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Attachment 1-A

PROJECT PROPOSAL

COUNTRY: Belize

MYP PERIOD: 1984-1987

PROJECT TITLE: Village Level Water and Sanitation

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VILLAGE LEVEL WATER AND SANITATION(VLWS)I. Introduction

Recent studies have confirmed that Belize experiences a high incidence of infectious disease, in particular various forms of gastroenteritis, in the rural areas. This situation contributes to a high level of infant and child mortality and significantly reduces labor productivity. The cause of the high incidence of water-borne disease and fecal infections can be traced to inadequate water supply, improper disposal of excrement and absence of village-level health education programs.

The Government of Belize (GOB) is attempting to correct the situation through provision of adequate water supply, sanitation facilities and rural-based health education programs. To overcome its shortage of human and material resources, the GOB through its Ministry of Health (MOH) has sought the assistance of UNICEF, CIDA, USAID and CARE in planning, funding and implementing rural water supply, sanitation and health education programs in Belize's six administrative districts.

CARE is proposing to participate in these activities, concentrating on the Orange Walk and Corozal Districts of northern Belize. Specifically, CARE has designed a project that will provide 160 wells equipped with handpumps and 1,600 pit latrines to some 16 villages. In addition, the project will include a strong health education component to involve GOB health personnel and the expected 9,600* participants in the villages. Total costs for the project are estimated at US\$1,088,157 with GOB inputs valued at US\$248,250. The project, called Village Level Water and Sanitation (VLWS) is scheduled for a three -year period.**

II. Project DesignA. Statement of Problem

Belize, a small largely agricultural tropical country, is sparsely populated by diverse ethnic groups. Of the total population of approximately 150,000, 46.3% are under 15 years of age (Belize Health Sector Assessment (BHSA) 1982). Per capita income is US\$800 and 49% of the population live in rural villages (defined as towns smaller than 2,000 persons).

*For the purposes of the project CARE is assuming villages of 100 households, with 6 persons per household.
A USAID sponsored pump inventory to determine the number and condition of all rural water supply facilities (particularly handpumps) will take place from September '84 to November '84. Based on information obtained from the survey, it may be more appropriate to rehabilitate an existing well or even replace a non-functioning pump rather than sink a new well.

1. Major Health Problems

Demographic data reflect wide differences among the six districts of Belize (BHSA, 1982): as shown in Table 1, the best health indicators appear in the Cayo District (e.g., Infant Mortality Rate/Thousand Births (IMR) of 27.1) and the worst, in the Toledo District (e.g. IMR of 58.3).

Table 1 Demographic characteristics, by district, Belize 1980*

<u>District</u>	<u>Pop.</u>	<u>Birth Rate</u>	<u>IMR</u>	<u>Death Rate</u>
Corozal	22,902	34.8	42.6	93
Orange Walk	22,870	40.5	36.7	77
Belize	50,801	41.6	33.6	398
Cayo	22,837	27.5	27.1	71
Stann Creek	14,181	38.0	42.7	70
Toledo	11,762	51.0	58.3	111
<hr/>				
Total	145,353	38.5	38.2	820

The 1982 Belize Health Sector Assessment states that infectious diseases are responsible for 19.2% of reported deaths and rank number two in causes of deaths. Further analysis of these data show that in the 1- to 11-month-old age group, intestinal infectious diseases are the leading cause of death (22.8% of all deaths) and all infectious diseases account for 45.6% of all deaths in this age group. In the 1- to 4-year-old group, the leading cause of death is pneumonia (20.8%) followed by infectious intestinal diseases (18.6%). Infectious diseases accounted for 51.2% of all deaths in this age group. Data from a three-year period (1978-80) show that gastroenteritis was the leading cause (34.2%) of all deaths due to infectious diseases. Gastroenteritis also plays a major role in morbidity, as it was the second leading cause of communicable disease in 1980 and 1981.

2. Water Supply

The important role of infectious diseases, especially gastroenteritis, in the mortality and morbidity of Belizean children suggests that interventions to improve the water supply are warranted.

* Source: Health profile of Belize, 1982 - Ministry of Health, Housing and Cooperatives.

While a majority of the urban population, particularly in the main towns of Belize City, Belmopan and Orange Walk, enjoy communal water supply systems, only 40% of rural inhabitants have easy access to a developed water supply system (usually wells) (BHSA, 1982). Most Belizean villages have their water supplies dictated by nature: rivers, streams and, less often, rain water are the predominant sources of drinking water. However, the water sources are rarely protected and are thus easily contaminated due to lack of resources and knowledge regarding the importance of a clean water supply.

The Government of Belize has adopted the following WHO-recommended goals for provision of an adequate and safe water supply to the rural population:

1 well (fitted with hand pump) for every ten rural households (in communities with fewer than 250 residents); and

1 rudimentary community water system for every village with a population of over 250.

Data from a recent Public Health Inspectorate study (BHSA, 1982) suggest that availability of a potable water supply by district is inversely correlated to the health indicator shown in Table 2:

Table 2: Comparison between Availability of Potable Water and IMR

<u>District</u>	Number of persons per available pump/well	IMR
Belize	44	33.6
Cayo	160	27.1
Corozal	134	42.6
Stann Creek	190	42.7
Orange Walk	119	36.7
Toledo	296	58.3

3. Sanitation

Just as water supply is frequently dictated by nature, most Belizeans rely on custom in their choice of sanitary facilities. Where latrines do exist, they are often located near the house, kitchen and water supply. Due to faulty location, design and construction, these latrines actually become sources of contamination rather than sanitation.

The GOB is attempting to improve sanitary practices throughout the country. Any project designed to supply water is expected to address the issue of sanitation.

4. GOB Strategy

The GOB has been actively involved in providing water systems to the rural population for a number of years. It is however limited by both material and financial constraints. The MOH currently has 6 well-digging rigs, which were purchased second hand. Although they receive proper maintenance, only four are operational. In addition, a decreased budget allocation in FY 84 will prevent the MOH from meeting present rural water supply needs.

The GOB is currently collaborating with a number of international agencies including UNICEF, USAID, CIDA and CARE to accelerate the rate of installation of new water systems in rural areas and to improve village environmental health conditions.

In order to make the most efficient use of external and internal resources, the GOB has recommended priority areas for each agency: CARE has selected the northern districts of Corozal and Orange Walk on the basis of un-met need (see Table 2), predominantly rural population (Corozal - 70%, Orange Walk - 63%) and high levels of community involvement in the Relevant Education for Agriculture and Production (REAP) project.* UNICEF will be working in the Toledo District, USAID will concentrate on Stann Creek and Cayo, and CIDA will also be working in Cayo.

