 250-inhabitant MOH standard. This was agreed upon because MOH felt that it was unlikely that the candidate villages would be able to build an RWS in the near future. In Orange Walk district, the project will attempt to work with villages that need handpumps but also where the rehabilitation of RWSs is feasible and cost-effective.

3.4 Village Meetings

Once villages are selected, project staff will hold meetings in each village with the village council, the general public, local school officials, and other relevant local organizations to fully explain the project. The agenda for these meetings is planned to eventually cover the following:

- the purpose of the project and the activities to follow;
- an explanation of the resources requested of the village and those contributed by CARE and MOH;
- confirmation of the village's interest in the project;
- formation of a village water and sanitation committee;
- identification of possible local enumerators for survey work; and
- a question-and-answer period.

As mentioned above, the agenda for the meeting includes a discussion of the need for a village water and sanitation committee. It may prove that the existing village council is the appropriate body to ensure that the project moves along. In either case, it should be made clear in this village meeting that the residents of the village are committing themselves to, at a minimum, an intense one-year water and sanitation program as well as a longer-term program that includes pump maintenance and health education.

Also, a short review of the purpose and plan for implementing the household-level water and sanitation survey will take place. This includes a discussion of the need for two to four volunteer local enumerators in each village to

¹Because of the changes outlined above, and the limited resources of the CARE project (and in fact of both the UNICEF and USAID projects), the need for a consultant to assist in developing alternative financing strategies for the installation of rural water systems was discussed. Having such a consultant come in would help provide greater flexibility to the CARE project and also assist the GOB at a crucial time for water and sanitation project development policy. Accordingly, a scope of work for such a short-term consultant who would provide services to the MOH and all three water and sanitation projects was developed.
assist CARE and MOH staff in implementing the household-level water and sanitation survey. A specific emphasis has been placed on recruiting women for this work. There are three reasons for this. First, most of the CARE and MOH staff are males. Second, female presence on the survey teams may help village women to be more forthcoming during the household interviews. Third, and perhaps most important, women have key roles in the household relating to water and sanitation practices.

3.5 Baseline Household Survey

The baseline household survey (presented in Appendix F) is important for three main reasons:

1. It documents, on a household-specific level, baseline water and sanitation conditions. This information will be used to design a comprehensive water and sanitation program. However, it is also extremely important for project monitoring and evaluation.

2. It will increase each family's familiarity with the goals and objectives of the project. Those who were reticent at the village meeting are more likely to speak up on a one-on-one basis.

3. It provides an excellent opportunity for project staff to establish a rapport with villagers, increase the staff's understanding of conditions in each household, and carry out health education discussions with individuals and families.

Criticism of past surveys implemented in Belize has reflected poorly on the use of surveys in general. The criticism has focused primarily on the perception that surveys require exhorbitant amounts of time. Other criticisms have pointed to the absence of local input into survey design and implementation, and the impression on the part of the villagers that they are receiving little in return for all the time spent answering questions. These criticisms have been taken into consideration during the implementation of this survey. However, no matter how a survey is conducted, one criticism that will not disappear is that they require substantial amounts of time. In response to this criticism, it should be said that in this case, probably the greatest benefits of the survey work will be the establishment of a rapport between project staff and villagers, and the value of the survey for health education purposes. Certainly the survey work has other important purposes, but in this case it has served as a method of enhancing community participation in the water and sanitation activities.

At the time of the last visit by the WASH consultant, CARE staff had been trained and had also trained local residents as survey enumerators. It was difficult to get as much MOH (public health inspector) participation as was hoped for in the survey implementation because of manpower shortages in the ministry. It is hoped that as new inspectors are added to the MOH (this is planned and actually included in this year's budget), this can be corrected.

CARE staff have completed the baseline household survey in one project village (Buena Vista in Corozal district). The survey was being implemented in another project village (San Antonio in Orange Walk district) by two two-person teams,
each composed of a village resident and a project staff member from CARE or MOH. Typically, the time required to complete the survey in one household has ranged from a half hour to two hours, depending on the respondents' level of interest. At this rate, completing the data collection in a village of 100 families will normally require approximately 10 days if two teams work full-time. The survey serves to impart in-depth knowledge of water supply and sanitation conditions in the village. Even if the survey were not conducted, some type of visit should ultimately take place for every household. At this time the project staff feel that the survey is a good vehicle for these visits.

If the enthusiasm for 100 percent sampling recedes, a dual approach should be taken. At a minimum, the household survey should be used during visits to 25 percent of the households in each village. The sample should be stratified by general income level and should ensure coverage of all sections of each village. If this approach is taken, a shorter water and sanitation inspection form could be used when visiting the other households. This shortened survey form is necessary to provide some household record of water and sanitation conditions. Appendix G includes a possible option for this form. If implemented in this fashion, future monitoring and evaluation activities could utilize either the household survey or the water and sanitation inspection survey as baseline data for comparison purposes.

3.6 Household Survey Tabulation and Analysis

During the consultant's third trip, a great deal of time was spent on tabulation and analysis of the household surveys completed in the village of Buena Vista. A survey tabulation worksheet was developed (presented in Appendix H) to simplify the tabulation process. Because of the relative emphasis on working with the villages, and the limited need for a "statistically" valid survey, simple summary tabulations of the survey data were recommended. The survey tabulation worksheet provides a structure for accomplishing this.

Therefore, it is suggested that CARE and MOH should not expend large amounts of time subjecting the survey data to statistical tests. Their time is better spent for project design, monitoring and evaluation purposes.

Nonetheless, a strong emphasis should be placed on ensuring that questionnaires are filled out appropriately, that survey enumerators maintain objectivity, and that tabulations are done carefully in order to minimize error. For the future, it is recommended that:

- The CARE-Belize project coordinator should work primarily with the project health educator in coordinating tabulation of each village survey. The project coordinator's strong background in mathematics will prove most useful.

- After completion of the survey field work in each village, a two-day survey tabulation and analysis workshop, cochaired by the project coordinator and the health educator, should be held. Each workshop should focus on one village. MOH staff and possibly members of the village water and sanitation committee should be present during this meeting to gain a greater understanding of the survey work as well as
assist in defining the project approach for each village. Staff from other organizations (e.g., UNICEF, USAID, and other GOB ministries) could also be invited to some sessions, not as participants but for orientation purposes. The number attending the meeting as participants should probably not exceed 8 or 10.

After completion of the survey tabulation and analysis, a meeting should be held with each respective village to present the findings of the survey and explain how the findings will help to define the direction of the project.

As the survey is divided into five sections, the tabulations for each section should first be analyzed separately, with an individual responsible for each section. The CARE project coordinator and health educator, with assistance from the MOH principal public health inspector, should decide on responsibility for each section of the analysis. The analysis of each section should then be presented at the group meeting mentioned above. A project approach should be discussed and agreed upon at that meeting and then presented at a village meeting for discussion and confirmation.

3.7 Monitoring and Evaluation

As specified in the original project document, the baseline household survey (or the proposed water and sanitation inspection form) provides a departure point for monitoring and evaluation activities. In this section, revised progress indicators and a proposed system are provided for conducting future monitoring and evaluation activities.

