

**A PROPOSED CHECKLIST APPROACH FOR THE EVALUATION OF WATER AND
SANITATION SELF-HELP PROJECT IMPLEMENTATION**

By

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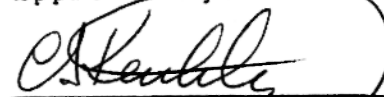
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Preface

The original intent of this report was to do an actual evaluation of the CARE FFW water and sanitation project in the City of Guatemala. Due to set backs in project implementation and conflicts in the authors time schedule, the original proposal was not achievable.

As this report comes to a completion, it is evident that numerous conflicts would have occurred in evaluating such a project. It was known from the beginning that the Food For Work Program would have to be critically evaluated because of negative experiences encountered by the author while working with the CARE program as a Peace Corps Volunteer. However, an area of conflict made evident through the development of this methodology that was not anticipated, is the encompassing framework of political factors which dictate these programs.

With the development of this methodology for evaluation it must be noted that seldom, if at all, are the true intentions of a project expressed in its' goals and objectives. Unfortunately, developing nations do not see the meeting of long term needs for the poorest in their country as being in their best interest. The fact that the FFW Program does not have any long term objectives and does not propose any method of insuring lasting improvement to the environment can only emphasize this

point. The United States however, appears to have an interest in meeting some basic needs, although occasionally purely economic reasons drive that process.

The introduction of United States food subsidies does not aid developing nations in the long run. It can only provide minor relief to the poor and encourage dependency on american farm surplus. This aids the american farmer and encourages government subsidies.

The PL 480-CARE program which provides these food surpluses to developing countries was originally intended to help in temporary disaster conditions such as floods, earthquakes and droughts. The overall effect of the program however, has been to slow the development of domestic agriculture production within recipient countries.

Despite this negative aspect of development work, and the discouraging prospect for long term effects, it must also be acknowledged that some basic needs are being met at a very temporal level, and that the impact these programs have on community organization and unity is not all at loss.

A careful analysis of the FFW proposal for Guatemala would reveal that one of the reasons for proceeding with the effort was to "calm" dissident factions in the slum communities. Clearly, the project could be declared a success if politically this ploy could be shown to have worked. The methodology developed in this report is aimed at determining the long term success of the project on the

improvement of the quality of life in the communities, which may or may not, be a part of the political or economic objectives for undertaking the project. This must be carefully evaluated.

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**POTENTIAL APPLICATION TO U.S. A.I.D. WATER PROJECTS IN
GUATEMALA**

PART I - INTRODUCTION

Potable water and waste disposal have been identified, among other things, to be directly tied to the basic human needs. Sixty percent of all persons in developing countries live without adequate drinking water, and seventy percent live without any kind of sanitation facility.¹ Because of these deficiencies, millions of people suffer from parasites and infections introduced or spread through polluted water supplies and poor sanitation systems. It has been demonstrated through a number of studies that high infant and child mortality rates in developing countries are to a large part results of these inadequacies.²

In March of 1977, representatives assembled at the United Nations Water Conference in Argentina and proposed the period of 1981-1990 to be the "International Drinking Water Supply and Sanitation Decade". On November 10, 1980, the United Nations General Assembly launched this program, and many countries established targets for the decade.

¹Bernard J. Dangerfield, Water Supply and Sanitation in Developing Countries, The Institution of Water Engineers and Scientists, (London: High Holborn, 1983), chapter 1.

²Fredrick L. Golladay, Meeting the Needs of the Poor for Water Supply and Waste Disposal, (Washington, D.C.: The World Bank, 1983).

It has become apparent that in order to reach the decade's goal of providing all people with safe water and adequate sanitation, great investments will be required of international lending organizations and developing governments. Developing and developed countries together must invest in and implement appropriate programs to not only meet the needs of the people, but also to nurture the human resources necessary to maintain and operate the facilities that insure permanent improvements.

Private voluntary organizations and multilateral and bilateral development agencies have already expressed a willingness to support and stimulate the implementation of water and sanitation projects in needy countries. A number of projects have been designed and facilitated in an attempt to reach the people most in need.

In the past, evaluation methods were created in an attempt to understand the relationship between the improvement of water and sanitation systems and public health. These methods have been developed through agencies such as O.E.C.D. (Organization for Economic Cooperation and Development), U.S. A.I.D. (United States Agency for International Development), U.N.I.C.E.F. (United Nations Children's Fund), W.H.O. (World Health Organization), I.B.R.D. (International Bank for Redevelopment, also known as World Bank), as well as by independent researchers. By evaluating a project through the impacts made on the

community, one can assess and modify the implementation of other projects and their outcomes. It is important to note that social and economic conditions vary depending on location and culture and must be taken into consideration in the evaluation process.

Development of water and sanitation projects in developing countries is affected by a number of factors which can be broken down into three groups:

1. organizations dealing with the implementation of water and sanitation policy, which must consider how education, health programs, inter-agency cooperation, types of systems being used or introduced, and the cost to develop and maintain these systems affect program development
2. individuals or persons who make up the community, whose customs and culture such as water use, hygiene, time availability, income, and community organization will vary depending on location
3. geographic location, meaning factors which must be taken into consideration for the location of project sites.

All of the above identified variables affect the improvement of health and the environment. The transmittal of water born infectious diseases can be controlled through improvements in how water is provided to communities. Some of the cultural obstacles can be overcome through the

implementation of health and educational programs. The modification of how waste and runoff water are managed and treated can have strong influences on the quality of the environment.

There are numerous policy directions taken by different countries depending on their specific needs. Development agencies also have developed many programs for dealing with the situation.

U.S. A.I.D., in cooperation with CARE, has implemented a number of water projects, some with more success than others. It is the purpose of this report to ultimately develop a methodology for the evaluation of the implementation process of water and sanitation systems introduced by U.S. A.I.D. This methodology will then be applied to a project currently under development in Guatemala City, Guatemala in an effort to demonstrate its theoretical utility for such projects. The project is known as the CARE Food For Work Project, and is being funded by U.S. A.I.D. Details of the project will be explained later in this report.

HISTORICAL BACKGROUND TO THE WATER AND SANITATION PROBLEM

In the past twenty five years, impact studies have been the primary source of insight into the developmental consequences of water and sanitation projects in developing countries. Studies completed in the early 1970's concentrated on the impacts directly linked to public health. More recent research has stressed the multi-disciplinary aspects of assessing water and sanitation impacts, especially in rural areas.

In 1977, the prevailing view towards improved water supply to rural populations in developing countries was seen as a low priority by international and bilateral assistance programs. It was felt that investment in water supply for domestic purposes was not directly productive and therefore did not contribute to the development process. Potable water supply projects were seen as a misallocation of scarce capital in which the costs exceeded the social gains and therefore did not achieve the economic growth desired through higher productivity.³

In the late 1960's, a concern for the quality of life replaced the earlier preoccupation with the gross national product. Developing countries began to question the purpose of struggling to increase the national product while large

³Ian Burton, Policy Directions For Rural Water Supply in Developing countries, A.I.D. Program Evaluation Discussion Paper No. 4. Office of Evaluation, Bureau for Program and Policy coordination, Agency for International Development, (April 1979), pp. 2-3.

segments of the population remained unaffected. Rural water supply and sanitation programs were given a new status, higher visibility and priority.

In the 1970's, impact studies were implemented as a way to assess the developmental consequences of water and sanitation projects in developing countries. The earlier studies were concentrated on directly linking water and sanitation to public health.

In 1972 a study was done in East Africa by White et. al,⁴ which introduced a variety of investigative methods for determining the effects of water and sanitation to public health. The relationship between improved water and disease reduction, and overall social costs, were established through the use of questionnaires, the examination of excreta and urine specimens, and clinical examinations. The investigative methods utilized contributed to the area of impact analysis greatly. In a later study by White et. al. (1966), a classification of water related infectious diseases was developed which influenced succeeding studies

⁴Dennis B. Warner, Social and Economic Preconditions for Water Supply and Sanitation Programs, WASH Technical Report No. 10, (U.S. Agency for International Development, November 1981), pp. 25-26.

of public health impacts. Four main categories were established:

- I. Waterborne diseases - Infections spread through the water supply (typhoid, cholera, infective hepatitis)
- II. Water-washed diseases - Diseases due to insufficient water for personal hygiene
- III. Water-based diseases - Infections transmitted through an aquatic invertebrate
- IV. Water-related insect vectors - Infections spread by insects living near water (biting insects or breeding insects living near water which cause the spread of diseases such as sleeping sickness and yellow fever)

In 1973, Warner did a study of Tanzanian development objectives⁵ where he went a step further than White et. al. and identified impacts generally attributed to improved water supplies and potential water related benefits. The benefits he identified covered the areas of health, economic productivity, political policy, self-reliance, modernization, and education. In total, thirty potential water related benefits reflecting Tanzanian development objectives were identified. (See table 1)

To achieve this, he used longitudinal studies involving household questionnaires, field measurement and observation, and official records in control villages and project sites to assess the impact of improved water supply. His results were assessed in terms of the effects over time, causality, measurement validity, and frequency of occurrence. Warner's

⁵Ibid., pp. 26-29.

Table 1. Benefit Hypotheses Drawn from National Development Goals in Tanzania (Warner, 1973)

General form of the hypotheses: The provision of an improved water supply to area results in (... benefit listed below ...)

Health Benefits

1. Increased consumption of water.
2. Higher quality of water.
3. Increased frequency of bathing.
4. Reduced incidence of diarrhea.
5. Construction of better quality houses.
6. Improved medical care.

Productivity Benefits

7. Expansion of water-using industries.
8. Improved livestock condition.
9. Increased economic returns from livestock.
10. Greater efforts on former productive activities.
11. Efforts on new productive activities.
12. Expansion of commercial activities.
13. Increased village gross domestic product.

Ujamaa Socialism Benefits

14. Increased population clustering.
15. Greater sense of socialistic ownership of water supply.
16. Greater commitment to co-operative activities.
17. Greater accessibility to water.
18. Reduced disparities of effort in obtaining water.
19. Greater democratic participation in decision-making.

Self-Reliance Benefits

20. Increased home ownership by heads of families.
21. Increased use of local labor, supervision, and materials.
22. More reliable water supply.
23. Greater local involvement in development projects.
24. Greater local awareness of benefits of cooperative efforts.

Modernization Benefits

25. Greater sense of nationalism.
26. Greater acceptance of technology as a means of improving life.
27. Increased rate of development.