Coordination between the activities of the various agencies is of major importance: preliminary discussions have already raised the issue of formalizing collaborative arrangements in the form of a committee under the aegis of MOH. In addition, the agencies have already identified a number of areas where collaboration will prove essential. They include, inter alia:

1. Criteria for village selection;
2. Choice of pump;
3. Allocation of MOH drilling rigs;
4. Strategies for training in water system maintenance;
5. Strategies for health education;
6. Procurement of construction materials;
7. Future use and sharing of new materials and equipment purchased for water projects;
8. Cooperation and coordination with the REAP education program.

*A map showing the Corozal and Orange Walk districts is appended as Figure I.

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B. Project Description

1. Goals

In order to achieve its goal of improving the health status of rural Belizeans over a three-year period by reducing the incidence of water and excreta related disease, CARE will:

- . provide an adequate, safe, reliable, and accessible water supply to participants;
- . develop and institutionalize community and district level organizations to support and maintain the new water supply system;
- . provide an acceptable excreta disposal system;
- . improve the knowledge, attitudes and practices of participants regarding new water supply and sanitation systems; and
- . increase the health education capacity of the GOB.

2. Description

The project will work in 16 villages of northern Belize (2 villages in year one; 6 villages in year 2; and 8 villages in year 3). Sites are to be chosen according to project selection criteria (see Annex I). Project activities can be broken down into 3 major areas, which are described below. (It should be noted that activities will not follow the chronology described here.)

a. Construction

This item covers construction by villagers of pit latrines at the rate of one per household, and drilling by MOH rig crews of an average 10 wells per village, at the rate of one well per 10 households. Pump installation will be completed by MOH crews and villagers. Overall construction will be supervised by CARE's water and sanitation advisor.

b. Training

Experience in Belize has shown that education is the key to successful implementation of water and sanitation programs. As a result the project will focus on training at several levels:

- i) Staff training: prior to field work, CARE will train its own, newly recruited staff as required by their job descriptions (See Annex II).
- ii) Orientation: prior to field work, CARE will conduct orientation seminars in Belize City to familiarize MOH and other GOB personnel with the project. Similar sessions will be organized for regional GOB personnel in the project districts.
- iii) Technical training: during project implementation, there will be village-level instruction in pump installation and maintenance and in latrine construction. It is expected that village councils will be responsible for ensuring high attendance.

c. Health education

This item, to be handled by the health educator and counterpart, will cover public health topics relating to water and sanitation at the village level. Use will be made of mass instructional media such as radio and television; emphasis, however, will be placed on on-going public health education in villages, using established community groups.

In order to guarantee the effectiveness of this program, training -- in particular, staff training, technical training for villagers and public education -- will begin well in advance of the construction phase and will continue through the life of the project, as shown in the implementation plan.

3. Inputs

a) Construction Materials

With the notable exception of the handpumps and their fittings, all materials required to construct and maintain the VLWS project wells and latrines are available in Belize. Locally-procured items will thus include cement, lumber, corrugated metal roofing, nails and PVC pipe.

The MOH, with input from UNICEF, USAID and CARE, is assessing available handpumps in an effort to standardize handpump installation and maintenance throughout Belize. They are testing the MARK II handpump, a model produced in India that rated very highly in the recent World Bank/UNDP Handpump Testing Project.* In addition to its tested high performance and its selection for standardization, the MARK II offers attractive features:

*Rural Water Supply Handpumps Project. Laboratory testing of Handpumps for Developing Countries: Final Technical Report. UNDP Project Management Report No. 3, World Bank Technical Paper No. 19, June 1984.

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- i) The MARK II pump costs \$350.00 complete, versus \$850.00 for the Dempster pump (which would be the probable U.S. manufactured pump);
- ii) A village-level maintenance tool kit has been developed for the MARK II;
- iii) Village-level training brochures have been produced for the MARK II;
- iv) While manufacture of the MARK II itself in Belize is questionable due to the relatively small demand a country the size of Belize could generate, the capacity to produce the MARK II pump stand could be developed locally.

b) Vehicles

In its first year, the project will require two motorcycles, one utility van and one pick-up truck. The CARE-Belize office will assign one of its own pick-up trucks to the project on a full-time basis for use by the Water and Sanitation Advisor. This will be considered an in-kind contribution to the project. The van, of U.S. manufacture, and the motorcycles will be purchased in the U.S. All vehicles will be imported to Belize duty free.

The van will be a 2-wheel drive vehicle into which locally-constructed shelves and custom cabinetry will be installed to store and transport educational materials and equipment.

c) Transport

Transport of the pumps and construction materials from Belize City to the district towns and further transport of these items to specific villages and sites will be carried out by locally-hired private transporters and by the CARE supplied pick-up truck where appropriate.

d) Tools and Equipment

The provision and proper use of tools and equipment is essential to the success of the program. Tool kits will be supplied to each village-level person trained to maintain handpumps. These individuals will be held accountable to the village councils regarding safe-keeping and proper use of the tool kits. The van will be outfitted to transport these as well as appropriate teaching aids.

e) Technical training

CARE will coordinate its technical training program with similar MOH projects to be implemented in the southern and western districts. This approach is very sensible given the MOH desire to standardize pump installation and latrine construction. Before their assignment to the districts, the two coordinators to be recruited by CARE-Belize will participate in a 2- to 3-month training program designed and supervised by the CARE Water and Sanitation Advisor. It will cover such areas as:

- siting of wells and latrines;
- installation of hand pumps;
- construction of pit latrines;
- familiarization with the technical activities of the artisans they will be supervising;
- organization and management of village-supplied unskilled labor;
- organization and management workshops on latrine construction;
- organization and management of workshops on village level pump and latrine maintenance;
- instructions in CARE procedures for site administration; and
- motorcycle safety and maintenance.

A more advanced technical training program will be scheduled to improve the capability of MOH pump maintenance personnel to repair the new pumps and also the existing Dempster pumps. At present, the MOH has only one pump maintenance and repair team for the entire country, but has plans to establish a regional repair capacity.

f) Public Health Education

i) Introduction

A key element to the long-term viability of this project is the public health education which will precede the actual installation of wells and latrines, continue through the construction phase and then carry on once construction is completed.

ii) Personnel

A CARE staff member, trained in health and/or nutrition education, will be assigned to this project on a 50% basis. This individual will work with a GOB counterpart, to be assigned

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by the MOH. (At present it is anticipated that this person will come from the Health Education and Community Participation Bureau (HECoPAB) of the MOH. The national health education program officer of the MOH is currently in training and will be assuming his post in June 1985.

iii) Instructional Materials

CARE will collect existing primary health care instructional materials from such organizations as UNICEF, PAHO, USAID, WASH and CFNI. A careful review of the materials will be conducted to identify appropriate channels for dissemination to include, e.g., radio, schools and local women's groups.