Goals and Indicators

The original project proposal (CARE, August 1984, pp. 23-25) includes eight proposed intermediate project goals (it is suggested that these should be final, not intermediate project goals) with progress indicators and means of verification. The following is a review of the progress indicators for each project goal, along with suggested revisions to these indicators and a statement showing the rationale for each change. The means of verification will be a comparison of project baseline data to data gathered at a later date. For the comparison data, a stratified random sample should be conducted in those villages worked in to date. It is recommended that the water and sanitation inspection form also be used as the instrument for post-baseline data collection at the household level. Indicators Number 7 and Number 17 (below) must be assessed at the village level. Indicator Number 16 must be assessed at the national level through discussions with MOH and other GOB units. Progress in each village should in fact be assessed at least once per year using the 25 percent stratified random sample combined with the water and sanitation inspection form for the remaining households.
GOAL #1 -- PROVISION OF ADEQUATE WATER SUPPLY

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Installation of 160 wells with a capacity of 30 liters per capita per day (lcp).</td>
<td>1. Installation of rehabilitation of wells, water systems, or springs with a capacity of 30 lcp for 1,600 families.</td>
</tr>
</tbody>
</table>

Rationale for Change -- Through water and sanitation profiles already conducted, it is clear that wells are not the only answer. Rather, in some cases, springs may be developed, and/or a centralized water system might be constructed with assistance from CARE.

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Percent of families who use the water source.</td>
<td>2. At least 50 percent of households use a newly constructed, protected or rehabilitated water source.</td>
</tr>
</tbody>
</table>

Rationale for Change -- Households (vs. families) are a more appropriate unit for monitoring and evaluation. Add rehabilitation and protection as two cost-efficient alternatives for improving water supply conditions, especially in the two northern districts.

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Families (or individuals or communities) using the new water supply have increased water usage by __ percent; or, __ percent of all families are using an average of 30 lcp.</td>
<td>3. Households using new water sources have increased water consumption up to or exceeding 30 lcp and/or a 75 percent reduction in water shortages per village has occurred.</td>
</tr>
</tbody>
</table>

Rationale for Change -- Terms are more specific, the problem of water shortages is acknowledged, and project's plans for addressing them are outlined.

GOAL #2 -- PROVISION OF A SAFE WATER SUPPLY

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Provision of water meeting MOH quality standards, or provision of water __ percent better (approximately defined) than preproject conditions.</td>
<td>4. Seventy percent of the households receive water from tested and newly rehabilitated or constructed water sources.</td>
</tr>
</tbody>
</table>

Rationale for Change -- There is no baseline of water quality conditions in the villages, and a water-testing program for each household could be expensive (USAID is exploring the option of funding such a water-testing program for all of Belize). Any sources developed or rehabilitated by the
project will be tested -- as such, the assumption will be made that the new source is an improvement.

**GOAL #3 -- PROVISION OF A RELIABLE WATER SUPPLY**

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Water systems are completed and function at least ___ days per month.</td>
<td>5. Incidence of water shortages or supply disruption is reduced at least 50 percent.</td>
</tr>
</tbody>
</table>

**Rationale for Change** -- In these districts, it is important to compare changes in shortages or supply disruption.

**GOAL #4 -- PROVISION OF AN ACCESSIBLE WATER SUPPLY**

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Decrease time spent in collecting water by ___ percent (either total time or time per trip.</td>
<td>6. Same, using 25 percent.</td>
</tr>
</tbody>
</table>

**GOAL #5 -- DEVELOPMENT AND INSTITUTIONALIZATION OF COMMUNITY SYSTEMS TO SUPPORT AND MAINTAIN NEW WATER SUPPLY**

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. A village system that handles billing and payments for water use and maintenance, and oversees proper use of the supply.</td>
<td>7. Same, except insert &quot;that efficiently or more efficiently handles&quot;.</td>
</tr>
</tbody>
</table>

**Rationale for Change** -- There may be existing systems in some villages that can be managed more efficiently. Efficient in this case might be defined as easy to implement, not too time-consuming, and accurate from an accounting standpoint.

**GOAL #6 -- PROVISION OF AN ACCEPTABLE EXCRETA DISPOSAL SYSTEM**

<table>
<thead>
<tr>
<th>Original Indicator</th>
<th>Proposed Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Ownership-- ___ percent increase in families who have latrines.</td>
<td>8. Over 60 percent coverage of households having an improved latrine situation compared with baseline condition ranking (good/mediocre/poor).</td>
</tr>
</tbody>
</table>

9. Utilization-- ___ percent of families use the new latrines properly.

(See indicator below)
10. Maintenance—percent of latrines are maintained properly.

Rationale for Change -- Measuring Number 9 is very difficult and is better combined with Number 10. Proper use means cleanliness in combination with regular use.

GOAL #7 -- IMPROVED KNOWLEDGE, ATTITUDES AND BEHAVIOR REGARDING NEW WATER SUPPLY AND SANITATION SYSTEMS

Original Indicator                     Proposed Indicator
11. Knowledge—percent of households understand the linkages between clean water supply, proper excreta disposal and good health. 11. Eliminate

12. Attitudes—percent of households believe that improved water supply and sanitation are important. 12. Eliminate

13. Behavior—percent of households use water exclusively from the newly constructed or rehabilitated source. 13. Seventy percent of households use water from the newly constructed or rehabilitated water source.


15. Behavior—percent of households observe acceptable personal hygiene practices. 15. Eliminate

Rationale for Changes -- Goals 11 and 12 are very difficult to evaluate. In this case, behavioral changes should be used to evaluate success, and these changes are covered in other indicators. Number 13 is redundant. Number 14's changes reflect more specific conditions that need to be measured. For Number 15, there is a question as to whether the project is to be held responsible for personal hygiene in the evaluation of the project. Unless the project places a much greater and more specific emphasis on personal hygiene (it is there as a very minor element at present), this should not be measured during monitoring or evaluation exercises.
GOAL #8 -- INCREASE THE HEALTH EDUCATION CAPACITY OF THE GOB

Original Indicator | Proposed Indicator
--- | ---
16. Adequate number of new staff in the MOH capable of developing appropriate health education activities. | 16. Increase in number of MOH staff trained in and promoting health education related to water and sanitation.

Rationale for Change -- It is hoped that the project can demonstrate the value of health education for achieving water and sanitation objectives which will result in changes in staffing. Also, it is important that all MOH staff receive training in this area.

Original Indicator | Proposed Indicator
--- | ---
17. Acquisition (purchase, adaptation and development) of relevant health education materials for use in village water supply and sanitation projects. | 17. All schools within two districts have received both materials and training in health education as relevant to water and sanitation.

Rationale for Change -- While it is important that the project develop and use these materials, it is also necessary that, in the future, teachers have access to and familiarity with these materials.
Chapter 4
CONCLUSIONS

The different tools for data collection (profiles and surveys) have provided CARE-Belize, the Ministry of Health (MOH), and villages in the Corozal and Orange Walk districts with new information on water and sanitation conditions. Ultimately, the data gathered during the surveys and profiles will be used by CARE-Belize, MOH personnel and village residents to design practical near-term water and sanitation programs.