Education Benefits

28. Acquisition of new skills.
29. Improved adult education.
30. Increased school enrollment and attendance.

final recommended group of objectives based on benefits found through field study for the design of water projects in Tanzania were:⁶

1. Increased consumption of water.
2. Higher quality.
3. Greater frequency of bathing.
4. Reduced incidence of diarrhea.
5. Greater efforts on former productive activities.
6. Greater accessibility to water.
7. Reduced disparities of effort in obtaining water.
8. Increased use of local labor, supervision, and materials.
9. More reliable water supply.

A team of British researchers (Feachman et. al. 1978) evaluated a rural water supply program in Lesotho in 1975-1976. They developed a study that not only looked at village water use and various aspects of health and community participation, but also institutional, political and social issues concerning water supplies. Although their study detected very few benefits or impacts of improved water supplies, it is notable because they proposed a useful

⁶Ibid., p. 29.

classification of immediate aims of community water projects and ultimate benefits. The following table shows the this relationship.⁷

<i>Benefits</i>	<i>Accessibility</i>	<i>Quantity</i>	<i>Quality</i>	<i>Reliability</i>
Time-saving	Saving on the water collection journey for each household	-	-	Saving during season when unreliable sources fail
Health improvement	Water piped into homes may increase quantity used (see next column) and reduce exposure to water-based disease	Potential improvement in hygiene if additional water is used	Precludes one avenue of faecal-oral disease transmission	May avoid seasonal use of more polluted sources of water
Labour	Labour released by time-savings, and indirectly by health improvement	Indirect through health improvement	Indirect through health improvement	Seasonal time-saving
Agricultural advance	Possible indirect benefit from labour release	Surplus or waste available for gardening	-	Seasonally significant in some cases
Economic diversity	A prerequisite, but not usually a major one	A prerequisite, but not usually a major one	-	Permits permanent settlement

Feachman et. al. believed that by taking these goals or "design benefits" into consideration in project development, one "should be able to reduce the cost of water to the rural poor."⁸

Along with the development of impact studies in the 1970's there was a growing interest in assessment models. These models stressed the linkages between: water, sanitation and health, levels of outcomes, and multi-disciplinary benefits. The models tended to be comprehensive and detailed in the assessment of impacts of

⁷Ibid., p. 32.

⁸Richard Feachman et al., Water, Health and Development: An Interdisciplinary Evaluation, (London: TriMed Books Ltd., 1978).

water and sanitation.⁹ One of the most important concepts to be developed during the time was that of hierarchial levels of impacts.

Carruthers (1973) was the first to suggest such a hierarchial ordering of impacts as a result of water quality. His study expanded the scope of previous studies to include socio-economic impacts and the formulation of assessment models. His model showed that impacts occur in a sequential, or linked manner and that each step in the process is a precondition for the next step.¹⁰ (see Figure 1 on the following page)

In Carruthers' model, each step can only be realized when the conditions at that step are present and the preconditions have been met. This shows that certain linkages direct or indirect may be necessary in order for the step to be achieved. Carruthers' model was a start toward integrated or systems approach to impact assessment.

In 1975, Warner developed an impact assessment model for urban water systems for U.S. A.I.D. His model incorporated a hierarchial ordering of a multi-disciplinary range of impacts. The model provided operational guidelines for a broad range of benefits and an alternative methodology for

⁹Warner, Preconditions, p. 33.

¹⁰Ibid., pp. 33-36.

assessing economic impacts.¹¹ (see Table 2 on the following page) Assessment models similar to Warner's have provided a more comprehensive picture of the overall interactions resulting from water and sanitation projects today.

¹¹Dennis B. Warner. P 38.

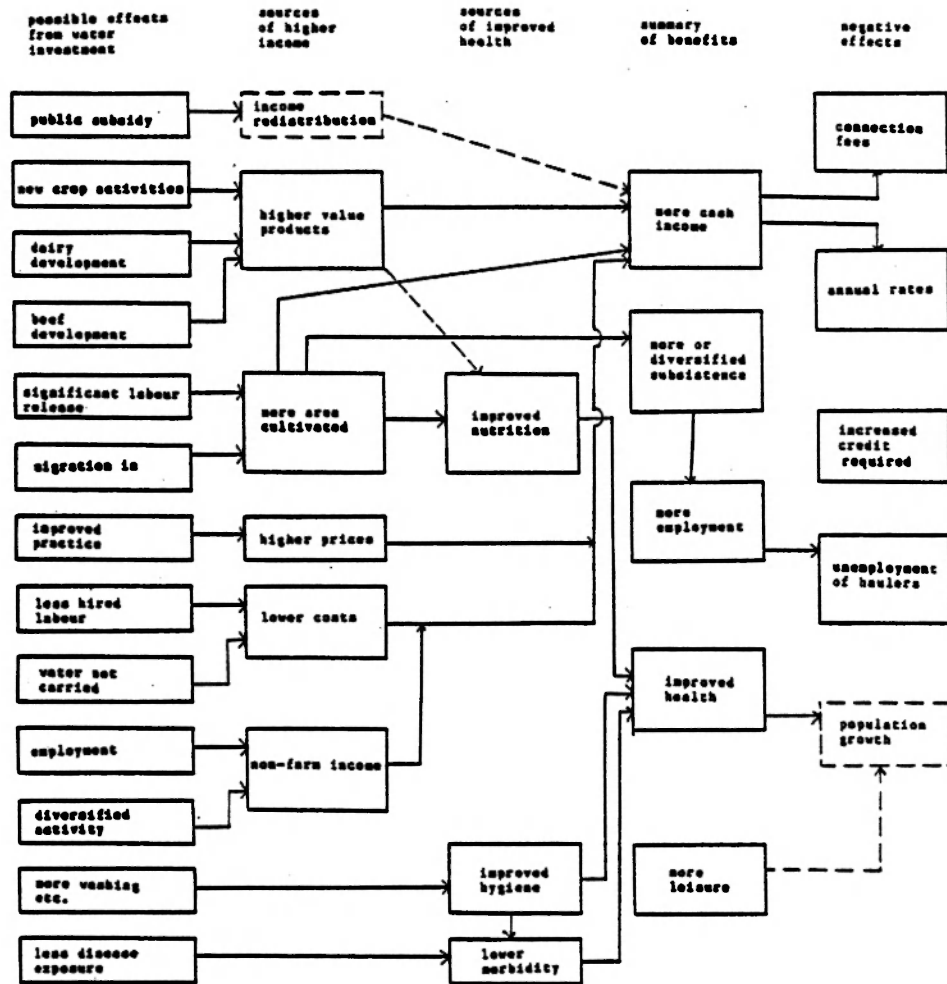


Figure 1. Impacts of Water Investments (Carruthers, 1973).

Table 2. Measures of Urban Water Supply Impacts in the Philippines (Warner, 1975).

- I. Performance Measures
 - 1. Service (service area, connections, system reliability)
 - 2. Water delivery (population served, quantities delivered, consumption per capita)
 - 3. Water quality (bacteriological characteristics, chemical characteristics)
 - 4. Fire Protection (hydraulic capacity, storage capacity)
- II. Environmental Sanitation Measures
 - 1. Water availability (water sources, water delivery)
 - 2. Water-related facilities (storage, water-use facilities, wastewater disposal facilities)
 - 3. Water use (domestic, commercial and industrial, agricultural)
 - 4. Waste water disposal (domestic, commercial and industrial, agricultural)
- III. Final Impact Measures
 - A. Health Measures
 - 1. Mortality (infants, pre-school children)
 - 2. Nutrition (infants, pre-school children)
 - 3. Morbidity (infants, pre-school children, pregnant or nursing women, women in charge of children)
 - 4. Hygiene (toilet practices, bathing practices, infant feeding practices, kitchen cleanliness, bacterial density)
 - B. Economic Measures
 - 1. Personal income (personal income, home improvement investments, utility and service expenditures, home businesses)
 - 2. Corporate income (commercial, industrial, government, institutional establishments)
 - 3. Fire Protection (fire insurance premiums, fire hazards)
 - 4. Project-related employment (project employment, displaced employment, induced employment)
 - C. Social Measures
 - 1. Attitudes (health, employment, local community)
 - 2. Education (school enrollment and attendance, material literacy, adult education, job training)
 - 3. Mobility (social and political, economic, locational)
 - 4. Social Services (available facilities, distribution of facilities)

PROJECT METHODOLOGY

The United Nations International Drinking Water Supply and Sanitation Decade for 1980-1990 established at the United Nations Water Conference held in Mar Del Plata, Argentina was mentioned earlier in this report. Part of the policy developed at this conference was directed toward community water supply and waste disposal:

In order to implement recommendation C. 12 of Habitat: United Nations Conference on Human Settlements, 1/ The decade 1980-1990 should be designated the International Drinking Water Supply and Sanitation Decade and should be devoted to implementing the national plans for drinking water supply and sanitation in accordance with the plan of action contained in resolution II below. This implementation will require a concerted effort by countries and the international community to ensure a reliable drinking-water supply and provide basic sanitary facilities to all urban and rural communities on the basis of specific targets to be set up by each country, taking into account its sanitary, social and economic conditions.¹²

In the report the United Nations went on to list twenty recommended objectives that developing countries should consider in implementing their policy.

In order to meet this end the United Nations recommended that international organizations and other supporting bodies

¹²The United Nations, Report of the United Nations Water Conference, (Mar del Plata, Argentina: The United Nations, March 1977), p. 14.

should, as appropriate, and on request, take the following actions:

- (i) Provide technical assistance to countries in the preparation of long-term plans and specific projects;
- (ii) Consider adapting their criteria for financial assistance in accordance with the economic and social conditions prevailing in the recipient countries;
- (iii) Promote research, development and demonstration projects for reducing the costs of urban and rural water-supply and waste-disposal facilities;
- (iv) Promote public health education;
- (v) Support research, development and demonstration in relation to predominant needs, particularly:
 - a. Low-cost ground-water pumping equipment;
 - b. Low-cost water and waste-water treatment processes and equipment, with emphasis on the use of materials and skills likely to be available to rural communities for installation, operation and maintenance;
- (vi) Strengthen the exchange of information, inter alia, by arranging expert meetings, and development of a clearing-house mechanism.¹³

This paper will look at U.S. A.I.D. and CARE's attempt to meet the objectives of the United Nations water policy for international organizations, and propose recommendations for the improvement of implementation methods in future projects dealing with water and sanitation. The paper will be developed in five parts. Part I is an introduction to the water and sanitation issue. In Part II U.S. A.I.D.'s approach to meet the United Nations water policy objectives will be assessed through a case study approach, based upon a literature review of previous U.S. A.I.D. projects. Case studies have been chosen representing water

¹³Ibid., p. 16.

and sanitation projects instigated by U.S. A.I.D. in four different countries. The countries to be looked at are Korea, Tunisia, Tanzania, and Peru. These case studies were compiled by U.S. A.I.D. in their ex-post evaluation on the impact of U.S. A.I.D. funded projects.