During this process, provision is made in the plan for outside technical assistance to last approximately two months.

iv) Linkages

The public health training component is presently envisioned in both formal and non-formal contexts. Formal classroom sessions will be conducted through the primary school system, using curricula already developed by REAP; in the case of non-REAP schools, appropriate training will equip teachers to use the REAP curriculum documents for health education. Classroom instruction will also be geared to adults and older children, using such venues as community centers. Non-formal village-level public health education aimed at the latter groups will also take advantage of existing village networks for dissemination of information. Village councils will be expected to make available appropriate venues for training including, inter alia, schools and community centers.

Health education specialists will visit the villages on a regular basis to support on-going public health education activities. Similar support is expected of the MOH District Health Coordinators/Inspectors.

Coordination of all health education activities with REAP and other primary school programs will enhance and reinforce messages among different community groups such as the village council, REAP, PTAs, teachers and students.

The water and sanitation programs being implemented in other districts by the GOB with other international organizations will include health education programs. Since the CARE-assisted project is expected to be among the first to become fully operational, the materials developed and lessons

learned will be available for appropriate adoption by others. Collaboration between implementing agencies here will result in standardization by the MOH of public health activities at the national level.

C. Project Activity Targets

1. Year 1

- A. Complete pre-implementation tasks including recruitment, procurement etc.;
- B. Train district implementors;
- C. Train health education assistant;
- D. Collect, review and select educational materials for use in classrooms, communities, public media;
- E. Select 2 villages;
- F. Collect baseline data;
- G. Deliver to village sites approximately \$34,000 worth of materials, tools and equipment;
- H. Build 100 latrines per village and install 10 hand pumps per village;
- I. Install 10 hand pumps per village;
- J. Provide one tool kit per site for use by district coordinators;
- K. Supervise and monitor health education component;
- L. Serve 200 participants;
- M. Select 6 villages for year 2.

2. Year 2

- A. Collect baseline data on new project villages and update surveillance data on Year 1 villages;
- B. Deliver to villages approximately \$96,000 worth of materials, tools and equipment;
- C. Build 100 latrines per village;
- D. Install 10 hand pumps per village;
- E. Provide one tool kit per site for use by district coordinators;
- F. Supervise and monitor health education component;

- H. Select 8 villages for Year 3.
- 3. Year 3
 - A. Collect baseline data on new project villages and update surveillance data on Years 1 and 2 villages;
 - B. Deliver to villages approximately \$146,000 worth of materials, tools and equipment;
 - C. Build 100 latrines per village;
 - D. Install 10 hand pumps per village;
 - E. Provide one tool kit per site for use by district coordinators;
 - F. Supervise and monitor health education component;
 - G. Serve 800 participants;
 - H. Evaluate project.

III. Project Overview

A. Project Development

CARE participation in environmental sanitation and water supply projects in Belize dates back to 1965. CARE first supported well-digging programs and, starting in 1972, constructed five piped water systems. In 1977, in conjunction with the Ministry of Health, CARE began implementation of a Rural Environmental Health Project in two districts. The project was designed to provide 100 wells equipped with hand pumps in villages in Belize Rural district and 1,500 latrines throughout the Belize Rural and Toledo districts. Eventual participants were estimated at a total of 6,000.

Two problems affected the project. First, logistical difficulties involving availability of a drilling rig and of in-country transportation for equipment and supplies slowed operations down considerably, resulting in extensions of the implementation period from 2 to 5 years (1978-1982). The second major problem area concerned the education component of the project, where CARE was only allowed restricted involvement. Health education programs offered in conjunction with the project failed to increase acceptance of pit latrines among Indian villagers in the Toledo District. Despite this, the project did succeed in completing its construction targets and in meeting its primary objective of providing clean water and effective sanitation facilities to villagers, thereby improving the overall health conditions of the population in the Belize Rural and Toledo districts.

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CARE's involvement in the REAP project has also pointed to the need for water supply and sanitation programs. During monthly field visits with REAP school officials, CARE-Belize is frequently asked to intercede with the MOH on behalf of villagers wishing to obtain wells. In several instances, villagers organized themselves and raised the necessary funds to pay for installation of a hand pump, but due to scheduling and capacity problems, the Ministry was unable to respond to the villagers' requests.

Both direct and indirect exposure to local needs with regard to water supply and sanitation have led CARE to focus on these issues. Thus in the spirit of the International Decade for Water and in keeping with GOB priorities for water supply and sanitation, the present proposal is being submitted.

B. Project Strategy

CARE-Belize intends to work with the MOH which is charged with national water supply and sanitation programs. In preliminary meetings and discussions, MOH, CARE and other international agencies either interested or actively working in the area of water supply, concur that the CARE-Belize program as presented here will be integrally coordinated with GOB priorities.

One major priority identified by the MOH is the provision of adequate and safe water supply and basic sanitation.* In an effort to coordinate water and sanitation programs and activities, the MOH held a meeting with CARE, UNICEF, PAHO, USAID and CIDA on August 17 and 18, 1984. Imminent problems and potential solutions were addressed along with the need to standardize the criteria for both site selection, and selection of hand pumps to be used throughout the country.

During preparatory village selection and training programs, CARE-Belize will work closely with all levels of MOH, but in particular with the Principal Health Inspector's Office at the national level and with the District Health Coordinator/Inspector at the district level.

Both of these MOH employees will participate in the village selection process. The District Health Coordinator/Inspector is expected to participate in the organization of village workshops to orient and train the villagers to implement the project in their villages.

*Government of Belize, Ministry of Health, Health Department Activities, A Preliminary Report, January 1984

Close coordination between the proposed VLWS and REAP programs will exist in 2 areas:

- 1) Concurrence between well and latrine construction and implementation of the REAP health education curriculum which discusses health and sanitation practices;
- 2) Utilization of mechanisms similar to the existing REAP model for collecting and reporting data in the VLWS Project.

C. Project Impact

Benefits from the village-level water supply and sanitation project will spread to 3 areas in addition to those already identified: jobs/training; community cooperation; and availability of water in excess of minimum daily needs.