A number of issues became clear after the surveys were completed in one village and profiles done for all the villages in the Corozal and Orange Walk districts. A brief discussion of each important issue follows.

First, sanitary conditions in almost all the villages are uniformly quite poor. In contrast, water supply conditions vary widely, and there is no uniformity in terms of the type or degree of water problems or the technological solution(s) to them.

Second, in relation to water supply issues, the lack of a single type of problem means that many villages in these districts do not regard handpumps as the most effective solution to their problems. This conflicts with the emphasis of the CARE-Belize project design on handpumps. Hence, some readjustment must occur and flexibility must be included to enable the consideration of spring-capping and rudimentary village or neighborhood water supply systems, using a central well and piped connections.

Third, the CARE-Belize project (and in fact, all water and sanitation programs in Belize) needs to carefully consider the financing of water and sanitation programs in both the near- and long-term. The issue of local participation in system financing, construction, operation and maintenance needs to be addressed on a consistent basis, if wide adoption of improved water supply and sanitation practices is to be expected. To date, this issue has not received enough attention. A major problem has been created by past program efforts which have donated almost all of the materials and money for all phases of water and sanitation project development to the villages.

Fourth, a unique opportunity exists in Belize to coordinate water supply and sanitation programs throughout the country on a national level. As a result, it will be possible to conduct a coordinated assessment or evaluation of the functioning of the water and sanitation programs.
REFERENCES


APPENDIX A

List of Contacts
LIST OF CONTACTS

David Acosta—Corozal REAP District Council vice-chairman
Silburn Arthurs—GOB national coordinator for water and sanitation
Neboycha Brashich—USAID/Belize mission director
Troy Briceno—Corozal Town teacher
Antonio Casas—PAHO programme coordinator
Douglas Clark—CARE/Belize health education specialist
Denny Cutler—Peace Corps volunteer, Corozal
Sam Dowding—USAID/Belize project officer
Harry Duesbury—San Andres Rotary Club representative
Constantine Enriquez—Orange Walk District education officer
Richard Feachem—ODA water and sanitation consultant to UNICEF and GOB
Godswill Flores—project coordinator, MOH/UNICEF Toledo District Water and Sanitation project
Narciso Gamboa—(former) Concepcion Village Council chairman (Corozal)
Santiago Garcia—Orange Walk District REAP council chairman
Lee Gelb—CARE/Belize nutritionist
David Gibson—GOB permanent secretary, MOH
Sylvano Guerrero—former CARE/Belize VLWS project coordinator
Howard Kolb—CARE/Belize water and sanitation engineer
George LeBard—Peace Corps volunteer, San Lazaro, Orange Walk
Bert Linares—GOB/MOH deputy chief public health inspector
Martin Lino—GOB/MOH Aedes inspector for Orange Walk District
Estilito Loria—CARE/Belize VLWS Orange Walk District coordinator
Juliet Mason—Peace Corps volunteer, Hopkins, Stann Creek
Rafael Novelo—CARE/Belize VLWS Orange Walk District coordinator
Arterrio Paredes—Orange Walk District REAP council vice chairman
Cecilio Pech—Orange Walk District REAP Council assistant treasurer
Randolph Pitts—CARE/Belize executive secretary
Graham Prokopitz—UNICEF water and sanitation adviser
Everaldo Puck—Corzal Catholic public school representative
Francisco Puck—Corozal District REAP Council chairman
Maria Rankine—GOB/MOH health educator
Orvin Rancharan—Corozal District REAP Council assistant secretary
Judi Raymond—Peace Corps volunteer, Corozal
Dorothy Rozga—UNICEF/Belize liaison officer
Harold Silcox—CARE/Belize director
Fred Smith—GOB/ MOH principal public health inspector
Ravey Smith—CARE/Belize VLWS Corozal District coordinator
Mary Stewart—MOB/VSO health educator
Mary Ellen Tanamly—USAID/Belize health projects officer
Richard Wilk—USAID/Belize sociologist/anthropologist
Paul Williams—GOB/ MOH Corozal District public health inspector
APPENDIX B

Usefulness of the Goode/MOH/USAID Water and Sanitation Survey for Corozal and Orange Walk Districts
Usefulness of the Goode/MOH/USAID Water and Sanitation Survey for Corozal and Orange Walk Districts

During the first trip of this consultancy, a review was made of the available water and sanitation, and community development, studies which have been conducted in Belize. One of the most recent studies is the nationwide water and sanitation survey conducted by Scott Goode and MOH public health inspectors with funding from USAID/Belize. The WASH consultant presents here a short review of that survey, keeping in mind that only the Corozal and Orange Walk sections of the survey are the basis of discussion.

The Goode survey is most useful for finding out the status of handpumps in the two districts. Handpumps were located in 29 out of the 58 villages in the two districts and a total of 122 individual handpump status assessments made (their condition, use and how valuable as perceived by the villagers). As such, the sample provided is adequate for analyzing the types of pumps used, relative proportions of functional versus non-functional pumps, why pumps break down, and what the specific villages might need for improving water supply conditions. It should be pointed out that the major purpose for the survey was to get a “snapshot” of handpump status in the country. Clearly, it does provide this.

There are however some weaknesses of the work which undermine the reliability of the surveys, particularly in these two districts. Surveys are often not filled out completely, obviously important questions not answered and numbers not written clearly. The possibility of error looms quite large. In fact, after completing the village water and sanitation profiles, CARE staff and the WASH consultant found that many handpumps were missed in survey. The survey is also not very useful from a sanitation viewpoint. The separate sanitation form is only completed for 6 out of the total 58 villages (2 in Corozal and 4 in Orange Walk) in the two districts and the percentage sample in each village (an average of 8 per village clustered around the handpumps, a total of 45 households) is so low as to make it close to insignificant. Again, the sanitation surveys are plagued by the same problems of not being filled out completely, poorly written numbers, etc.

In conclusion, for the purposes of the design and implementation of the CARE/MOH survey, and those in the other districts, there are a number of important lessons made clear:

1. When local enumerators (in most cases this is recommended) are used, ample time needs to be spent in training the enumerators to make sure they understand why the survey is being done, the need for complete information and such details as clear handwriting. This should be complemented during survey implementation by accompanying the enumerators on the job and working with them to ensure that a good job is done. If left alone, without supervision or guidance, the reliability of the survey work may be called into question.
2. Considerable thought should be given to making sure that sample sizes are large enough. In this case, since the sanitation survey element received a lower priority and the sampling was so limited, it would have been better to not do it at all and use the available resources to improve the detail and coverage of the water supply survey. This means that sufficient survey "pre-testing" take place in order to understand how long each survey takes, and what is realistic for survey coverage.

A final positive note on the Goode/USAID/MOH survey; the sanitary survey and handpump forms provided a good basis from which to begin designing the household water and sanitation survey that is presented in this report.
APPENDIX C

Village Water and Sanitation Profile Form
Village Water and Sanitation Profile

DISTRICT ____________________ VILLAGE ________________

Purpose: To establish an information base that will indicate the severity of water and sanitation problems in each village. The profile is best used for deciding which villages within a district should receive the highest priority for water and sanitation projects. This profile is designed to be completed by either members of the district health team or water and sanitation project staff from organizations such as the Ministry of Health, UNICEF and CARE. If the profile is to be completed primarily by members of a community or village, this work should be supervised and/or reviewed in order to ensure the relative objectivity and accuracy of the data.