Each objective of the United Nations water policy for international organizations will be assessed individually through an analysis of the following questions:

- (i) Was a water master plan developed or followed?
Was future growth needs considered in the project development?
- (ii) Was there a use of appropriate technology?
Could the community economically afford the systems operation and maintenance?
How were the systems used by the community?
How was the project financed?
- (iii) Was there a reduction in cost of urban and rural water-supply and waste-disposal facilities?
- (iv) Was a health program a component of the project?
Was the health program effective in educating the adult population and school children?
Was there a measurable improvement in health?
- (va.) Was ground water pumping considered?
Did the use of ground water pumping meet the needs socially and economically of the communities?

(vb.) Was waste water a consideration in the project planning?

Was the problems created by waste water mitigated?

(vi) Visibility of the projects.

Were projects considered to be a success?

Was a government system of administration left to oversee and maintain the projects?

Some of the information available concerning these objectives can be assessed by looking at the goal orientation or objectives of the projects. Other data will be based on less "hard evidence" and more upon the performance of the projects and participant satisfaction.

In part III, a synthesis of the findings of part II will be developed into a methodology for the evaluation of the process of implementation of water and sanitation projects. Previous evaluation methods developed by A.I.D. will also be addressed.

Part IV of this paper will apply the developed methodology from part III, to a CARE /U.S. A.I.D. project currently under development in Guatemala City, Guatemala.

PART II - CASE STUDIES

Four case studies were reviewed in order to assess U.S. A.I.D.'s approach to meet the United Nations Water Policy objectives. These case studies were compiled by U.S. A.I.D. in their ex-post evaluation on the impact of their funded projects. The countries reviewed were: Korea, Tunisia, Tanzania, and Peru. These projects were chosen for their diversity in the types of systems implemented, methods of developing the systems, and different government and administrative structures.

Each project evaluation was reviewed, and the information was categorized under six headings. These headings are: project description, administration, participation, health and sanitation program, environmental impacts, and overall evaluation of project.

It was not always possible to make clear correlations between each of the studies because each evaluation stressed different objectives. However, positive aspects did result through this diversity, and a more comprehensive view was established by analyzing the variety of project situations. This is further discussed at the end of this section.

SMALL SCALE RURAL WATER PROJECTS IN TANZANIA - A CASE STUDY ¹

PROJECT DESCRIPTION

U.S. A.I.D. conducted a rural water project evaluation in Tanzania over a six week period in 1979. Three aspects of the water projects were reviewed in the evaluation; the use of appropriate technology, the ability of the users to pay for the systems maintenance and continued use, and the coordination of administrative responsibilities for the project at the regional and local level.

Twenty villages were chosen for visitation. Criteria for selecting sites to visit were: 1. that systems were completed in the site visited; 2. that the sites represent the technological diversity of the rural water supply systems in the country; and 3. that the sites represented regions with different natural water resources. A standardized interview schedule was used to collect data in each site visited.

ADMINISTRATION

The evaluation team looked at a number of water and sanitation projects sponsored by different donor organizations and exhibiting different types of technology. They concluded that in most cases, the donor organizations worked completely separate from the office of the Regional

¹A summary of A.I.D. Evaluation Special Study No. 3, Rural Water Projects in Tanzania: Technical, Social and Administrative Issues, (Agency for International Development, November 1980).

Water Engineer who eventually became responsible for the projects. This lack of close coordination between the agencies and integration of the projects into the activities of the Regional Water Engineer created little hope for success.

Government policy and the lack of financial commitment were both identified as weaknesses in the Tanzanian projects. Tanzania lacks a central ministry to control the formation and implementation of the programs. Each region within the country has its own rural water program. Therefore, some regions have extensive diesel pumped water systems and others have only hand dug shallow wells with hand pumps. In some regions users were asked to pay a fee, and in other regions users were not asked to contribute at all.

PARTICIPATION

The evaluation team found that in order to maintain the systems, it was necessary to establish a user fee. If the circumstances were handled properly, the funds could be obtained from the users. Frequently, there was difficulty raising funds for the water systems after the systems were implemented. The reason was that when the projects were built by the government, the community felt that it was the government's responsibility to pay for its operation. Therefore, it was necessary to establish the user fee prior to the project implementation. The evaluators

concluded that it is important that the community be involved in the decision making over the fee as well as involved in the implementation of the project so that the community builds a sense of responsibility toward the project.

Generally, the users were willing to pay a fee when they perceived a benefit from the improved water system. Among these perceived benefits was improved health. Although there was very little hard evidence of this improvement, many communities claimed that an increase in productivity resulted from better health due to the new systems. An increase in productivity was also claimed by the women who no longer spent time hauling water to the house. This increase in free time allowed them to work on economic generating projects in the home.

HEALTH PROGRAM

In this evaluation study, the impacts on health and improved sanitation were not addressed.

ENVIRONMENTAL IMPACTS

The evaluation determined that the choice of technology to be used should be based on the site climate, the economics of the community and government agency, and the institutions involved in developing the system. Rainfall and ground water level at different time periods in the year were considered to be a major limiting factor in the development of the water system. Stream flow and lake

water level will vary depending on rainfall, which directly affect the water sources.

Settlement patterns were found to be a factor that must be taken into consideration when planning the water system, because water availability should be made convenient to all potential users. In the evaluation, it was pointed out that "it is difficult to convince a rural resident to collect water from an improved source that is further than a traditional source close at hand."

OVERALL EVALUATION OF PROJECTS

One of the problems identified in the evaluation was that those sites with diesel pumps did not have sufficient budgets or other funds to maintain or rehabilitate the systems should they someday fail.

Due to the lack of a national program to administer water projects, a wide variation of projects have evolved through international development agencies. The diversity of technologies introduced by these agencies has been based solely on the interest of the developing organization rather than the appropriateness of the system to the site. The evaluation team suggested that projects should ensure the integration of project activities and those of the Government water agency.

After evaluating three types of systems - the gravity system, the diesel system, and shallow wells with hand pumps - it was concluded by the evaluators that shallow

wells are the most reliable and best suited to rural areas. They are the least expensive to maintain, the easiest to implement, and the materials necessary for this type of system can be found almost completely locally. The implementation of this system is labor intensive, and therefore will generate local employment.

SMALL SCALE CARE WATER PROJECTS IN TUNISIA - A CASE STUDY¹

PROJECT DESCRIPTION

Four Tunisian water projects were evaluated in 1980 by U.S. A.I.D. as part of their ex-post evaluation system. These projects were implemented by CARE in cooperation with the government of Tunisia. Other participants involved in the implementation of the projects were the National Ministry of Public Health, Provincial governments, and U.S. Peace Corps Volunteers.

The project was intended to make potable water available by improving 300 existing wells and springs, institutionalize a maintenance and disinfection system at the local or provincial level, and increase health awareness among beneficiaries.

Improvements were made in 325 water points in four different project areas. The site locations were chosen by CARE and local authorities. Over half of the project sites were wells. Reinforced concrete caps were provided for the shallow wells and hand pumps were installed. Concrete basins were also provided in front or below the pump spouts to control runoff. In the cases of existing deep wells, motorized pumps were installed in enclosed pump rooms. Reservoirs were built and public spigots were provided.

¹A summary of A.I.D. Project Impact Evaluation Report No. 10, Tunisia: CARE Water Projects, (Agency for International Development, October 1980).

Where natural springs existed, reinforced catchment basins were built around the spring and an access door provided for chlorination. Maintenance/disinfection teams and health education teams were organized and trained by CARE for each province.

The CARE projects were intended to affect the quality of water available to rural users, however, they failed to consider the increase in demand of water because of the better quality and availability.

ADMINISTRATION

CARE designed, initiated, as well as arranged funding for the projects, and selected sites in cooperation with provincial authorities and local leaders. Site selections were based on technical feasibility and the number of users. User groups were not consulted in the design of the projects.

U.S. A.I.D. provided half of the funding for these projects and the government of Tunisia provided the rest.

PARTICIPATION

Participation varied depending upon the need for water. The projects did not include local participation in the design or implementation of the water source improvements, therefore participation was limited. Women, for example were seldom aware that improvements were being implemented until the work was complete.

Community involvement occurred only after the projects

were completed. Participation consisted of community organizations for self taxation to pay for the maintenance and cost of fuel for the continued operation of the systems. The water pumps installed ran on diesel fuel. A positive result was the formation of local community organizations which grew out of the need to establish water user fees. However, in some instances community disagreement occurred as a result of the fees.

HEALTH AND SANITATION

Seven mobile maintenance teams were trained by CARE. Each team consisted of a driver, a disinfection technician and a pump repairman. These teams were then taken over by MOPH (Ministry of Public Health). Although CARE provided diesel land rovers to each team, their impact was minimal and not conspicuous at most sites. Through interviews, it was revealed that only 5 of the 30 sites visited had been visited by a maintenance team within the previous month. Well maintenance was given priority over spring sites, and therefore areas with springs suffered from system breakdown more often. Maintenance of springs was proven to be a problem as water flow was not always constant. Sites located closer to the team base in Maktar were visited more often than those farther away. Government documents on well repairs were found to be inaccurate.

Disinfection methods implemented by the government were found to be inadequate even when practiced regularly.

The method used was placing chlorine in a jar to be dispersed into the water over a period of time. In many cases the jars were removed and broken, because people did not like the taste of the chlorinated water. A better method of rural water disinfection was needed. However the government had yet to find a solution.

It was found that many people who used disinfection practices before the renovation occurred had since discarded them, believing that the water was now safe. Unfortunately, this was not true, as water contamination was not being remedied through the water source improvements. In other words, wells were not being regularly disinfected.

CARE trained health teams made up of a male driver and two educated Tunisian women instructed water users in health and sanitation. Sustaining health education proved to be difficult for the health teams and not very effective. Only 3 of the 4 teams still existed when the evaluation was done. Because of lack of budget and vehicle maintenance, the three teams were not able to cover all sites sufficiently.