The creation of new jobs -- two district coordinators one project coordinator and one health education assistant -- will obviously benefit those Belizeans hired for the positions, as they will be trained in management, administrative and technical skills (see Job Descriptions, Annex II). In addition, district level MOH personnel abilities will be enhanced through participation in project-sponsored training programs. Finally, actual construction of latrines and wells will offer community members, particularly students, hands-on experience for future job opportunities.

Benefits to be gained from the creation of a health educator position deserve special mention. The number of trained health education personnel in the country is presently severely inadequate. Therefore the training of an additional person, who will be solely responsible to the rural villages, will be of great value. By working with existing women's groups, primary schools and communities with REAP schools, the health educator can multiply the training and educational gains and spread them beyond immediate project participants. In a recent study,* a representative sample of rural female heads of households expressed the desire for more information about health. Classes, participation in small groups and written information were seen as the preferred vehicles for receiving health education.

*CARE-Belize, Food and Nutrition Assessment, 1984 unpublished.

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Community cooperation is a second benefit CARE will achieve through the project. Experience gained through REAP has demonstrated that villagers maintain enthusiasm and support for a program when tangible results occur at regular intervals. For instance, in villages where garden produce is distributed among the students, parents are more willing to donate their labour, materials and money to REAP-related activities. Thus based on this experience, CARE can expect similar levels of community involvement in non-REAP villages.

The availability of water in excess of daily requirements will encourage more people to grow home gardens. An increase in home gardens, planted with local fruits and vegetables, can improve the health and nutritional status of the rural populations. And gardens maintained at home would give REAP students an opportunity to practice at home the theory and skills they learn in school.

D. Project Continuity

Through this project, CARE intends both to construct wells and latrines and to assist local communities in developing viable mechanisms for the maintenance of their new water supply and sanitation systems. The long-term success of the project is greatly dependent upon quality construction and involvement of the local village committees with the health education activities. The expected product from the combined input of wells, latrines and a maintenance capability on the one hand and health education and village committees on the other is a self-sustaining system.

Transferral of increased responsibility from CARE to the GOB with regard to the REAP project has begun and is proving successful. This is a very positive indication for the VLWS project. As this latter project will also involve the physical infrastructure developed by REAP, it is reasonable to expect that the project, in particular its community training elements, can become increasingly supported by the district councils and local communities.

With regard to construction of wells and latrines, the rising demands of local communities for water and sanitation services and their tangible expressions of support and commitment will continue to encourage the GOB to devote its limited available resources to rural areas.

Assuming that this project succeeds, CARE can expect to continue its work with the MOH, providing improved water and sanitation services to additional villages in the districts of Orange Walk and Corozal.

E. Project Potential

A number of donor agencies are currently becoming very involved in water supply and sanitation projects for rural areas in Belize. While each has the same basic objectives, there will be variations in design, implementation and evaluation. The GOB is interested in careful coordination of these projects in order to maximize the positive impact of successful activities and minimize the negative impact of pitfalls. The lessons learned in the evaluation and execution of the CARE project will be shared on an ongoing basis, through a coordinating committee, with other agencies working throughout the country.

F. Project Constraints

There are four possible constraints to implementation of the project. They include:

1. GOB contribution

The project depends upon timely placement and proper functioning of the GOB's well-drilling rigs and their crews. Any delay in allocation of these resources to villages selected in this project or any problems in functioning once on-site can effectively interrupt project implementation.

CARE is presently assuming an MOH drilling capability increasing to 80 wells per year. The capacity of one MOH rig is 40 wells per year; MOH plans to rehabilitate a deadlined well-rig so as to provide the additional capacity required to meet project targets in Years 2 and 3.

2. Procurement of Pumps

The MOH, based on discussions with international experts and proposed field tests, hopes to recommend a standard handpump for use in its rural water supply projects. CARE supports the GOB in its effort to standardize and will work closely with the MOH to ensure that its handpumps and complementary maintenance training programs are approved by MOH.

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3. GOB personnel

The availability of GOB personnel to act as counterparts for this project seems limited. The GOB is supplying its technicians for well construction and a full-time health educator will be assigned to the project.

4. Coordination

Successful implementation of the project depends upon the combined and coordinated efforts of the GOB, CARE, AID-Belize, the district councils, village councils and local communities. Experience with inter-ministerial, inter-agency coordination in REAP has been good. There will however be a slightly different mix of agencies and individuals in this project, and proper attention must be given the integrated effort.

G. Relationship to CARE's Four Emphases

1. Capital formation

Good health is a pre-requisite for sustained physical activity. In rural communities, the majority of daily activities require considerable energy output, including the production of food and the procurement of water. Provision of a safe and adequate water supply, in conjunction with proper excreta disposal, will help decrease the incidence of disease and therefore promote the health of all members of the rural labor force, both children and adults. Reliable and accessible water supplies also decrease the time necessary to provide water for all household uses. The time made available in this manner can be devoted to community development or private enterprise, both of which result in village-level capital formation among rural workers, the number one priority of the GOB.

2. Critical mass analysis

The ability of people to participate in activities designed to enhance their individual productivity and/or the overall development of the community is dependent upon their health, among other things. One of the major intended benefits of this project is the positive impact on the health of rural residents living in Belize's predominant demographic group, the rural village.

3. Cluster Programming

As described in Project Strategy, there are a number of linkages between the REAP project and this Village Level Water and Sanitation Project. Most of the villages that become part of this project will have previously successfully participated in REAP and will have top priority for complementary activities planned by CARE and GOB for the near future. These proposed activities depend on an adequate supply of safe water available to all households and include: home gardens; proper food handling; preservation, preparation and marketing of nutritious foods, and care of sick children, especially the prevention and treatment of diarrhea and malaria.

4. Community Participation

International experience in the development of rural water systems has shown that community participation is a crucial element affecting the long-term viability of the system installed. Provision of an improved water supply without community commitment to its proper use and maintenance is destined to almost certain failure. Environmental health in rural areas is a shared responsibility and therefore efforts to improve the water supply and sanitation depend on community-wide participation. Previous community support for REAP in services and donations is an indication of anticipated community participation in the proposed project.

IV. Project Implementation

A. Implementation Plan and Schedule

The attached chart shows the monthly schedule for project implementation, including pre-project activities.

B. Technical Consideration: Post Project Handpump Maintenance

In the past, the lack of adequate handpump maintenance has tarnished the success of pump installation programs. This project has taken several positive steps toward establishment of an effective post-project capacity to maintain and repair the handpumps.

- 1) Countrywide standardization of handpumps will reduce the variety of training, tools and spare parts required to keep the pumps operating.
- 2) The village-level handpump maintenance training program will extend pump life and reduce pump failures. The training program will provide the tools and teach the skills necessary to perform minor repairs as well as routine maintenance on the exposed pump parts.