Instructions: The information for this profile should be gathered from every available and reliable source, but particularly from Ministry of Health, village council and school officials and through a visit to the village being reviewed. Another important source of information for some villages in Belize is the "Goode" handpump and latrine survey implemented in 1984 for USAID. Every question should be marked in some way. If no answer is available or the question is not appropriate, please mark the space with N/A. The form is not designed to be used verbatim; restructure questions when appropriate.

VILLAGE WATER AND SANITATION PROFILE

1. What is the population of this village? ____________________

2. How many separate households are there in the village? ____________________

3. How far is it from this village to the district center? ____________________
   miles or hours (circle one)
   by road, water, foot, air (circle one).

4. Briefly describe the access conditions to this village; that is, what difficulties are encountered in coming to the village on the roads or on the water or by air? ____________________

5. Does this village have a telephone or radio? No ____ Yes ____
   If yes, what is the number? _____ Where is it located? ________________

6. How would you compare this village with other villages in the same district? (describe in terms of general levels of income and well-being)
   very poor _____
   poor _____
   average _____
   better than average _____

   With other villages in the country?
   very poor _____
   poor _____
   average _____
   better than average _____
7. What is the main economic activity in this village?

8. What is the village council chairman's (or alcalde's) name?

9. How many members are there in the village council?

10. How would you describe the activities of the council? not active ___ active ___ very active ___

11. Does the village have a community center for meetings? No ____ Yes ____
   If yes, what place is used?

12. a. Does this village have any of the following schools?
   Primary: No ____ Yes ____ Number of students ___
   Secondary: No ____ Yes ____ Number of students ___
   Other: No ____ Yes ____ Number of students ___

   b. Are any of the schools involved in the REAP program? No ____ Yes ____

   c. If yes, how would you describe the REAP program?
      formal ___ not active ___
      informal ___ active ___
      very active ___

13. a. Does this village have a health clinic? Yes ____ No ____
   If no, which hospital or hospitals are used by the villagers?

   b. Is the village visited by a visiting nurse? Yes ____ No ____
      a mobile health worker? Yes ____ No ____
      a community health worker? Yes ____ No ____

14. Since the villages are mainly under 1,000 population, rates per 1,000 may be less meaningful than asking:

   b. How many persons became ill with these diseases in 1984?
      1. _______
      2. _______
      3. _______

   c. How many persons died from these diseases in 1984?
      1. _______
      2. _______
      3. _______

   d. How many babies under one year of age died during 1984? _______
      How many babies were born during 1984? _______
WATER SYSTEM INFORMATION

15. What is the typical depth from the water table to the surface? ___ feet

16. Does this village have the following water systems?
   a. Rudimentary water system: Yes ___ No ___
      If yes, is it functioning? Yes ___ No ___
      What percentage of households does it serve? ___ %.
      Describe any seasonal variations:

   b. Handpumps in village: Yes ___ No ___
      If yes, how many are functioning? ___
      How many are not functioning? ___
      What percentage of households do they serve? ___ %
      What is the average distance from pump to household? ___ feet
      Describe any seasonal variations:

   c. Open wells: Yes ___ No ___
      If yes, how many are there in the village? ___
      What percentage of households do they serve? ___ %
      What is the average distance from well to house? ___ feet
      Describe any seasonal variations:

   d. Other water sources: Yes ___ No ___
      River: Yes ___ No ___
      If yes, what percentage of households are served? ___ %
      What is the average distance from river to house? ___ feet
      Spring: Yes ___ No ___
      If yes, what percentage of households are served? ___ %
      What is the average distance from river to house? ___ feet
      VATs: Yes ___ No ___
      If yes, what percentage of households are served? ___ %
      Is there a community VAT? Yes ___ No ___

17. For all water sources:
   a. Are there serious water shortages for:
      drinking water for humans Yes ___ No ___
      drinking water for animals Yes ___ No ___
      bathing Yes ___ No ___
      washing clothes/dishes Yes ___ No ___
      gardens Yes ___ No ___
Briefly describe these shortages, especially seasonal variations (i.e., months per year of shortages)


b. Are there serious water quality problems? Yes____ No____ (Briefly describe the most serious)


c. Have there been major water system construction and/or operations and maintenance problems? Yes____ No____ (Briefly describe these problems)


d. Have borehole wells been drilled in this village before? Yes____ No____ (Briefly describe the process)
SANITATION INFORMATION

18. How many households have the following excreta disposal systems:
   Number with: Pit latrine
   Improved pit latrine (with slab)
   Bucket system
   Aqua-privy
   Flush toilet
   Other

   (Describe general latrine conditions, after visiting village)

19. Are there construction problems associated with installation of the excreta disposal system? Yes___ No___ If yes, describe_______

20. What construction materials are available locally for a water and sanitation program? sand cement gravel hand tools reinforcing iron pipe other (e.g., bamboo, etc.)

COMMUNITY INVOLVEMENT

21. Has there been past or current village experience in water and sanitation projects? Yes___ No___ If yes, briefly describe: ____________________________

22. Has the village had experience with self-help projects? Yes___ No___ If yes, has this proven successful ___ or unsuccessful ___. (Describe the type of project, village organizations involved, such as community health workers, Rotary, Lions, 4H, women's, schools, soccer, etc., the role of women and the outcome)

-37-
23. Are there volunteers working in the village (e.g., Health Talent International, malaria collaborators, Peace Corps, VSO, church group, Amigos de las Americas, etc.): Yes_____ No_____ If yes, describe activities__________

24. Would the village be interested in committing itself to a one year, at a minimum, intensive water and sanitation program? Yes_____ No_____ If yes, would the village:

a. provide survey enumerators? Yes_____ No_____  
b. agree to a long-term handpump maintenance program? Yes_____ No_____  
c. agree to a long-term health education program? Yes_____ No_____  
d. agree to provide, to the extent they are available, local resources such as sand_____, cement_____, labor_____, or other________________?  
e. sign an agreement? Yes_____ No_____  

25. Other important comments, particularly those which clarify the need, likelihood of project success or failure, or technical feasibility:__________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

NOTES

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
APPENDIX D

Sample Letter to Village Councils Regarding Implementation of the Village Water and Sanitation Profiles
February 11, 1985

Dear

I am enclosing a draft household water and sanitation survey that I would like to have you review and return to me as soon as possible. The draft survey was prepared by Richard Donovan, a consultant to CARE from the Water and Sanitation for Health (WASH) project at USAID in Washington, D.C. during the first two weeks in February.

It is possible that this survey may be proposed by the government of Belize's Ministry of Health as a standard format for baseline village water and sanitation surveys. As such, I request that you indicate:

- questions that are awkward, missing or not valuable in the survey;
- ways in which the survey could be improved to make it more appropriate for your (or your project's) region of Belize;
- or any other questions or issues you wish to raise regarding the format, usefulness or strengths/weaknesses of the draft survey.