One of the uncontrollable problems found in the project was that the medical establishment in Tunisia is heavily oriented toward curative rather than preventive medicine. Partly as a result of this, low priority was given to the CARE trained health teams and financing was scarce.

Some duplication of program objectives was found within

the programs of the Ministry of Health. The evaluators suggested that this be reevaluated and incorporated into the health programming of the CARE trained teams.

ENVIRONMENTAL IMPACTS

In this evaluation report environmental impacts of the project were not addressed.

OVERALL EVALUATION OF PROJECT

Generally, it was found that water use patterns had not been altered by the projects. Interviewees said that the projects did not increase water supply, access or site use. In fact, the distance travelled to obtain water still seemed to be the major limiting factor.

Women found that the hand pumps were easier to use than the buckets previously used at well sites. Motorized systems were found to be even easier to use, especially by children carrying water for their mothers.

The major inconvenience of the new systems was breakdowns. When the pump was broken or the water level in the well too low, accessibility became nearly impossible. Even when the holding tanks were forced open, only one person at a time had access to the water. Covering of the wells, however, made the wells much safer for children, who frequently played in the area unsupervised.

The evaluation team also reviewed government records and found that only one fourth of the improved sites were

producing "potable" water by Tunisian standards. About 83% of the sites visited needed repairs. Only half of the sample closed systems showed no sign of damage or surface contamination. The maintenance program to keep water chlorinated and systems maintained was found to be inadequate.

**SMALL SCALE WATER HEALTH SERVICES PROJECT IN PERU - A
CASE STUDY ¹**

PROJECT DESCRIPTION

In 1980, A.I.D. evaluated the water and sanitation project in Peru as part of their ex-post impact evaluation. The project was designed to provide twenty water supplies and four sewer systems on a self help basis. Health education and vaccination programs were to complement the construction component of the project.

The water supply systems were simple gravity systems requiring no pumps. Two types of systems were built; one type directly tapped a spring where no water treatment would be needed, and the other diverted water from irrigation ditches to sedimentation tanks and filters for treatment. Chlorination was not used in either case. There were no provisions for drainage of waste water or training for the operation and maintenance of the systems in the project. Materials for the water systems were imported from the United States.

The sewer systems were also simple gravity systems, using concrete pipe manufactured in Peru. No treatment facilities were incorporated into the project, and raw sewage was discharged into convenient natural drainage areas.

¹A summary of A.I.D. Project Impact Evaluation Report No. 24, Peru: CARE OPG Water Health Services Project, (U.S. Agency for International Development, October 1981).

The project was managed and planned by CARE and was intended to improve the sanitation and health of rural villagers living in the highland regions of the Ancash Department. Two government agencies were involved in the project; ORDEZA (the Organization for the Reconstruction and Development of the Earthquake Zone) which designed and built the systems with help from local villagers, and MOH (Ministry of Health) which provided related health programs to the project. A.I.D. funded the project, provided technical assistance and performed the project monitoring.

ADMINISTRATION

In the implementation of this project, CARE was responsible for purchasing and transporting construction materials and assisting MOH in the design and delivery of the health education program. ORDEZA provided professional and technical manpower to design and help build the water and sewer systems. Local villagers supplied a volunteer labor force, local materials and a cash contribution for the construction of the system.

CARE and ORDEZA selected project sites from candidate villages which demonstrated interest in participating. In each site a special potable water committee was established by the village to organize community cooperation. The village assumed responsibility for the operation and maintenance of the systems. A CARE engineer periodically inspected the sites to monitor the progress and identify

problems.

The A.I.D. project evaluation was performed by a review team who had access to CARE and A.I.D. project documents and conducted interviews in five of the villages where the water supply systems had been in operation for at least one year and one sewer system that had been operating for nine months.

The evaluation team found that 27 of the 29 water systems implemented were functioning satisfactorily.

PARTICIPATION

The highland villages where this project was introduced have a long history of community participation. The community water project acted as a catalyst for the generation of other community projects and reinforced the tradition of community participation.

The work load of the women in the community was reduced, allowing them to perform their household work more efficiently. The project also provided the opportunity for women to actively participate in community decision making. In the initial meetings CARE staff emphasized the importance of including women in every phase of the project. Women took part in the meetings and also as members of the Administrative Junta.

The introduction of "Food For Work"² into the program

²A program where food subsidies are given in return for work. Also referred to as FFW.

had a negative effect, according to CARE staff. Complaints resulted at each site where FFW was introduced. Villagers complained about the small quantities of food allocated, inequalities in distribution, and would not continue working unless they were given food.

Not all households were connected to the systems in all villages. In those villages where only a few could be hooked up or could afford it, some villagers who had participated complained at not having been hooked up to the system.

HEALTH AND SANITATION

The health education facet of the project focused in two parts; to introduce better sanitation, nutrition, and personal hygiene, and to immunize against communicable diseases and monitor changes in mortality due to water borne and related diseases.

In the sites visited, it was apparent that water quality was maintained and/or improved. Based on interviews, the evaluation team estimated that the villagers were using more water than previously, although exact quantities were not assessed. Teachers reported a noticed improvement in the hygiene of the children attending school and a decrease in skin disease.

ENVIRONMENTAL IMPACT

The sewer systems had a significant impact on the level of sanitation in those households that connected to the

system. However, so few systems were built and so few households connected that the overall impact was very small. The discharge of raw sewage into the environment was found to be a problem for surrounding neighborhoods. This created a serious problem, as funding was not provided in the project to remedy the situation.

The projects had little or no impact on the environment. However, in less than half of the households small ponds of waste water and mud holes were created by undrained water. It was noted that if household hookups were provided, proper drainage would be necessary.

In the villages which received sewer systems, little impact was found, because of the low volume of sewage flow. However, as these villages grow and more houses hook up to the system, the flow of raw sewage will become an environmental and health problem to downstream users of the river into which the sewage is dumped untreated.

OVERALL EVALUATION OF PROJECT

On average, it took five and a half months to build the water systems and fifteen months to complete sewer systems. Because of the problems encountered with volunteer labor, it was felt that self-help sewer projects were unrealistic. The cost to implement the sewer projects was three times that of the water projects. This investment cost included labor and materials.

The major attribute of the project was the procurement

of water accessibility. However, a variety of unforeseen problems had occurred, diminishing the projects effectiveness. Decreased spring flow rate during the dry season caused many families to revert back to their traditional river water source. It was found that repairs to the water system pipe were difficult, because the locally available pipe was not exactly the same size as the imported pipe. Therefore, the connections between local pipe and imported pipe had to be heated and force fitted. The locally produced concrete sewer pipe was also found to be inconvenient because of its weight and difficulty of transport safely over poor roads.

POTABLE WATER SYSTEMS PROJECT IN KOREA - A CASE STUDY¹

PROJECT DESCRIPTION

In 1975 CARE proposed to U.S. A.I.D. a water supply project to meet the needs of small towns and agglomerated villages which require larger, more complex systems than were being implemented in rural communities. CARE pointed out that in urbanized areas, the use of traditional shallow wells and latrines were not suitable and would create an increase in the incidence of disease transmission through contamination of the ground water table. CARE proposed a demonstration program that would meet the needs of communities with populations ranging from 5,000 to 10,000 people.

Six projects were implemented jointly by CARE and A.I.D. The projects were designed to meet four objectives:

1. Construct six potable water systems in communities of 5,000 to 10,000 persons.
2. Form a potable water committee to supervise each of the village systems.
3. Conduct a sanitation education program in each of the villages.

¹A summary of A.I.D. Project Impact Evaluation Report No. 20, Korean Potable Water System Project: Lessons from Experience, (U.S. Agency for International Development, May 1981).

4. Collect quantifiable health data as a baseline and in a subsequent survey, measure changes resulting from the project.

Each system consisted of a pump station, a filtration unit, an elevated storage tank, and a distribution system. Households were responsible for the hookup cost and water meter. Fees were collected to cover the cost of electricity to run the pump, maintenance, and the salary of a full-time water system operator.

CARE's guidelines for implementing the project were:

1. select low income communities of 5,000 to 10,000 persons
2. ensure that they had a year round available source of supply
3. design systems that could meet the needs of the community for the next 15 to 20 years
4. serve at least half of the community with piped water upon completion of the system.

ADMINISTRATION

CARE selected the villages after consulting with provincial and county level officials. Village committees were formed in the chosen sites with the aid of CARE and were responsible for the day-to-day operation of the system, as well as screening any complaints and suggestions by the users.

The CARE project was implemented with the Ministry of

Construction and the Ministry of Health and Social Affairs under the general direction of the County Chief. In the end, this created problems for the project. By working with the County Ministry, the project did not receive the full support it would have under the Central Government Agency.

PARTICIPATION

The evaluation found that not all of the communities chosen were considered low income. Some of the communities were affected by coal mining companies and other industry which had already introduced a water system. This complicated the data gathering in the evaluation process.

The evaluation conducted by A.I.D. determined that the majority of those surveyed who did not hook up to the system could not afford the hook up cost.

Persons who were users of the new system continued to use the old system as well. Many families had their own personal wells. Most felt that the well water was better for drinking than the treated piped water. Chlorination gave the water an undesirable taste, and so most people felt the need to boil it before use.

HEALTH AND SANITATION

The health education component of the project was to be given in 12 sessions after the project was complete. However, this was later reduced to six sessions given prior to the implementation of the project.

The health education program appeared to have little

effect on the attitudes and practices of the community. There seemed to be a big overlap of material covered in the school curriculum and the CARE health program. Therefore, attendance to the CARE sessions was low.

ENVIRONMENT

A major problem found by the A.I.D. evaluation was the failure to link the increased availability of water to potential environmental problems. Waste water runoff can become a serious problem when dealing with communities of 5,000 to 10,000 people.

The types of sewer systems implanted in the project were found to be a potential health hazard because of an inadequate drainage system. Another inadequacy was the level of training of the water plant operators.

OVERALL EVALUATION OF PROJECT

The project fell short of its target goals. Five of the six projects were completed. Only one water committee was functioning when the evaluation was done in 1979. The health evaluation was not carried out as planned, therefore there was insufficient data to establish the impact of water improvements to the quality of health.

The major failure of the project was due to poor site selection and the construction of the water systems themselves.

The users identified three benefits to the new system. The first was improved sanitation. The second was an easier

life for the women, as they no longer had to carry water.
And finally, women had more free time, which increased their
productivity in income generating work.