- 3) The MOH's Mobile Handpump Installation and Repair Team will be responsible for major repairs (e.g. cylinder failures or other underground work which requires lifting devices). They will also provide spare parts logistical support to the village maintenance staff.

C. Procurement

CARE-Belize will be responsible for local procurement. CARE New York will handle all international procurement.

D. Personnel requirements

Position descriptions for all personnel required in the implementation of this project are provided as Annex II. The technical position of Water and Sanitation Advisor will require international recruitment.

The position of Health Education Specialist will be filled by an international staff member. The project will require 50% of the Health Educator's time. In addition, this position, to be filled by a staff member currently in Belize, may require recruitment during the course of the project.

V. Project Evaluation

A. Introduction

The evaluation of this project will include a baseline survey, on-going monitoring, a mid-project evaluation (at 18 months) and final evaluation. Technical assistance for the design and execution of the baseline survey is requested from WASH. Local interviewers will be hired and trained to administer a pre-test and the survey in the two selected villages for year 1. In-country costs for this initial activity are estimated at US\$1,640 to cover enumerators, their support costs and survey instruments.

After the baseline survey and after wells and latrines are installed, it will be necessary to collect follow-up data regarding knowledge, attitudes and practices vis-a-vis the water and sanitation systems. In year 2, the baseline data will be collected for six new target villages and follow-up data for year 1 villages. The budget for these in-country costs is \$1804.

In year 3, baseline and follow-up data will be collected for eight new villages and follow-up data for villages from years 1 and 2. The budget for costs associated with these surveys is \$1984. At the end of 18 months and at the end of year 3, an evaluation team will be requested to execute project evaluations. USAID-Belize and CARE-Belize will jointly participate in these evaluations. See Annex IV for the Scopes of Work and qualifications for the team members.

B. Baseline Survey

There are several sources of data which CARE-Belize will use in establishing baseline conditions in the villages selected for improved water systems.

USAID has recently collected considerable demographic and socio-economic data in rural areas in relation to a feeder roads project and has agreed to make available to CARE those that are relevant.

The GOB has recent data (EHSA, 1982) which illustrate water supply in rural areas: they show on a village basis the number of handpumps and rudimentary water systems, number of households and population (1980 census). Village site selection criteria (see Annex I) will include this type of information.

To supplement these available data sources, CARE-Belize, in collaboration with technical assistance from WASH, will design and execute a baseline survey to obtain information regarding, inter alia:

1. Environmental health knowledge: How great is local awareness of the connection between clean water, proper excreta disposal and good health?
2. 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?
3. Water usage and sanitation practices: What are current water source(s)? What is water used for and in which quantities)? How is excreta disposed of? What are the major problems connected with meeting daily household water and sanitation needs? Seasonal variations?

C. Final Goal

To improve the health status of 9,600 rural Belizeans over a three-year period by reducing the incidence of water and excreta-related diseases, especially in children. This goal is to be accomplished through provision of an adequate, safe, reliable and accessible water supply for drinking, personal hygiene and other domestic purposes; installation of household latrines; and health education to ensure proper understanding and use of the new water and sanitation systems.

D. Intermediate Goals

1. Provision of adequate water supply:

- Indicators: (1) 160 new wells installed with a capacity of 30 l/capita/day
(2) _____% families use the new water source
(3) Families (or individuals or communities) using the new water supply have increased water usage by _____% or _____% families using an average of 30 l water/capita/day.

Means of verification:

Pre- and post-project surveys.

2. Provision of a safe water supply:

Indicator:

Provision of water meeting MOH quality standards, or provision of water _____% better (appropriately defined) than pre-project conditions.

Means of verification:

Pre- and post-project surveys and on-going surveillance utilizing resources of new MOH bacteriological lab (AID-assisted).

3. Provision of a reliable water supply:

Indicator: Water systems are completed and function as planned at least _____ days/month.

Means of verification:

On-going monitoring of maintenance records and input from consumers.

4. Provision of an accessible water supply:

Indicator:

Decrease time spent in collecting water by _____% (either total time or time per trip).

Means of verification:

Pre- and post-project survey averages of the distance, number of daily trips to the source and round-trip travel time.

5. Development and institutionalization of community systems to support and maintain new water supply:

Indicators:

A village system which handles, inter alia, billing and payments for water use and maintenance and oversees proper use of the supply.

Means of verification: Village level records.

6. Provision of an acceptable excreta disposal system:

Indicators:

Ownership--- _____ % increase in families which have latrines
Utilization-- _____ % of families which use the new latrines properly; and
Maintenance-- _____ % of the latrines which are maintained properly.

Means of verification:

Baseline survey and on-going surveillance data at the village level.

7. Improved knowledge, attitudes and behaviour regarding new water supply and sanitation systems:

Indicators:

Knowledge _____ % of households understand the linkage between clean water supply, proper excreta disposal and good health;
Attitudes _____ % of households believe that improved water supply and sanitation are important; and
Behavior _____ % of households use water exclusively from the new source;
_____ % of households transport and store water in clean containers; and
_____ % of households observe acceptable personal hygiene practices.

(Note: Other indicators of behavior are included in Intermediate Goals 1, 5 and 6).

8. Increase the health education capacity of the GOB:

Indicators:

Adequate number of new staff in the MOH capable of developing appropriate health education activities.

Acquisition (purchase, adaptation and development) of relevant health education materials for use in village water supply and sanitation projects.

Means of verification:

Staffing pattern in MOH

Materials produced

Promotion of coordinated community health education activities, for example, through the simultaneous construction of water systems and latrines, mass media campaigns and the primary school curriculum (i.e. REAP).

VI. Project Funding

The project budget is presented on the following pages, by year and by donor (GOB, CARE, USAID) and showing fixed and local costs. Commitments of GOB, CARE and local communities are described in Annex III.

There are no line items for technical assistance as these costs are expected to be supplied by extra-budgetary funding from USAID-Washington. The technical assistance required is for:

1. Baseline survey
2. Media development
3. Mid-project evaluation
4. Final project evaluation

See Annex IV for Scopes of Work and Qualifications for these technical specialists.