CARE will be using a revised version of this household survey for the Village Level Water and Sanitation project in Corozal and Orange Walk districts. In this case, CARE, with Mr. Donovan's assistance, will be training villagers as well as Ministry of Health staff to implement the survey. This will take place over the next two to three months.
Discussions have already been held with officials from USAID, MOH, Peace Corps and UNICEF to begin the process of making this survey useful to all the entities involved. Your input would be another valuable step in this process.

Please make any notations you want to directly on the draft questionnaire and send it to me here at CARE in Belize City by the fourth of March, 1985. At this time it is planned that Mr. Donovan will return to Belize on or about March 13 to revise the survey and discuss it with all entities which are interested. At that time he will also work with CARE in selecting and training enumerators and beginning the household survey work in CARE project villages.

For your information, I am also enclosing a copy of the village water and sanitation profile form which is being used by CARE staff (with assistance from village residents, district health teams and REAP councils) to collect data on each village in Corozal and Orange Walk districts so that a decision can be made as to which villages the CARE project will focus on during the next three years.

If you have any questions or comments, please call me on the telephone. I look forward to getting your comments.

Sincerely,

Sylvano Guerrero
Project Coordinator
Village Level Water and Sanitation Project
APPENDIX E

Ranking Sheet for Village Water and Sanitation Profiles
### Village Selection Scoring Sheet for CARE Village Level Water and Sanitation Project

#### District ____________ Village Name ____________

#### Stage #1

<table>
<thead>
<tr>
<th>Category</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seriousness of water quality problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seriousness of water quantity problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of high disease incidence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood of RWS &quot;hookup&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional ability of existing water system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical feasibility for future programs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Stage #2

<table>
<thead>
<tr>
<th>Category</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progressiveness of village</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrated interest of village in project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to other potential proj. villages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Match of village needs and tech. chosen</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Stage #3

<table>
<thead>
<tr>
<th>Category</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing REAP program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All weather accessibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate size according to criteria</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-45-
APPENDIX F

Household-Level Water and Sanitation Survey
Household Level Water and Sanitation Survey

Purpose: This survey has three purposes: 1) to document water supply and sanitary conditions at each household in rural villages; 2) to increase the familiarity of village residents with the goals, objectives and procedures of this project; and, 3) to introduce project staff to the village residents. The information gathered during this survey will be used to design, implement, monitor and evaluate a village-level water and sanitation program. The program will emphasize community participation. For this reason questions are included which discuss local institutions.

Instructions: In order to make this survey useful, the survey form must be carefully and completely filled out. If a question is inappropriate or not possible to answer, please write N/A. It is important that everything is written in legible form, especially numbers. Whenever necessary, change the wording of a question so that the person being interviewed understands it better or if the question seems awkward to you. Please write with black ink.

GENERAL

1. Are you aware of the water and sanitation program that is starting in this village? Yes _ No _ If yes, where did you hear about it?

2. Do you know the district public health inspector from the Ministry of Health? Yes _ No _ (The role of the DPHI in the project should be explained.)

3. How many people (specify, _ families) are there in this household?

<table>
<thead>
<tr>
<th>Children under 5</th>
<th>5-14</th>
<th>Adults</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>M F</td>
<td>M F</td>
<td>M F</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. How long have you lived here? ___ months/years (circle one) and is this your permanent (e.g. owned) or temporary (rented) home (circle one)?
WATER SUPPLY

5. Where do you get your water? (If nearby, ask to see the water source)

a) Drinking (dry season) ____________________________
Source(describe) ____________________________
Distance ____________________________

b) Drinking (wet season) ____________________________

Source(describe) ____________________________
Distance ____________________________

c) Cooking ____________________________

Source(describe) ____________________________
Distance ____________________________

d) Bathing ____________________________

Source(describe) ____________________________
Distance ____________________________

e) Washing clothes/dishes ____________________________

Source(describe) ____________________________
Distance ____________________________

f) Garden/Animals ____________________________

Source(describe) ____________________________
Distance ____________________________

g) If a hand dug well, does it have a cover on it now? Yes __ No __

If rudimentary water system or handpump is the answer for any of the above, please ask the following questions:

h) How frequently do water system breakdowns occur? (Check one)
Never __ Monthly __ Weekly __ Daily __ Other ____________________________

i) On average, how many days per month is the water system broken down? ______ days

j) Who fixes the water system when there are breakdowns? ____________________________
   and, who fixed the water system the last time it broke down? ____________________________
   Also, typically how long do you have to wait until someone fixes it? ______ days
   (specify in days)

k) If RWS, how much do you pay each month for water service? ______

6. Do you have safe drinking water? Yes __ No __

7. Do you boil, filter or otherwise purify (circle one) your drinking water? Yes __ No __ Describe ____________________________

8. Has the water ever been tested to determine whether it is safe to drink? Yes __ No __ If yes, by who and when? ____________________________

9. Who collects the water?
   Children Usually ___ Sometimes ___ Never ___
   Women Usually ___ Sometimes ___ Never ___
   Men Usually ___ Sometimes ___ Never ___
10. What do you use to collect or store the water in? ________________________________
   Where is it kept? ______________________________________________________________
   Do you think it is sanitary? Yes ___ No ___ Don't know ___ Not Sure ___
   Does it have a cover? Yes ___ No ___ (Make sure to see the container)

11. How much water do you use each day?
   _____buckets for drinking = _____ gal.
   _____buckets for laundry = _____ gal.
   (Measure or estimate the volume in each bucket)
   _____buckets for dishwashing = _____ gal.
   _____buckets for bathing = _____ gal.
   _____buckets for garden = _____ gal.
   _____buckets for animals = _____ gal.
   _____buckets for other uses = _____ gal.
   TOTAL GALLONS/DAY = ______

12. How many times a day do you go to get water (for all needs)? ______
    How much time do you spend on each trip? ______ minutes. (Enumerator should calculate the total number of minutes per day ______.)

13. What water supply problems do you have?
    never enough water____ iron taste____
    sometimes not enough water____ salty____
    unhealthy drinking water____ silty____
    water system doesn't work____ sulfur smell____
    water too expensive____ too "hard"____
    water too far away____
    other____ explain______________________

14. Are there times when there is not enough water? Yes ___ No ___
    When? _______________________________ Why? _________________________________

15. What is needed to help solve your water problems?
   repair handpump____
   obtain new handpump____
   dig a deeper well____
   dig a new well____
   fix community water system____
   extend water lines of existing community water system____
   new community water system____
   other__________________________
   explain________________________

SANITATION

16. Do you own or share a latrine? own ________
    own/share____
    share/don't own____
    no ______

-51
If no or share/don't own, ask the following:

a) what do you use for excreta disposal?
   - bush
   - school facility
   - community facility
   - other, specify
   - community facility
   - neighbor's latrine
   - other, specify

b) would you prefer your own latrine? Yes____ No____
   Why/Why not? ______________________________________

If yes, request to see the latrine and ask the following:

c) what type?
   - trench latrine
   - bucket latrine
   - wood floor pit latrine
   - concrete slab latrine
   - aqua privy
   - flush toilet with septic tank

   d) do you think it is a sanitary latrine? Yes___ no___
      not sure___ I don't know

   e) how many people use it? ___individuals ___families

   f) who cleans it? ___children ___men ___women

   g) what problems do you have with it?
      - slab or structure unstable
      - flies and/or mosquitoes
      - odor
      - snakes
      - flooding at times
      - difficult for children to use
      - too far away
      - no privacy
      - splashes on body
      - other, specify

   h) how far is the latrine from the nearest well or other water source? ___feet

i) mark one, the latrine is: level with ___ uphill___
   downhill___ from the well or other water source.

j) how would you improve your latrine? ___ clean it
   ___ new slab
   ___ dig new hole
   ___ other
   explain ______________________________________
NOT A QUESTION: after viewing the latrine with the household member, mark the following:

- Latrine slab condition is good, OK, bad.
- Latrine appears to be used, not used, other.
- Latrine interior is clean, not clean.
- Latrine pit is full, half-full, empty.
- Latrine exterior is good, mediocre, bad.