CASE STUDY COMPARISON

Interesting correlations were revealed upon reviewing the four case studies. Although each case study took a different approach toward the implementation of water and sanitation projects, they all experienced similar problems.

All four project evaluations dealt with water systems, however, only the Peruvian case study addressed water in conjunction with sewer systems. Most of the projects were located in rural settings, except for the Korea study, which was designed to meet the needs of urban dwellers. Each project had a different governmental and administrative structure, but all the studies encountered the problems of coordination with the government agencies and lack of full government support after the project was complete.

The first objective of the United Nations Water Policy is to "provide technical assistance to countries in the preparation of long-term plans and specific projects". Each of the projects evaluated was designed to provide assistance to the host country. However, only in the case of the Tanzania study was it recommended that a water master plan be incorporated into the planning phase of a project.¹

The other three projects alluded to the fact that in planning the water project, it is necessary to take into

¹A.I.D. Evaluation Special Study No. 3, Rural Water Projects in Tanzania: Technical, Social and Administrative Issues, (Agency for International Development, November 1980), pp. 14-15.

consideration the quantity needed by the community and also the quality of water to be provided.

It was apparent that in the development of a project, the future growth of the community is not always considered. The Korea study pointed out that consideration was not given to the fact that as water was made more accessible there was an increase in water use. The Tunisia study pointed out that the improved quality of water created greater demand.

A water master plan would ensure the development of studies to determine availability, need, and future needs over an extended period of time.

The second objective of the United Nation's Water Policy for international organizations is to "consider adapting their criteria for financial assistance in accordance with the economic and social conditions prevailing in the recipient countries." The fact that these U.S. A.I.D. funded projects exist demonstrates that they have attempted to meet this objective.

Each project required partial monetary funding by the government and the community involved. The Korea evaluation stated that in the long term, projects should not be subsidized by the government after it is constructed, and that the responsibility to maintain the systems should be given to the recipient community.

All of the evaluations concluded that the cost to maintain the systems was not given sufficient emphasis and

must be considered to insure the continued use of the systems and the availability of water. Each project proposed user fees to keep the systems maintained and operating in cases where pumps were introduced.

The Tanzania evaluation pointed out that it was unlikely that the community would take the responsibility of maintaining the system without some kind of community participation in the development of the system. The Peru project was a good example of involving the community in the implementation phase of the project.

One important element discussed by all the evaluations is the level of involvement by the host country government. All the studies found that there was an explicit need for full support by the governmental agencies and controlled management after the international organization leaves. Without this commitment, it is unlikely that the project will succeed.

The United Nations Water Policy also recommends that international organizations "promote research, development and demonstration projects for reducing the costs of urban and rural water-supply and waste-disposal facilities." All four of the projects looked at various ways of providing water to communities.

They all agreed that the type of technology to be implemented is dictated by the environment, type of source available, demand, and available materials. Tanzania,

Tunisia, and Peru experienced problems with materials which were imported. It was difficult for the local communities to maintain these systems and pay for spare parts. The Tanzania evaluation pointed out the necessity for uniformity in the materials used in the projects developed by various organizations so that the government agency could manage the systems effectively. Breakdowns were one of the major problems associated with the water projects in each country.

The fourth United Nations Water Policy objective is the promotion of public health education. All the evaluations, with the exception of Tanzania, looked at the health programs associated with the water projects. It was again apparent that the major concern was the coordination between the government agency and the international organization.

In all three of the studies on health programs, the overlap of programs was found to be a problem. This was especially the case in the Korea study. In the cases where maintenance teams were formed, lack of governmental support restrained them from being effective. In all cases, it was questionable as to the effectiveness of these programs, as improvement was immeasurable.

The fifth objective of the United Nations Policy is related to their third objective of promoting research and the development of water projects. The fifth objective applies more to the type of technology used. As was

pointed out earlier, the importance of suiting the system to the location is utmost.

The Tanzania study stressed that the technology used must be simple, paid for by the community, and integrated into the activities of the overseeing governmental agency. In rural areas, gravity flow systems or wells were found to be the most appropriate. These systems are lower in cost and easier to maintain. Sewer self help projects were found to be inappropriate for rural areas in the Peru evaluation.

When designing a system, the impact to the surrounding area is important. A good example of the problems that might occur if this is not done can be found in the Korea study. Runoff and untreated sewage can create health hazards that might not have existed before the implementation of the system. Only the Tunisia projects tried to alleviate the problems created by runoff.

The final objective of the United Nations Water Policy is to strengthen the exchange of information. This objective is difficult to evaluate. The Korean projects were found to be failures as they did not have an impact throughout Korea. The evaluators felt that small projects can have an impact on national policies and serve as model programs only if they are designed for maximum demonstration effect at the national and regional level. The other projects were not designed to meet this objective. It is

questionable whether the visibility of the project is significant in comparison to the continual monitoring of these projects, which increases information for other projects to learn from. It is clearly evident that each country could learn much, and perhaps avoid many of the common problems encountered if there is a greater exchange of information. Table 3 presents a matrix of information compared within the four case studies.

Based on these four case studies, it will be important to include the following elements in an evaluation methodology:

1. Inter-governmental coordination
2. Problems created by improved water systems
3. Importance of a health program
4. Water Master Plan
5. Traditional use of water
6. Planning for future growth and use
7. User fee
8. Community participation
9. Governmental management
10. Availability of materials
11. appropriate technology

Table 3. Summary of case study comparisons

	KOREA	TANZANIA	TUNISIA	PERU
MATERIALS	Lacked environmental assessment prior to implementation.	Must be suited to the area. Locally available. Uniformity is necessary between projects.	Problems with breakdowns in systems.	Used local pipe. Problems with imported material.
MANAGEMENT	Need for central management and support.	Projects were carried out separately. Lacked commitment. Necessary to have user fee.	No user input in project implementation. Need more government support.	Good organization.
COMMUNITY INVOLVEMENT	Poor involvement. cost of operation must be considered.	Organized committee for self taxation and maintenance of system.	User fee implemented.	good community involvement. Encountered problems involving equity of user fee. Problems with Food For Work program.
QUALITY VS. QUANTITY	Increased need in both with the use of improved system.	Proposed water master plan. No mention of quality made.	Worked for quality, missed quantity.	Quality improvement.
HEALTH PROGRAM	Program was shortened. Overlapping occurred. Improvement in sanitation occurred.		Maintenance teams developed. duplication of programs occurred. Lack of government support.	instigated educational program. Some overlapping occurred.
WOMEN'S INVOLVEMENT	More free time created.	More free time made available. Were not normally interviewed in study.	Were not asked to participate.	More free time created. participated in decision making.
ENVIRONMENTAL IMPACTS	Runoff problem occurred. Possible sewer problem in future.	Environmental factors must be considered.	Consideration given to runoff.	Improvement in sanitation seen. Possible problem with sewage drainage.
OBJECTIVES	Education program. improve water system. collect health data.	evaluate appropriate technology, the use of a user fee, and project administration.	Improve wells and springs. Organize maintenance and disinfection teams. Increase health awareness and quality.	Develop 20 water supply and 4 sewer systems. Start health education program.

PART III - METHODOLOGY FOR EVALUATION

It is apparent that a project's objectives are not always achieved in its execution. When reviewing or evaluating a project, two questions are usually asked. The first is whether or not the program was implemented according to its stated guidelines. The second question is whether or not the program has made a difference or was effective. By asking these questions, one can assess whether or not the project was cost effective, and what, if anything, could be learned for future improvement.¹

Many times projects are not implemented as initially conceived. This could be the result of a number of factors, such as lack of trained personnel, shortage of equipment, or even that the intended target group was misrepresented. Also, once on the ground, plans must be responsive and adaptive to new realities and requirements.

The process of evaluation provides a systematic way of assessing whether or not a program is operating in conformity with its intended use, and whether or not it is affecting the intended target group. Evaluation has been used to identify conditions and constraints in which projects have been developed and to determine the corresponding inputs necessary to achieve program

¹UNESCO, Evaluating Social Action Projects, Chapter 1 "The Present status of Evaluation Research" by Howard E. Freeman, (United Nations Educational, Scientific and Cultural Organization, 1980).

objectives.

Inputs must meet existing constraints in order to achieve success, therefore, the two issues are closely related. Constraints such as ground water, climate, and community size are fixed and generally cannot be changed. Other constraints, such as water use practices, trained personnel, appropriate water systems etc., can be modified through intervention. These modifications may require investments and direct project inputs.²

To develop a successful project, therefore, may require that inputs be tailored to fit the existing constraints. Identifying these conditions and constraints is known as the precondition phase of project evaluation. This is only part of the project appraisal, which must be comprehensive in nature and include both the process of project development as well as impact evaluation.

PRE-CONDITION

The pre-condition phase of a study is used to identify alternatives based on long term needs, existing system deficiencies, and system alternatives. Finally, the findings of such a report would assist national and international agencies in deciding whether to support a

²Dennis B. Warner, Social and Economic Preconditions for Water Supply and Sanitation Programs, WASH Technical Report No. 10, (U.S. Agency for International Development, November 1981).

proposed project.³

Issues identified under the pre-condition phase are program planning factors, inter-agency and governmental relations, project inputs, and program delivery. These issues are of value in identifying and determining the pre-feasibility of a project.

PROGRAM PLANNING FACTORS

Program planning factors include all studies necessary in determining factors that could have direct impact on the proposed project. For example, in the program planning stage, pre-design studies on environmental conditions, demographics, and cost/benefit analysis, are completed. The emphasis of this phase is on the collection of sufficient recent and historic data, to provide a basis for assessment of the project.

Demographic projections play an extremely important role. In the past, the down fall of most projects could be attributed to growth in population and demand which was not considered. Another common problem, which might be alleviated through pre-design studies, is the inappropriate location of projects.⁴

³Ibid., pp. 60-61.

⁴Stanley A. Barnett and Nat Engel, Effective Institution Building: A Guide for Project Designers and Project Managers Based on Lessons Learned from the AID Portfolio, A.I.D. Program Evaluation Discussion Paper No. 11, (U.S. Agency for International Development, March 1982). p. II-5.

Essential data for a water and sanitation project are such things as quantity of water currently available and potentially available (a problem encountered in the Tanzania and the Tunisia projects), users current need and projected need because of growth and improved availability (encountered in the Korean evaluation), potential hazard to the environment due to runoff (potential problem found in all the evaluation studies), potential hazard to the population due to contamination of the ground water, quality of water available and user preferences due to cultural norms (encountered in Korea).