VILLAGE LEVEL WATER AND SANITATION PROJECT BUDGET

	YEAR 1		YEAR 2		YEAR 3		TOTAL		TOTAL
	FX	LC	FX	LC	FX	LC	FX	LC	
<u>A.I.D.</u>									
<u>Personnel</u>									
1. Water and Sanitation Advisor	40,000		26,200				66,200		66,200
2. Health Educator	14,000		15,400		16,940		46,340		46,340
<u>Materials/Equipment</u>									
1. Wells (160)	4,000	12,000	13,000	39,000	19,000	57,000	36,000	103,000	144,000
2. Latrines (1600)		13,000		43,000		64,000		120,000	120,000
3. Utility Van	20,000						20,000		20,000
4. Motorcycles (2)	3,000						3,000		3,000
5. Pump Maintenance Kits	1,000		3,300		4,840		9,140		9,140
6. Educational Material and Equipment	3,000	1,000			750	250	3,750	1,250	5,000
<u>Operations</u>									
1. Vehicle Operation Costs		2,500		2,750		3,025		8,275	8,275
2. In-country Transport Costs		3,000		3,300		3,630		9,930	9,930
<u>Evaluation</u>									
1. Baseline and Followup Surveys		1,640		1,804		1,984		5,428	5,428
SUBTOTAL	85,000	33,140	57,900	89,854	41,530	129,889	184,430	247,455	437,313
CONTINGENCY									21,865
OVERHEAD *									40,822
TOTAL									500,000

*Calculated at 8.89%

	YEAR 1		YEAR 2		YEAR 3		TOTAL		TOTAL
	FX	LC	FX	LC	FX	LC	FX	LC	
<u>CARE</u>									
<u>Personnel/Administration</u>									
1. Water and Sanitation Advisor			17,800		48,400		66,200		66,200
2. District Coordinators		16,000		17,600		19,360		52,960	52,960
3. Project Coordinator		10,000		11,000		12,100		33,100	33,100
4. CARE Country Director	16,000		17,600		19,360		52,960		52,960
5. Administrative costs		34,700		38,170		41,987		114,857	114,857
6. Pick-up Truck									
Operational Costs		3,300		3,300		3,300		9,900	9,900
<u>Materials and Equipment</u>									
1. Workshop Expenses	750	2,250	825	2,475	909	2,721	2,483	7,447	9,930
TOTAL	16,750	66,250	36,225	72,545	68,669	79,468	121,643	218,264	339,907
<u>GOB/Ministry of Health</u>									
In-kind contribution (includes full time health educator)		75,000		82,500		90,750		248,250	248,250
TOTAL PROJECT COSTS									
A.I.D.									500,000
CARE									339,907
GOB									248,250
TOTAL									1,088,157

PROJECTED FUNDING REQUIREMENTS

CARE MANAGED

COUNTRY: BELIZE 036

PROJECT TITLE: Village Level Water and Sanitation

SOURCES	FINANCIAL		IN-KIND	
	M&E	P&O	(value)	(type)
<u>Headquarters</u>				
FY <u>85</u>	60,000	158,075		
FY <u>86</u>	101,600	176,103		
FY <u>87</u>	149,470	194,659		
FY _____				
FY _____				
<u>TOTAL</u>	311,070	528,837		
<u>Non-Headquarters</u>				
(source)				
FY <u>85</u>		75,000		
FY <u>86</u>		82,500		
FY <u>87</u>		90,750		
FY _____				
FY _____				
<u>TOTAL</u>		248,250		

Criteria for Village Selection

The village selection process will be a two step process.

- A. Step One - Initial Screening. The selection process will begin with orientation sessions at the national and district levels. The purpose of the orientation sessions will be an informative presentation of the project to GOB staff, village councils, and other interested community groups from Orange Walk and Corozal Districts.

Villagers wishing to be considered as candidates for the project will then complete a "Village Information Form" (which will be supplied by the project) and return this form to the District Council for the initial screening. The screening will be done by the District Council along with representatives from CARE and the MOH using the criteria below. Some of the information will be centrally available and some data will be taken from the "Village Information Forms".

- i) Population (ideally, the target villages will contain between 100 and 250 families;
- ii) All weather accessibility;
- iii) Existence of a community infrastructure 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;
- iv) Distance to present water supply;
- v) History of repeated and/or frequent incidence of water-related-diseases; and
- vi) Type and status of existing water supply for the village.

- B. Step Two - Final Selection

Each Village which passes the initial screening will then be reviewed by the CARE Water and Sanitation Advisor on the basis of technical considerations (e.g., existence of shallow bedrock or an extremely deep water table or a history of wells with unsuitable drinking water).

The District Council along with the CARE Water and Sanitation Advisor and representatives from USAID and the MOH headquarters (ideally from the Chief Public Health Inspector's Office) will then select 1 suitable village from each district in year 1, 3 suitable villages from each district in year 2 and 4 villages from each district in year 3.

PROJECT COORDINATOR

JOB DESCRIPTION

1. Provide overall coordination for the project.
2. Schedule project activities.
3. Procure and distribute local supplies within the project.
4. Provide overall supervision for district coordinators.
5. Hold regular project staff meetings to monitor progress and problems.
6. Control project vehicles and their maintenance.
7. Organize project data collection.
8. Prepare project reports, as required, for CARE and USAID.

JOB QUALIFICATIONS

Must be a university graduate with 5 to 10 years working experience, at least 3 years at the level of project manager or project coordinator. Must have good written and oral communication skills.

Should have experience in rural development or related field, ideally in rural health or water and sanitation. Should be familiar with GOB organization and procedures at both the national and district levels. Should also have prior experience in developing annual budgets, workplans and preparation of project reports.

WATER AND SANITATION ADVISOR
JOB DESCRIPTION

1. Develop and maintain working relationships with the MOH as well as other counterparts, agencies and field personnel of these organizations.
2. Day-to-day management of the construction program, particularly in support of field projects.
3. Train/supervise project coordinators.
4. Assist in supervising MOH field personnel.
5. Advise villagers on appropriate pit latrine design.
6. Prepare and submit to CARE regular written progress reports.
7. Monitor progress of all projects, make regular visits and maintain a close working relationship with field staff.
8. Ensure maintenance of technical standards and quality of on-the-job training.

JOB REQUIREMENTS/QUALIFICATIONS

- Master's Degree or equivalent experience in Public Health or a related field preferred.
- Fluent in English and conversant in Spanish.
- Two year's experience in water/sanitation education in the Third World preferred.
- Experience in installation and repair of handpumps.
- Experience in construction of pit latrines.
- Experience in project management in developing countries.
- Willingness to live and work in different cultural environment, and take on extensive and difficult field travel, sometimes under adverse climatic conditions and beyond normal working hours.
- Possession of a valid driver's license.

DISTRICT COORDINATORS
JOB DESCRIPTION

1. Execution of all tasks in which self-help labor is involved.
2. Day-to-day on-site supervision of village labor, particularly to maintain technical standards.
3. Liaison with local committees and leaders, both on and off site.
4. Submission of work programs and reports to the project manager.
5. Supervision of collection of project data.