Note any other specifics:

GENERAL LATRINE CONDITION IS GOOD, MEDIOCRE, BAD

17. What do you do with trash?

18. What diseases/sicknesses does your family get most often?
   - Cough/cold
   - Diarrhea
   - Worms
   - Fever
   - Scabies
   - Lice
   - Other

19. What causes these diseases?

20. Are any caused by poor water and sanitation? Yes, No.
    If yes, which ones and how?

21. Where did you learn about the causes of these diseases?
    - School
    - Health workers
    - Place of work
    - Family
    - Church
    - Books
    - Other

22. Where do you go for medical care?

23. Do you (circle one) have or listen to a radio? Yes, No.

24. Do you (circle one) have or watch a television? Yes, No.

25. Do you read the newspaper? Yes, No. If yes, which one(s)?

26. Whose responsibility is it to improve the village's and your water supply conditions? Specify. Why?

27. Are you interested in participating in a latrine and sanitation improvement program? Yes, No. Why/Why not?
28. What things could you contribute to improving water supply and sanitation conditions in the village? labor___ money___ sand___ cement___ wood for forming___ reinforcing steel/wire___ construction skills___ other___ (explain and be specific, especially about the type of labor or skills being offered)

29. What assistance do you need from outside the village that would help you to improve your water and sanitation facilities? technical advice___ other___ explain

30. What organization(s) are you (or your family) involved with?

31. Which organization(s) in the village is the most active? Why?

32. Should the village have a village water and sanitation program? Yes___ No___ If yes, which organization in the village should it work with and why?

NOTES
APPENDIX G

Water and Sanitation Inspection Form
Water and Sanitation Inspection Form

Purpose: To document water supply and sanitary conditions at the household level in rural villages.

Instructions: In order to be useful, the entire form must be filled out. Please write in black ink and neatly. Questions may be changed in order to make sure that village resident understands better.

DISTRICT ____________ VILLAGE ____________ HOUSE # ______

FAMILY NAME ____________ PERSON(S) INTERVIEWED ____________

DATE COMPLETED ____________ INSPECTOR(S) ____________

1. How many people (specify, _families) are there in this household?

<table>
<thead>
<tr>
<th>Children under 5</th>
<th>5-14</th>
<th>Adults</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. How long have you lived here? ___ months/years (circle one)

3. Is this your permanent (e.g. owned) or temporary (rented) home (circle one)?

4. Where do you get your water? (If nearby, ask to see the water source)

<table>
<thead>
<tr>
<th>Source (describe)</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Drinking (dry season)</td>
<td>______</td>
</tr>
<tr>
<td>b) Drinking (wet season)</td>
<td>______</td>
</tr>
<tr>
<td>c) Cooking</td>
<td>______</td>
</tr>
<tr>
<td>d) Bathing</td>
<td>______</td>
</tr>
<tr>
<td>e) Washing clothes/dishes</td>
<td>______</td>
</tr>
<tr>
<td>f) Garden/Animals</td>
<td>______</td>
</tr>
</tbody>
</table>

g) If a hand dug well, does it have a cover on it? Yes __ No __

h) Describe general conditions of the water source (paying attention to recent changes in condition including cleanliness, protection from the elements, etc.):

-57-
5. When was the water last tested? ______ By whom? ________________

6. What do you use to collect or store the water in? _______________________
   Is it kept off the ground? Yes No_.
   Is it clean? Yes No OK but needs improvement._
   Does it have a cover? Yes No (Make sure to see the container)

7. How much water do you use each day?
   (Measure or estimate the volume in each bucket)
   _____buckets for drinking = ___ gal.
   _____buckets for laundry = ___ gal.
   _____buckets for dishwashing = ___ gal.
   _____buckets for bathing = ___ gal.
   _____buckets for garden = ___ gal.
   _____buckets for animals = ___ gal.
   _____buckets for other uses = ___ gal.
   TOTAL GALLONS/DAY = ______

8. During the last year, have you experienced a water shortage? Yes _
   No ______ If yes, when and for how long? _________________________________

9. What water supply problems do you have?
   never enough water________ iron taste_ ______
   sometimes not enough water_______ salty________
   unhealthy drinking water_________ silty________
   water system doesn't work_______ sulfur smell__
   water too expensive_________ too "hard"________
   water too far away__________
   other________ explain______________________

10. Do you own or share a latrine? own____
    own/share____
    share/don't own (whose? ____________) no____

   If no latrine is used, ask the following:
   a) what do you use for excreta disposal?
      _____bush________
      _____other, specify below

   If a latrine is owned by respondent, ask the following:
   b) what type?
      trench latrine____
      bucket latrine____
      wood floor pit latrine____
      concrete slab latrine____
      aqua privy____
      flush toilet with septic tank____

   c) how far is the latrine from the nearest well or other water source? __ feet
d) Mark one, the latrine is: level with __ uphill__
downhill ___ from the well or other water source.

e) After viewing the latrine with the household member, mark the following:
   latrine slab condition is good __ OK __ bad __
   latrine appears to be used __ not used __ other __
   latrine interior is clean __ not clean __
   latrine pit is full __ half-full __ empty __
   latrine exterior is good __ mediocre __ bad __

   Note any other specifics: ________________________________

   General Latrine condition is good __ mediocre __ bad __

11. What do you do with trash? ________________________________
APPENDIX H

Household Survey Tabulation Worksheet
### GENERAL INFORMATION

1. **Are you (village resident) aware of the water and sanitation program?**
   - no __ total __
   - no answer __ total __

   **If yes, where from?**
   - village council member __ total __
   - neighbor __ total __
   - REAP participant __ total __
   - village meeting __ total __
   - MOH/project personnel __ total __
   - no answer __ total __
   - N/A __ total __

2. **Are you familiar with the district public health inspector?**
   - yes __ total __
   - no __ total __
   - no answer __ total __

3. **Population of the village:**
   - # of families __ total __
   - females under 5 __ total __
   - males under 5 __ total __
   - females 5-14 __ total __
   - males 5-14 __ total __
   - females over 14 __ total __
   - males over 14 __ total __

   **Total Village Population**

4. **How long has the village member lived here?**
   - 0-6 months __ total __
   - 7-12 months __ total __
   - 13 - 24 months __ total __
   - over 24 months __ total __
   - no answer __ total __

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-63-
(4 cont.) Are these permanent or temporary quarters?