Another issue that should be addressed in the precondition phase of a project development is the evaluation of project goals and the time frame involved. The project goals and objectives should be stated clearly and realistically. In other words, the project must be designed to meet the needs of the host country and tailored to their capabilities.⁵ This is not to say that innovation is inappropriate. However, when considering new ways of integrating development assistance activities, it is necessary to keep in mind feasibility and long term management of the project by the host country.

INTER-AGENCY AND GOVERNMENTAL RELATIONS

The importance of inter-agency and governmental relations was stressed in all of the reviewed project

⁵Ibid., p. II-6.

evaluations. Host country commitment is fundamental to the project's success, and if absent, often is the reason for difficulty.⁶ The host government should be involved in the project design from the very start. This is almost a prerequisite to gaining their commitment. Projects should be designed to encourage government commitment and support. Without this, the project will not receive the maintenance necessary for long term effects.

As was found in the Korean evaluation, it is important to work with the appropriate ministry or host agency in the political sense. The inability of the counterpart agency to "move forcefully in project support" can cripple the effectiveness of the project.⁷ In order to identify the appropriate agency, one must be familiar with the agency's capabilities and sphere of influence. The Tanzania evaluation pointed out that the weakness of a number of individual projects developed by different organizations was that they were developed without over seeing management by a government office. Lower levels of government play just as important a role in the success of the project as the national agency.

Related to the hazards of working with a governmental agency or entity is the problem of bureaucracy. It is essential to realistically assess delayed progress in a

⁶Ibid., p. II-9.

⁷Ibid., p. II-10.

project due to bureaucratic problems.

Clear lines of authority delineated in the project can help to alleviate misunderstandings and conflicts between agencies and governments working on the project. The authority needs to be formalized and a coordinating institution established as the over seeing manager.

Externally linked projects should be addressed in the same concise manner. For example, in the case of water and sanitation projects, health programs are usually instigated to encourage better sanitary and efficient use of water. These types of projects need to be addressed with as much care and forethought as the water and sanitation system. Without an effective health program, it is unlikely that improvements in the "quality of life" will be apparent.⁸

Another externally linked project is the work of social workers who help communities organize committees to manage and maintain the systems. Their role is to teach the people how to work together effectively.

PROJECT INPUTS

Inputs are resources allocated to the project. These resources can come in the form of monetary input, materials and transportation, personnel and labor force.

Adequate financial resources are primary in

⁸R. G. Feachem, "Infections Related to Water and Excreta: the Health Dimension of the Decade", Chapter 3 in Water Supply and Sanitation in Developing Countries, (The Institution of Water Engineers and Scientists, England, 1983).

implementing a viable project. It is important that the administrative agency is able to operate the project, in the long term, with sufficient financial resources. An example of this type of problem was seen in the Tunisia health component of the water project. The low priority given to this facet of the project caused three of the four health teams created by CARE to be cut, and enabled the vehicles used for transportation to be repaired.

Associated with this concern are the effects of inflation. If the project is delayed, the impact of inflation can be disastrous because of its effect on construction costs and wages, and the general problems created in the budgeting of financial inputs. This can directly influence program effectiveness.⁹

Another financial input that must be addressed is community input. The case studies supported the notion of a user fee to maintain and operate the system. This raises the issue of equity as to who will benefit from the project (who can afford to pay for use). This decision must be addressed in the objectives of the project. Along with this concern is that the community must be made fully aware of the costs and benefits of the project. The community stratification of income must also be considered.

It is essential that materials and equipment are appropriately chosen to meet the circumstances of the

⁹Barnett, Guide for Project Designers, p. II-13.

project and community needs. It was pointed out in the Tanzania, Tunisia and the Peru studies that materials must be available for repair of the systems. If machinery or parts are to be introduced they should be compatible with locally available parts and technologies. In providing transportation of materials and services, similar problems occurred. Delay due to breakdown can have a negative impact on the project.

Finally, personnel and labor force are an important factor in project inputs. There is a time factor involved in organizing the community and agencies, and it is based on the skills possessed and training necessary. If training is required, then time must be taken into account.¹⁰

The role of women in the water and sanitation project is essential, as their role in the community has traditionally put them in control of water use and sanitation. Women draw direct and indirect benefits from water and sanitation projects. An example is economic benefits which allows more free time due to less time spent on water collection. Lack of time is often a major constraint for women to participate in non-formal education or other capital generating activities.

A more direct benefit is improved health due to improved sanitation practices and hygiene. A lower morbidity and mortality rate usually follows water and

¹⁰Ibid., p. II-16.

sanitation improvement. Because of their traditional roles involving water, women should play an important role in the design and implementation of the project. This leads to women taking a more active role in the decision making of the community.¹¹

PROGRAM DELIVERY

With the information gathered in the previous stages, it is now possible to plan and design the project. In this phase the specifics of the project are defined. Questions asked at this stage are:

1. Which site locations are most appropriate based on the environmental and demographic data?
2. How will the project be managed at different levels of bureaucracy taking into consideration the political structure?
3. How will the project be monitored through implementation stages and by whom?
4. How can the project be designed for flexibility?

Projects should be designed taking into account these questions so that they can be monitored and problems can be more easily identified in earlier stages. This will make it possible to facilitate improvements during implementation.

¹¹Christine van Wijk-Sijbesma, Participation of Women in Water Supply and Sanitation, roles and realities, Technical paper 22, International Reference Centre for Community Water Supply and Sanitation, (The Hague The Netherlands, 1985).

IMPLEMENTATION

The reasons for evaluating the implementation of a project are straight forward. From the international agency's standpoint, it is critical to know what is being paid for and undertaken. It is also important to know if the project is being carried out as planned, and if not why. A problem may arise if the staff does not have the knowledge or motivation to carry out their tasks as outlined.¹²

In order to monitor implementation phases of a project development, it is necessary to manage the collection of data during this process. Time is a key issue, as many of the tasks to be accomplished are calculated by the monetary sum associated with it. For example, the amount of time needed for on the job training can affect the quality and quantity of work accomplished. There is a point where maximum efficiency is achieved; just enough training and improved productivity.

Management and coordination should be monitored throughout the project. This is necessary so that the project objectives are not forgotten during implementation. Should there be a change in the project design, all staff and involved persons should be aware of it. Because

¹²Howard E. Freeman, Evaluating social Projects in Developing countries, (Paris: Development Centre of the Organisation for Economic Co-operation and development, 1979), p. 19.

planning is proactive, this may be entirely necessary.

A frequently mentioned problem during project implementation is management and organization. Conflicting lines of authority and failure to provide the anticipated level of skilled staff are common problems.¹³

As was stated before in the pre-condition phase, it is necessary to define the lines of authority in the project before implementation. There not only must be cooperation between the project specific management levels, but also with the externally linked programs involved in the project as well. With this type of cooperation between intergovernmental levels, it is possible to alleviate the problems of program overlap encountered in the case studies.

Finally, data must be gathered in reference to the changes and affects the project is making on the community culturally, physically and economically. Negative impacts should be alleviated through design flexibility.

FINAL EVALUATION

This phase is an evaluation of the overall impact of the program or project. It entails an environmental assessment, an appraisal of implementation methods and long-term management of the program, evaluation of health and sanitation improvement, and the socio-economic effects on the community.

¹³Barnett, Guide for Project Designers, p. II-26.

Through this overall impact evaluation, lessons can be drawn and applied to future projects so as to alleviate similar conflicts. The following page displays an outline of the evaluation process just explained.

METHODOLOGY FOR EVALUATION OUTLINE

A. PRE CONDITION

- I. Program Planning Factors
 1. Pre-design Study - evaluation of the environmental assessment, demographics, cost/benefit
 2. Data - collection and analysis of data pertaining to water resources
 3. Time frame
 4. Project goals and objectives - clearness
- II. Inter-Agency and Governmental Relations
 1. Host country government commitment
 2. Host country agencies and personnel involvement
 3. Externally linked projects (health)
 4. Lines of authority - U.S. and host country agencies involved
 5. Bureaucracy
- III. Project Inputs
 1. Financial Inputs - effects of Inflation and community input
 2. Materials and transportation
 3. Personnel and labor force, involvement of women
- IV. Program Delivery
 1. Site locations and community awareness
 2. Project management and organization
 3. Project monitoring
 4. Up dating project design (flexibility)

B. IMPLEMENTATION

- I. Program Monitoring
 1. Time frame for on job training
 2. Management Problems
 3. Horizontal and vertical linkages (intergovernmental cooperation)
 4. Impacts - positive and negative

C. FINAL EVALUATION

- I. Overall impact
 1. Environmental assessment (drainage and runoff)
 2. Appraisal of implementation and management
 3. Evaluation of health and sanitation improvements
 4. Socio-economic effects
 5. Suggestions and lessons learned

CHECKLIST APPROACH

These variables previously explained are indicators and can be used as a means of measuring selected conditions. Indicators are simply measurements of conditions or states of being, and can be used as a powerful tool for the planning and retrospective assessment of a project.¹⁴

Indicators are different evaluation approaches and can be a means of insuring that a minimum set of key factors are addressed in the plan development. This report addresses the checklist approach to project development and evaluation using previously mentioned variables.

As Dennis B. Warner explains,

[C]hecklists provide a means of insuring that all relevant issues are considered during the planning process. Unlike indicators and indices, checklists do not act as proxies for development conditions. Instead, they are a mechanism for encouraging the planner to think about situations which usually are too complex for straightforward measurement. Where indicators tend to be specific but narrow in scope, checklists tend to be general but comprehensive in scope.¹⁵

Om Orakash Mathur points out that checklists must be prepared in such a way that:

1. It is comprehensible.
2. It is comparable with the checklists of other candidate projects.
3. It facilitates decision making.¹⁶

¹⁴Warner, Preconditions, p. 69.

¹⁵Ibid., p. 89.

¹⁶Om Prakash Mathur, Project Analysis for Local Development, (Westview Press, 1985), p. 162.

The World Health Organization (WHO) has advocated the use of checklists especially regarding the International Drinking Water Supply and Sanitation Decade. They have used checklists for assessing the social and economic potential for community education and participation in water and sanitation projects. The World Bank has also developed checklists for the technical and economic appraisal of water supply and sanitation projects. U.S. A.I.D., in the past has used checklist models of social analysis and social soundness assessment.¹⁷

In general, there are no restrictions to what can be assessed through the use of checklists. The only limit is the amount of time and effort the planner or evaluator wishes to devote to analysis.¹⁸ The evaluator, then, plays the key role in implementation of the checklist. He/she is required to have a basic understanding of water and sanitation systems and their application to different situations, as well as their impact on the natural environment. A background in sociology would be helpful, especially when dealing with foreign cultures. He/she must be able to assess whether water quantity and quality are sufficient to meet demand, and whether improvement is a viable action, both economically and by the community social standards. A planner or administrator overseeing

¹⁷Warner, Preconditions, p. 110.