JOB REQUIREMENT/QUALIFICATIONS

- Diploma/certificate in Public Health or teaching.
- Ability to work closely with representatives of both central and local governments, rural community members, and government field personnel to plan and coordinate project implementations.
- Willingness to live and work in different cultural environment and take extensive and difficult field travels, sometimes under adverse climatic conditions and beyond normal working hours.
- Prior work experience in rural areas.
- Possession of a valid driver's permit.

HEALTH EDUCATION SPECIALIST
JOB DESCRIPTION

1. Manage the health and nutrition education component of the project.
2. Assist in the design and procurement of educational equipment and materials.
3. Train and supervise the health educator counterpart.
4. Coordinate project activities with Ministry of Health and other Ministries and agencies active in the field.
5. Prepare progress reports.
(Assigned 50% of time to project)

JOB REQUIREMENT/QUALIFICATIONS

- BSc. degree in health education or public health
- Experience in health education, preferably in the Third World.
- Ability to work closely with representatives of local governments, rural community members and government field personnel to plan and coordinate project implementations.
- Willingness to live and work in different cultural environment and take extensive field travels, sometimes beyond normal working hours.
- Fluent in English and conversant in Spanish
- Possession of a valid driver's permit

The Water and Sanitation Advisor and Health Education Specialist will be internationally recruited; all other positions will be locally hired.

In addition to personnel, CARE-managed inputs will include:

- 160 handpumps and accessories;
- Materials for the construction of 1,600 latrines;
- 1 utility van;
- 1 pick-up truck;
- 2 motorcycles;
- Training/education materials and equipment;
- Materials transportation costs;
- Community training;
- Offices, secretarial and administrative support for CARE staff both in Belize and at CARE headquarters in New York.

The estimated value of the CARE managed commitment is US\$839,907.

Local Village Commitments

The villages selected for the water and sanitation program will provide:

- Unskilled labor for construction of latrines and installation of handpumps;
- Land for the wells;
- A venue and necessary support for the health education training programs.

In addition, each village will:

- Initiate requests to be participants in the project;
- Be responsible for data collection and reporting;
- Insure high attendance for health education activities;
- Select members of the community to receive special training in handpump maintenance.

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GOB Commitments

The GOB will supply one complete cable-tool (percussion well rig) rig in each district along with supervisory personnel for one-shift operation of both drilling rigs to include one master driller, two drillers, two technical helpers and two drivers.

As part of the drilling operation, one Mobile Handpump Installation and Maintenance team will be established. The Team will consist of one full-time foreman fitter, one mason, one helper and one driver. This team will be assigned for the duration of the project under the direction of the CARE Water and Sanitation Advisor.

A health education counterpart will be assigned to the project on a full-time basis to work with the CARE Health Education Specialist for the first two years of the project and then assume complete responsibility for this element of the project in the third year. This person should be assigned within the first 2 months of the project.

The total estimated cost to the GOB for this project is \$248,250.

CARE Managed Commitments

CARE will engage the following staff for the duration of the project:

- One Project Coordinator
 - One Water and Sanitation Advisor
 - Two District Coordinators
 - One health education specialist
 - Technical assistance (extra budgetary funding through USAID-Washington)
1. Design and execute baseline survey - requested from WASH.
 2. Assist in materials development.
 3. Design and execute mid-project (18 month) evaluation.
 4. Design and execute final evaluation; team to include one engineer and one education specialist.

Scope of Work - Initial Baseline Survey*

Duration: 6 weeks (one day to be spent at CARE-New York before arriving in Belize; another day spent at CARE-New York upon return, depending upon perceived needs of CARE)

1. Review project documentation and discuss (with CARE, GOB and AID as appropriate) to obtain a clear idea of project goals and objectives.
2. Review data collected by USAID vis-a-vis socio-economic profile of villages involved in the rural roads project (for Orange Walk and Corozal only).
3. Review data collected by USAID vis-a-vis the nationwide inventory of handpumps and latrines (for Orange Walk and Corozal only).
4. Develop scope of work and budget for the initial baseline survey.
5. Develop a baseline survey instrument to cover the data needed for on-going monitoring and final evaluation.
6. Recruit and train field personnel for data collection.
7. Pre-test instrument and revise.
8. Execute baseline survey.
9. Design information feedback system for collecting the data necessary for on-going monitoring.
10. Analyze data and prepare report, including financial accounting for expenses incurred for survey.
11. Train CARE's two district coordinators to conduct future baseline and follow-up surveys.

Qualifications

1. Master's Degree or equivalent experience in public health or a related field.
2. Fluent in English and conversant in Spanish.
3. Two years' experience in health-related projects in rural areas of developing countries, including field experience in epidemiologic analysis.
4. Experience in the design and execution of surveys.
5. Willingness to undertake extensive field travel, sometimes under adverse climatic conditions and beyond normal working hours.
6. Possession of a valid driver's license.

*AID/W is to identify and provide this technical assistance at no cost to USAID-Belize or to CARE.

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Scope of Work - Mid-Project Evaluation

Duration: 4 weeks (one day to be spent at CARE-New York before arriving in Belize; another day spent at CARE-New York upon return, depending upon the perceived needs of CARE).

1. Review project documentation (including baseline and follow-up data) and discuss evaluation with project personnel (CARE, GOB, AID as appropriate).
2. Develop scope of work and budget for evaluation activities to be implemented locally by field personnel.
3. Coordinate evaluation with on-going project monitoring being implemented by CARE district coordinators.
4. Design evaluation instrument.
5. Recruit and train field personnel with district coordinators.
6. Pre-test instrument and revise.
7. Execute field work.
8. Interview GOB, AID and staff of other agencies (as appropriate) to obtain relevant quantitative or qualitative data.
9. Analyze data and prepare report, including financial accounting for local expenses incurred during the evaluation.
10. Conduct a financial analysis of project activities.

Qualifications

1. Master's degree or equivalent experience in public health or a related field.
2. Fluent in English and conversant in Spanish.
3. Two years' experience in health-related projects in rural areas of developing countries.
4. Experience in the design and execution of evaluations (including financial review) of health-related projects.
5. Willingness to undertake extensive field travel, sometimes under adverse climatic conditions and beyond normal working hours.
6. Possession of a valid driver's license.

*AID/W is to identify and provide this technical assistance at no cost to USAID-Belize or to CARE.

Scope of Work - Final Evaluation (2 persons)*

Duration: 4 weeks (one day to be spent at CARE-New York before arriving in Belize; another day spent at CARE-New York upon return, depending upon perceived needs of CARE).