<table>
<thead>
<tr>
<th>Permanent</th>
<th>Temporary/Rented</th>
<th>Unsure</th>
<th>No Answer</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WATER SUPPLY INFORMATION

(5) Water Source (use scrap paper for totalling)

<table>
<thead>
<tr>
<th></th>
<th>Well</th>
<th>VAT</th>
<th>Handpump</th>
<th>Other</th>
<th>No Ans.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Drinking (dry season)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Drinking (wet season)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Cooking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Bathing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Washing clothes/dishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Garden/Animals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Distance to drinking water is:

<table>
<thead>
<tr>
<th>Distance</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 50 feet</td>
<td></td>
</tr>
<tr>
<td>50 - 100 feet</td>
<td></td>
</tr>
<tr>
<td>100 - 500 feet</td>
<td></td>
</tr>
<tr>
<td>500 feet plus</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
</tbody>
</table>

(5g) Does hand dug well have a cover?

<table>
<thead>
<tr>
<th></th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

(5h) Frequency of water system breakdowns:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
</tr>
<tr>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

(5i) Days per month of water system breakdown

<table>
<thead>
<tr>
<th>Days per month</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 days</td>
<td></td>
</tr>
<tr>
<td>4-7 days</td>
<td></td>
</tr>
<tr>
<td>8-14 days</td>
<td></td>
</tr>
<tr>
<td>14-28 days</td>
<td></td>
</tr>
<tr>
<td>Over 28</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

-64-
(5j) Who fixes the water system during breakdowns?
- residents ________________  total __
- GOB ______________________  total __
- village maintenance team ___________  total __
- no answer ______________________  total __
- N/A _________________________  total __

Who fixed the water system the last time it broke down?
- residents ________________  total __
- GOB ______________________  total __
- village maintenance team ___________  total __
- no answer ______________________  total __
- N/A _________________________  total __

(5k) RUS cost per month for water service?
- $ ________________________  total __
- $ ________________________  total __
- $ ________________________  total __
- no answer ______________________  total __
- N/A _________________________  total __

(6) Do you have healthy drinking water?
- yes ________________________  total __
- no ________________________  total __
- don't know ______________________  total __
- not answered ______________________  total __

(7) Drinking water treatment:
- boil ________________________  total __
- filter ________________________  total __
- purify, not specified ______________________  total __
- don't purify ______________________  total __
- not answered ______________________  total __

(8) Has the water ever been tested to determine whether it is safe to drink?
- yes ________________________  total __
- no ________________________  total __
- no answer ______________________  total __

If yes, by who and when? (write in who tested and in what year)
_________________________________________________________  total __
_________________________________________________________  total __

Total Responses ____________________
(9) Who collects the water?

<table>
<thead>
<tr>
<th></th>
<th>Usually</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(10) What do you use to store the water in and does it have a cover?

<table>
<thead>
<tr>
<th>Store Type</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>closed container</td>
<td></td>
</tr>
<tr>
<td>open container</td>
<td></td>
</tr>
<tr>
<td>container, not specified</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
</tbody>
</table>

Where is the water container kept?

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>on the floor</td>
<td></td>
</tr>
<tr>
<td>up/off the floor</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Is it sanitary?

<table>
<thead>
<tr>
<th>Sanitary Status</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>no</td>
<td></td>
</tr>
<tr>
<td>don't know</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

(11) Water use each day (use scrap paper)

<table>
<thead>
<tr>
<th>Type</th>
<th>Average/family</th>
<th>Average/person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(12) How many times a day do you go to get water (for all needs)?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>4-6</td>
<td></td>
</tr>
<tr>
<td>7-10</td>
<td></td>
</tr>
<tr>
<td>over 10</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

(12 cont.) Time/day getting water for all needs

<table>
<thead>
<tr>
<th>Duration</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-15 minutes</td>
<td></td>
</tr>
<tr>
<td>16-30 minutes</td>
<td></td>
</tr>
<tr>
<td>over 30 minutes</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
(13) What water supply problems do you have?

- none (if marked, skip #14)
- never enough water
- sometimes not enough water
- unhealthy drinking water
- water system doesn't work
- water too expensive
- water too far away
- iron taste
- salty
- silty
- sulfur smell
- too "hard"
- other
- no answer

Total Responses

(14) Are there times when there is not enough water?

- yes
- no
- no answer

Total Responses

(15) What is needed to help solve your water problems?

- repair handpump
- obtain new handpump
- dig a deeper well
- dig a new well
- fix community water system
- extend existing community water system
- new community water system
- no answer
- N/A

Total Responses

SANITATION INFORMATION

(16) Latrine Status

- own
- own/but share
- don't own/but share
- no latrine
- no answer

Total Responses
IF NO LATRINE.
(16a) Facility used is:
bush __________________________________________ total ____
community facility ___________________________ total ____
school facility _______________________________ total ____
other _________________________________________ total ____
no answer ___________________________________ total ____
N/A _________________________________________ total ____
Total Responses

(16b) Would you prefer a (or your own) latrine?
yes __________________________________________ total ____
no ___________________________________________ total ____
no answer ___________________________________ total ____
N/A _________________________________________ total ____
Total Responses

(16c) What latrine type?
trench latrine ___________________________________ total ____
bucket latrine __________________________________ total ____
wood floor pit latrine __________________________ total ____
concrete slab latrine __________________________ total ____
aqua privy ____________________________________ total ____
flush toilet with septic tank ________________ total ____
no answer ___________________________________ total ____
N/A _________________________________________ total ____
Total Responses

(16d) Is it a sanitary latrine?
yes __________________________________________ total ____
no ___________________________________________ total ____
not sure/don't know __________________________ total ____
no answer ___________________________________ total ____
N/A _________________________________________ total ____
Total Responses

(16e) People using latrine
only 1 family _______________________________ total ____
more than 1 family __________________________ total ____
no answer ___________________________________ total ____
N/A _________________________________________ total ____
Total Responses

(16f) Who cleans latrine?
children ______________________________________ total ____
women ______________________________________ total ____
men _________________________________________ total ____
no one ______________________________________ total ____
no answer ___________________________________ total ____
N/A _________________________________________ total ____
Total Responses

-68-
### (16g) What problems do you have with latrine?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td></td>
</tr>
<tr>
<td>slab or structure unstable</td>
<td></td>
</tr>
<tr>
<td>flies and/or mosquitoes</td>
<td></td>
</tr>
<tr>
<td>cockroaches</td>
<td></td>
</tr>
<tr>
<td>odor</td>
<td></td>
</tr>
<tr>
<td>snakes</td>
<td></td>
</tr>
<tr>
<td>rats</td>
<td></td>
</tr>
<tr>
<td>flooding at times</td>
<td></td>
</tr>
<tr>
<td>difficult for children to use</td>
<td></td>
</tr>
<tr>
<td>too far away</td>
<td></td>
</tr>
<tr>
<td>no privacy</td>
<td></td>
</tr>
<tr>
<td>splashes on body</td>
<td></td>
</tr>
<tr>
<td>&quot;cave ins&quot;</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Total Responses