¹⁸Ibid., p. 111.

the project must possess these basic skills on which to base critical decisions concerning the success or failure of the project as it progresses. It is possible that one person will not be able to adequately implement the evaluation, and therefore it would be necessary to use a team of evaluators who possess expertise in areas such as sanitation engineering.

Basic information which must first be collected and analyzed are:

1. Identification of the traditional sanitation and water use practices in the community. How much water is consumed per household per day? What method is currently being used for waste disposal? How are clothes being washed and how often? What are the norms set for bathing practices? Are any water purification practices being used?
2. Identification of communicable diseases transported through water source existing in the community.
3. An environmental assessment should be done. What is the quantity of water available for the project? What is the measurement of bacteria and mineral content in the water? Is erosion presently occurring due to runoff? What locations within the community are best suited for greater accessibility?

4. Opinions of the community should be identified. Do the people see a need for improvement? How many people have interest in hooking up to the proposed system?
5. Data on the proposed system itself should be addressed. What is the maximum user capacity of the proposed system? What is the anticipated cost of the project for implementation and to the community?

These questions should be answered by the evaluator before continuing on to the checklist. Some of this information can be collected by persons working directly with the community, and by engineers assessing the viability of the proposed project.

The checklist at the end of this section has been developed by the author to evaluate the implementation of water and sanitation projects. It has emerged from a careful analysis of the four CARE studies described earlier in this report.

CALIBRATION OF THE CHECKLIST

A rating system has been developed for the checklist in order to facilitate in the analysis of project success. The checklist has been developed for use on a spread sheet, preferably Lotus 123. An example with cell formulas can be found in Appendix A. The questions were ranked using a 5-3-1 scale. This scale was chosen because it would provide

greater contrast in the scoring, as opposed to a 3-2-1 scale.

The questions were evaluated by three criteria:

1. whether the issue involved was considered important in the four case studies reviewed
2. whether the issue was a significant factor in the literature reviewed
3. whether the issue was essential to project success.

If the question applied to all three factors, it was given the highest ranking of 5. If it applied to two of the factors or was seen as intrinsic by at least one source, the question was given a ranking of 3. Lastly, if the question was found to be of significance in one or more of the sources but not found to be fundamental to project success, it was given a ranking of 1.

The evaluator is expected to answer the questions with a "yes" giving the rating of 2, "no" giving the rating of 0, or when applicable, a rating of "partially" giving the rating of 1. This system of rating, when multiplied with the ranking of the question, will magnify the significance of the question score. The scores for each question within each section can then be tallied, and a percentage of the highest possible score could be figured.

Each section of the evaluation has the maximum score of one hundred percent. All the issues addressed in the

checklist are considered essential to a successful project. Areas of weakness can be identified by scores lower than one hundred percent. Each section of the checklist is significant to a phase of project development and implementation.

The sections should not be compared or ranked by importance, because without addressing each one within the frame of the whole process, project success is unlikely. One might identify project goals and objectives as essential to project success, and then say that community involvement is less important. But, without community involvement it is unlikely that the project will be designed to meet the real needs of the community or confirm that the stated goals and objectives are valid. Therefore, each section of the checklist must be viewed separately for its own merit to the entire process.

The calibration of the example checklist is based upon the four case studies reviewed. However this process could be modified for use on projects with more specific requirements. It is also realized that not all projects will weight the questions with the same importance as in the example. It is hoped that the process will be modified for greater accuracy and effectiveness as it relates to each project reviewed.

The intent of the checklist is not to judge the success

or failure of the project, but to assist in identifying the weaknesses in specific development areas as the project progresses. Therefore, areas of weakness will carry a lower percentage.

CHECKLIST FOR PROJECT EVALUATION

COUNTRY:

PRECONDITION

RATING SCALE : YES = 2 PARTIALLY = 1 NO = 0

PROGRAM PLANNING FACTORS

RATING	PRE-DESIGN STUDY	WEIGHT	SCORE*	PERCENT
	Have drainage patterns been assessed to mitigate potential erosion hazards?	5	0	
	Has the appropriate system been chosen for the type of topography and geographic location?	5	0	
	Does the soil type, compaction and erodibility correspond to the system needs?	5	0	
	Have the effects of seasonal water availability been assessed for the project?	5	0	
	Has existing population and projected growth been determined?	3		
	Has the projected population growth's effect on the project's success been determined?	3	0	
	Have the number of persons who need services been identified?	3	0	
	Have water and sanitation needs in the community been identified and integrated into the project?	5	0	
	Have problems been identified in previously completed water and sanitation systems in the country?	5	0	
	Will quantity of water provided meet the consumption needs of the projected population?	5	0	
	Will the quality of water in the proposed project meet the host country acceptable standards?	5	0	
	Has the quantity of water available for potential use been identified?	5	0	
	Has the quality of water available for potential use been identified?	5	0	

* Score is calculated by multiplying the rating and the weight assigned to each question. Zero (0) score shown in this column has resulted from the lack of an assigned rating in column 1.

	Has the project been structured so that the traditional uses and habits of the users are taken into consideration?	5	0
	Has an environmental assessment been completed?	3	0
	Have traditional uses and habits of the community been identified?	3	0
	Have existing health conditions been identified?	3	0
RATING	PROJECT GOALS AND OBJECTIVES	WEIGHT	SCORE
	Have the goals and objectives been clearly stated?	5	0
	Have short range goals and objectives been identified?	5	0
	Have long ranges goals been established for the project?	5	0
RATING	TIME FRAME FOR PROJECT IMPLEMENTATION	WEIGHT	SCORE
	Has the system been appropriately chosen based on its feasibility and ability to be integrated into the community?	5	0
	Is the budget sufficient to implement the project as planned?	5	0
0	OUT OF 34 POSSIBLE	TOTAL	3332 0 0.00

INTER-AGENCY AND GOVERNMENTAL RELATIONS

RATING	HOST COUNTRY COMMITMENT	WEIGHT	SCORE	PERCENT
	Is the National policy towards water and sanitation compatible with project goals and objectives?	5	0	
	Is the host agency aware of the benefits received with their support to the project?	1	0	

RATING	PERSONNEL INVOLVEMENT FROM THE AGENCIES	WEIGHT	SCORE	PERCENT
	Is technical expertise available within the National agency?	5	0	
	Are the technicians available to work on the project?	5	0	
	Are they willing to participate in the project design?	5	0	
	Has the host agency's role within the government been identified?	3	0	
RATING	LINES OF AUTHORITY	WEIGHT	SCORE	
	Has the project been structured to function under the host governmental structure?	5	0	
	Has the extra time needed to deal with the bureaucratic process in the the host country been included into the time schedule?	5	0	
0	OUT OF 16 POSSIBLE	TOTAL:	544	0 0.00

PROJECT INPUTS

RATING	FINANCIAL INPUTS	WEIGHT	SCORE	PERCENT
	Have salary level specifications for all levels dealing with the project been made?	1	0	
	Has the host country financial input been agreed upon?	5	0	
	Has the community input and user fee been established with the community?	5	0	
	Is the international organization's role clearly defined?	3	0	
	Have the effects of inflation been considered, should the project be delayed?	3	0	

RATING	MATERIALS AND TRANSPORTATION	WEIGHT	SCORE	PERCENT
	Can the materials be bought in the country?	5	0	
	Has the supplier of the materials been identified?	3	0	
	Is it possible to obtain replacement parts with ease and at a reasonable cost?	5	0	
	Is the technology to be used at a level that can be understood by the local community so that maintenance and repairs can be done by themselves?	5	0	
RATING	LABOR FORCE	WEIGHT	SCORE	PERCENT
	Has the community organized a committee to repair and maintain the system?	5	0	
	Has the host agency developed a management system to over see the project after the international agency leaves?	5	0	
	Is there coordination between all the parties involved?	5	0	
	Are women involved in the decision making and playing a role in the development of the project?	5	0	
	Is the community involved in the design and decision making for the project?	5	0	
0	OUT OF 28 POSSIBLE	TOTAL	1680	0 0.00

PROGRAM DELIVERY

RATING	SITE LOCATION AND COMMUNITY AWARENESS	WEIGHT	SCORE	PERCENT
	Has any existing water systems within the community been assessed?	3	0	
	Has the level of need within the community been evaluated?	5	0	
	Is the community aware of the costs and benefits associated with improved water and sanitation facilities?	5	0	
	Is the community willing to participate in the implementation of the system and support the project?	5	0	

RATING	PROJECT MANAGEMENT AND ORGANIZATION	WEIGHT	SCORE	PERCENT
	Have all levels of government involved been identified?	3	0	
	Is the structure of management clear to all parties involved?	5	0	
	Has the over seeing power been established?	1	0	
RATING	PROJECT MONITORING	WEIGHT	SCORE	
	Has a system been established for monitoring of the project once it is completed?	5	0	
	Has an entity been chosen to do the monitoring?	1	0	
	Have criteria been established as the basis of the monitoring?	5	0	
RATING	UPDATING THE DESIGN	WEIGHT	SCORE	
	Have alternatives been identified in the implementation process?	3	0	
	Have possible bottlenecks been identified?	3	0	
	Is the project flexible enough to be changed should problems occur?	5	0	
0	OUT OF 26 POSSIBLE	TOTAL:	1274	0 0.00

IMPLEMENTATION
PROGRAM MONITORING

RATING	TIME FRAME FOR JOB TRAINING	WEIGHT	SCORE	PERCENT
	Was sufficient time devoted to job training?	5	0	
	Was an adequate level of skill developed in the time allotted?	5	0	
RATING	MANAGEMENT PROBLEMS	WEIGHT	SCORE	
	Was it possible to locate problems within the project and correct them?	5	0	
	Was there intergovernmental cooperation?	5	0	
0	OUT OF 8 POSSIBLE	TOTAL:	160	0 0.00

FINAL EVALUATION

RATING	OVERALL IMPACTS	WEIGHT	SCORE	PERCENT
	Was there an improvement to the environment?	5	0	
	Was there improvement in health i.e. less disease?	5	0	
	Was there an improvement in the quality of water?	5	0	
	Was there an improvement in the quantity of water?	5	0	
	Was the project accomplished with cost effectiveness?	5	0	
	Were there changes in the sanitation habits of the persons who benefited from the project?	5	0	
	Was there a decrease in communicable diseases after the implementation of the project?	5	0	
0	OUT OF 14 POSSIBLE	TOTAL:	490	0 0.00

The final section of this report discusses what modifications would be necessary if the checklist were to be applied to the CARE Food For Work program in Guatemala, Central America. Before this is done, a brief background to water and sanitation in Guatemala is provided and a project description is given.