1. Review project documentation and discuss evaluation with project personnel (CARE, GOB, AID as appropriate).
2. Develop scope of work and budget for evaluation activities to be implemented locally by field personnel.
3. Design evaluation instrument.
4. Recruit and train field personnel.
5. Pre-test instrument and revise.
6. Execute field work.
7. Interview GOB, AID and staff of other agencies (as appropriate) to obtain relevant quantitative or qualitative data.
8. Analyze data and prepare report, including financial accounting for local expenses incurred during the evaluation.
9. Conduct a financial analysis of project activities.

QualificationsRural Water systems expert

1. Master's degree or equivalent experience in public health or a related field.
2. Fluent in English and conversant in Spanish.
3. Two years' experience in rural water systems and sanitation projects in developing countries.
4. Experience in the design and execution of evaluations (including financial review) of rural water systems and sanitation projects.
5. Possession of a valid driver's license.

Health education expert

1. Master's degree or equivalent experience in public health, education, communications or a related field.
2. Fluent in English and conversant in Spanish.
3. Two years' experience in health and nutrition education activities in rural areas of developing countries.

4. Experience in the design and execution of evaluations (including financial review of health and nutrition education projects).
5. Possession of a valid driver's license.

*AID/W is to identify and provide this technical assistance at no cost to USAID-Belize or to CARE.

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Scope of Work - Media Specialist*

Duration: 8 weeks (one day to be spent at CARE-New York before arriving in Belize; another day spent at CARE-New York upon return, depending upon perceived needs of CARE).

1. Review project documentation and discuss (with CARE, GOB and AID as appropriate) to obtain a clear idea of project goals and objectives.
2. With the CARE health educator and GOB health educator, review and evaluate available materials for health education regarding rural water systems, sanitation and nutrition.
3. Develop appropriate messages for various target audiences (e.g. school children; adults) in project villages regarding water use, sanitation, nutrition and personal hygiene). This activity probably will include field work to talk to various representatives in target villages (e.g. school teachers, village councils, public health nurses, children).
4. Recommend and field test appropriate media and materials for the messages developed. Develop budget to illustrate costs of various options.
5. Recommend strategies for introducing the new educational materials to the target populations.
6. Prepare report.

Qualifications

1. Master's degree or equivalent experience in non-formal education, media development, communications or a related field.
2. Fluent in English and conversant in Spanish.
3. Two years' experience in development of educational materials for health projects in rural areas of developing countries.

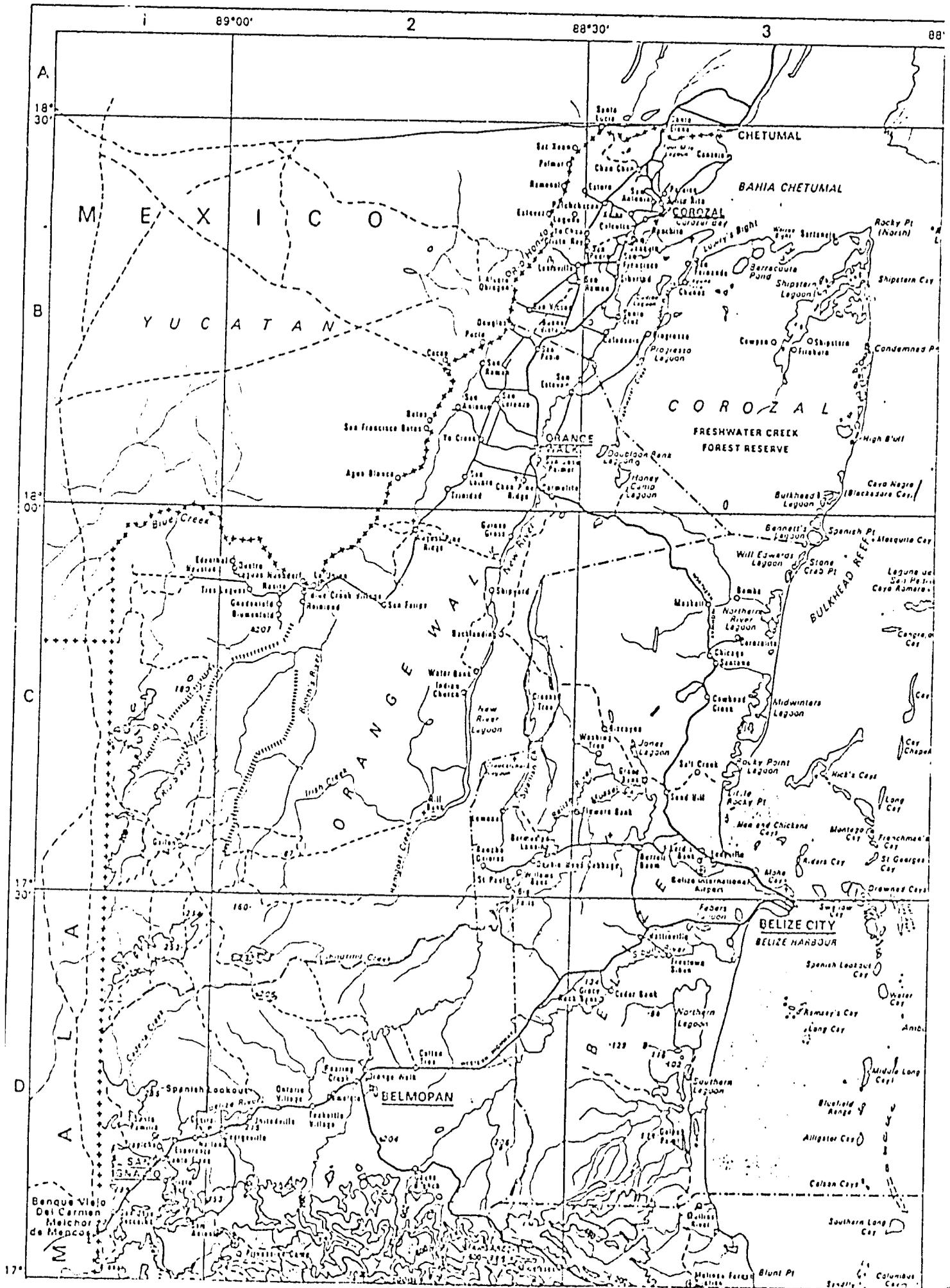
*AID/W is to identify and provide this technical assistance at no cost to USAID-Belize or to CARE.

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BELIZE

COROZAL AND ORANGE WALK DISTRICTS

Figure 1



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