### (16h) Distance of the latrine from nearest well or other water source

<table>
<thead>
<tr>
<th>Distance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-20 feet</td>
<td></td>
</tr>
<tr>
<td>21-45 feet</td>
<td></td>
</tr>
<tr>
<td>46-70 feet</td>
<td></td>
</tr>
<tr>
<td>71-99 feet</td>
<td></td>
</tr>
<tr>
<td>100+ feet</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Total Responses

### (16i) Latrine location

<table>
<thead>
<tr>
<th>Location</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>level with water source</td>
<td></td>
</tr>
<tr>
<td>uphill from water source</td>
<td></td>
</tr>
<tr>
<td>downhill from water source</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Total Responses

### (16j) How would you improve your latrine?

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>nothing needed</td>
<td></td>
</tr>
<tr>
<td>new latrine</td>
<td></td>
</tr>
<tr>
<td>clean it</td>
<td></td>
</tr>
<tr>
<td>new slab</td>
<td></td>
</tr>
<tr>
<td>new riser</td>
<td></td>
</tr>
<tr>
<td>dig new hole</td>
<td></td>
</tr>
<tr>
<td>new house</td>
<td></td>
</tr>
<tr>
<td>no answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Total Responses
(16k) Latrine condition

1. Latrine slab condition is:
   - Good
   - OK
   - Bad
   - No answer
   - N/A

   Total Responses

2. Latrine appears to be:
   - Used
   - Not used
   - No answer
   - N/A

   Total Responses

3. Latrine interior is:
   - Clean
   - Not clean
   - No answer
   - N/A

   Total Responses

4. Latrine pit is:
   - Full
   - Half-full
   - Empty
   - No answer
   - N/A

   Total Responses

5. Latrine exterior condition is:
   - Good
   - Mediocre
   - Bad
   - No answer
   - N/A

   Total Responses

6. General latrine condition is:
   - Good
   - Mediocre
   - Bad
   - No answer
   - N/A

   Total Responses

(17) What is done with trash?
   - Burn
   - Put in pit
   - Truck away
   - Throw in bush
   - No answer

   Total Responses

-70-
HEALTH EDUCATION INFORMATION

(18) What diseases/sicknesses does your family get most often?
- cough/cold ______________________________ total __
- diarrhea ______________________________ total __
- worms ______________________________ total __
- fever ______________________________ total __
- scabies ______________________________ total __
- lice ______________________________ total __
- malaria ______________________________ total __
- none ______________________________ total __
- no answer ______________________________ total __

Total Responses __

(19) What causes these diseases? (write in the cause)
- bad water ______________________________ total __
- bad food ______________________________ total __
- mosquitoes ______________________________ total __
- poor sanitation ______________________________ total __
- __ ______________________________ total __
- don’t know ______________________________ total __
- no answer ______________________________ total __
- N/A ______________________________ total __

Total Responses __

(20) Are any of the above diseases caused by poor water and sanitation?
- yes ______________________________ total __
- no ______________________________ total __
- not sure ______________________________ total __
- don’t know ______________________________ total __
- no answer ______________________________ total __
- N/A ______________________________ total __

Total Responses __

If yes, which ones and how?
- cough/cold ______________________________ total __
- diarrhea ______________________________ total __
- worms ______________________________ total __
- fever ______________________________ total __
- malaria ______________________________ total __
- scabies ______________________________ total __
- lice ______________________________ total __
- don’t know ______________________________ total __
- N/A ______________________________ total __

Total Responses __
(21) Where did you learn about the causes of these diseases?

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td></td>
</tr>
<tr>
<td>Health workers</td>
<td></td>
</tr>
<tr>
<td>Place of work</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td></td>
</tr>
<tr>
<td>Church</td>
<td></td>
</tr>
<tr>
<td>Books</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Don't know</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

(22) Where do you go for medical care?

<table>
<thead>
<tr>
<th>Place of Medical Care</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>District medical center</td>
<td></td>
</tr>
<tr>
<td>Mobile health team</td>
<td></td>
</tr>
<tr>
<td>Village doctor</td>
<td></td>
</tr>
<tr>
<td>Private doctor outside village</td>
<td></td>
</tr>
<tr>
<td>Local nurse</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
</tbody>
</table>

(23) Do you have or listen to a radio?

<table>
<thead>
<tr>
<th>Radio Ownership</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have</td>
<td></td>
</tr>
<tr>
<td>Listen to</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
</tbody>
</table>

(24) Do you have or watch a television?

<table>
<thead>
<tr>
<th>Television Ownership</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have</td>
<td></td>
</tr>
<tr>
<td>Listen to</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
</tbody>
</table>

(25) Do you read the newspaper?

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
</tbody>
</table>

Which one? (Write in the name)

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anandala</td>
<td></td>
</tr>
<tr>
<td>Beacon</td>
<td></td>
</tr>
<tr>
<td>Belize Times</td>
<td></td>
</tr>
<tr>
<td>New Belize</td>
<td></td>
</tr>
<tr>
<td>Reporter</td>
<td></td>
</tr>
<tr>
<td>Sunday Times</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
(26) Whose responsibility is it for improving water supply conditions?

- Individual resident's ________________ total __
- GOB ___________________ total __
- Village council's ________________ total __
- Other ___________________ total __
- No answer ___________________ total __

Total Responses __________________

(27) Are you interested in participating in a latrine and sanitation improvement program?

- Yes ___________________ total __
- No ___________________ total __
- Not sure ___________________ total __
- No answer ___________________ total __

Total Responses __________________

(28) What things could you contribute to improving water supply and sanitation conditions in the village?

- Labor ________________ total __
- Money ________________ total __
- Sand ________________ total __
- Cement ________________ total __
- Wood for forming ________________ total __
- Reinforcing steel/wire ________________ total __
- Construction skills ________________ total __
- Use of truck ________________ total __
- Tools ________________ total __
- Nothing ________________ total __
- No commitment at this time ________________ total __
- No answer ________________ total __
- N/A ________________ total __

Total Responses __________________

(29) What assistance do you need from outside the village that would help you to improve your water and sanitation facilities?

- Technical assistance ________________ total __
- Materials ________________ total __
- Education ________________ total __
- Nothing ________________ total __
- No answer ________________ total __
- N/A ________________ total __

Total Responses __________________

(30) What organization(s) are you (or your family) involved with?

(write in the organization)

- Village council ________________ total __
- ___________________ total __
- ___________________ total __
- None ________________ total __
- No answer ________________ total __

Total Responses __________________
(31) Which organization(s) in the village is the most active? (write in)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Council</td>
<td></td>
</tr>
<tr>
<td>Don't know</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>Total Responses</td>
<td></td>
</tr>
</tbody>
</table>

(32) Should the village have a village water and sanitation program?

<table>
<thead>
<tr>
<th>Response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Not sure/don't know</td>
<td></td>
</tr>
<tr>
<td>Don't care</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>Total Responses</td>
<td></td>
</tr>
</tbody>
</table>

If yes, which organization in the village should be worked with?

<table>
<thead>
<tr>
<th>Organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Council</td>
<td></td>
</tr>
<tr>
<td>Alcalde</td>
<td></td>
</tr>
<tr>
<td>No answer</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Total Responses</td>
<td></td>
</tr>
</tbody>
</table>