PART IV - CARE FOOD FOR WORK PROJECT IN GUATEMALA

INTRODUCTION

This section of the report will address how the checklist evaluation might be modified for application to the CARE / U.S. A.I.D. self-help water and sanitation project under development in Guatemala City. The application is theoretical and based upon limited information on the project as well as personal experience working with a similar project in Guatemala.

The complete CARE project proposal can be found in Appendix B. A brief description of the project is given in this section as well as a sketchy historical background to water and sanitation projects in Guatemala.

HISTORICAL BACKGROUND OF COMMUNITY WATER SUPPLY ACTIVITY IN GUATEMALA

The current project being implemented by U.S. A.I.D. in cooperation with CARE concerns the development of sewer and water systems in the slum areas of the Capital. This project, however, only scratches the surface of the water and sanitation problems Guatemala faces. A study completed in 1979 by the Committee of the United States National Commission for UNESCO¹, indicated that only 40 percent of the population has access to piped water or safe water sources.

The UNESCO study and a follow up study funded by U.S. A.I.D.² estimated that 60-70 percent of the drinking water consumed daily was from ground water sources. This estimate is considered low due to the number of unregistered wells in the Country. Well water is not monitored in the Guatemala City basin and so data on water supply is scarce.

In the Capital only 80 percent of the water demand is adequately provided.³ The water distribution system is said to be in poor condition, due to cracks in the piping

¹UNESCO, Draft Environmental Report on Guatemala, The United States National Committee for Man and the Biosphere, A Committee of the United States National Commission for UNESCO, (May 1979).

²James L. Cooley et al., Draft Environmental Profile on Guatemala Phase II, U.S. Man and the Biosphere Secretariat Department of State, (Washington, D. C. May 1981).

³Ibid., p. 20.

system and illegal taps. This has created low pressure in the system causing only partial use of the system in different areas of the city during certain times of the day. This interrupted use of the system has a negative affect on the water quality. Much of the leakage is due to the 1976 earthquake which damaged the pipes of both the water and sewage system. The threat of water contamination due to the possible cross connection with the sewer lines is just one of the concerns the government is currently facing. The government has made some improvements to the water and sewer system. However, funding is scarce, and the work is completed slowly.⁴

Only 11-14 percent of the total population of Guatemala was being served by sewers in the 1970 study for UNESCO. There were only three sewage treatment plants in Guatemala when the UNESCO study was completed in 1979. None of these plants were located in or near the Capital. The sewage continues to be collected into one system and dumped directly into the rivers and streams.

Domestic wastes continue to be the major source of water pollution and ground water contamination. The Pacific and Atlantic watersheds in the area of Guatemala City have been polluted. This pollution has affected the fishery resources and created health hazards to rural populations down stream from the Capital.

⁴Ibid., pp. 20-22.

Another problem concerning water quality in Guatemala are current agricultural practices. Because of deforestation of watersheds throughout the country, erosion on steep slopes used for farming has caused severe sedimentation in streams and rivers. Pesticides used in agriculture have also been washed into the watershed augmenting the pollution problem. This has not only affected water quality, but has also modified hydroelectric possibilities where flow rates and discharge rates have been altered. ⁵

U.S. A.I.D. ACTIVITY IN GUATEMALA

U.S. A.I.D. activity in community water programs in Latin America began in 1942. A cooperative organization known as Servicios was established in nearly all Central and South American countries. In Guatemala, this organization was known as the Servicio Cooperativo Interamericano de Salud Publica (SCISP). The program's objective was to train professional personnel, construct seven health centers, and construct five public water supply and sewage systems. The program was carried out for six years.

Guatemala had no technical organization for dealing with water supply and sewage treatment when the Servicio started work on these problems in 1944. By 1952, the National Agency Sanidad Publica had increased its staff of engineers to the level that it could supervise the operation

⁵Ibid., pp. 22-23.

and improvement of municipal water and sewage projects.

The following is a summary of the work completed under this program:

1. At Santa Maria Cauque water was collected by the construction of a low concrete dam at one source and by a collection gallery at another point. The water was passed through grit, sedimentation and distribution tanks and chlorinated before distribution to the town.
2. A water supply system was constructed for the town of Flores, capital of the Department of Peten. Water was pumped from the lake through a long intake pipe, chlorinated and pumped to an elevated steel tank from which it was distributed to the entire island.
3. In the Department of Jutiapa, water supply and sewage systems were constructed.
4. Inadequate and dangerous water supplies in the Department of Coban were replaced by the construction of a modern system. A general sewage system was also constructed. Deaths from typhoid dropped from eight in 1945 to none in 1949.

5. The water system at Salama was modernized by the construction of sedimentation and distribution tanks and improvements to the distribution system.
6. The town of Ayutla had neither a water nor a sewage system witnessed a high mortality rate resulting from water borne diseases. Following the construction of both systems and a small slaughterhouse, deaths from dysentery and intestinal parasites dropped from eighteen in 1946 to three in 1949.
7. Retalhuleu was without a safe water supply or sewage system. An open channel system and contaminated private water sources were replaced by a modern treatment and distribution system and, a sewage system was constructed.
8. Surveys and designs were made for both water and sewage systems for the cities of Quezaltenango and Chiquimula.⁶

Between the years of 1948-1955 the only projects under way were those concerning the Roosevelt Hospital and National Nursing School. During this time, Jacobo Arbenz Guzman was elected president with communist support and passed an agrarian reform law. In 1954, at the Organization of American States (OAS) conference in Caracas, Venezuela,

⁶A.I.D., Community Water Supply Activity Under A.I.D. and It's Predecessor Agencies, (Microfiche), pp. 154-157.

the United States secured passage of a resolution directed against the Guatemalan government for hemispheric defense against "communist aggression". Later that year, Arbenz resigned to mercenary forces lead by Castillo Armas' who received support from the Central Intelligence Agency (CIA).⁷

President Armas began a counterrevolution, returning land distributed through agrarian reform to landowners. In 1956, a program of environmental sanitation was reestablished by A.I.D. The project's goals were to develop a rural sanitation service, drill wells in thirty-five cities and villages, assist with the construction of water systems in nineteen cities and thirty villages, and improve sanitary engineering laboratories in the University. The project succeeded in training twenty-two sanitarians, constructing thirty village water supplies, constructing thirty-five wells and five public water supplies, preparing plans and specifications for five more public water supplies, and developing organizational patterns for the coordination of financing construction, planning, and operation of municipal public water supplies.⁸

In 1957 President Armas was killed and Miguel Ydigoras Fuentes was elected president. By 1960, four more water

⁷Susanne Jonas and David Tobis ed., Guatemala, The North American Congress on Latin America, (Waller Press, 1974), p. 11.

⁸A.I.D., Predecessor Agencies, p. 156.

systems were completed with U.S. A.I.D. and the assistance of the Ministry of Health. Work progressed rapidly through 1965. By 1963 water was being provided to communities varying from 200 to 10,000 in population, with the majority of the work being done in villages of 200 to 1,000 persons.

In 1959 a self-help project for rural housing and water supply was introduced. This project included the development of water and sanitary facilities on individual farms.

In 1963 the Environmental Sanitation Projects were terminated following the overthrow of the constitutional regime of President Ydegoras by a military coup. The Defense Minister Alfredo Enrique Peralta Azurdia became president and suspended the constitution and diplomatic relations with the United Kingdom.⁹ Further support for what was considered non-productive social service programs was not encouraged by the U.S. government until revenues could be increased to support such programs.¹⁰

U.S. participation in the development of potable water supplies has been limited since 1965. Government instability within Guatemala has been prevalent since then and United States support has been sporadic. In 1976 Guatemala experienced a catastrophic earthquake which left

⁹George Thomas Kurian, Encyclopedia of the Third World, volume I, (New York: Facts on file, Inc., 1978), p. 696.

¹⁰A.I.D., Predecessor Agencies, p. 157.

thousands dead and one million persons homeless. The City of Guatemala was partially destroyed. During this time, Guatemala received aid to rebuild part of the destroyed water and sewer systems within the capital. This infrastructure is now in disrepair and obsolete in meeting the needs of the rapidly growing demand for services.

Smaller projects dealing only with the drilling of wells have been implemented since then. No water and sanitation projects sponsored by U.S. A.I.D. have addressed the environmental pollution problems associated with these types of projects.

THE URBAN FOOD FOR WORK PROGRAM

The project that will require evaluation is officially titled The Urban Food For Work Program (FFW). It is being instigated in the urban slum areas of the capital of Guatemala, Guatemala City.

The concept for the FFW Program in aiding in the development of a water and sewer project in Guatemala grew out of discussions held in 1986 between U.S. A.I.D. in Guatemala and senior level officials of the newly formed civilian government. The project was proposed as a way to help alleviate the short-term impact on low income groups in areas of high unemployment and underemployment due to the planned austerity measures to be taken by the government. The project was designed by CARE and U.S. AID in Guatemala to provide short-term employment and income supplements, as well as lasting improvements in the living conditions of the urban poor, through the development of infrastructure and sanitation facilities.

CARE, with the assistance of the Guatemalan government, selected fifty-five target communities to participate in the program. It is estimated that approximately 5,690 unskilled and semi-skilled residents of these communities who are unemployed or underemployed will volunteer to help build drainage and sewage treatment systems, retaining walls and walkways, and improve public water supply and storage facilities in their communities. These workers and their

dependents will receive, for each month of their participation, food payments.

The target communities are all located on public land, many on the periphery of the city. Although they are virtually illegal settlements, most of these communities have been established over a number of years.

One half of the target communities are located on steep slopes and face serious problems of erosion, landslides, waste water, and sewage. All of the communities are transected by muddy walkways and are often overrun with sewage and garbage.

The ultimate goal of this project is to significantly improve the quality of life for 154,500 urban slum dwellers in Guatemala. In order to achieve this goal, the project has been divided into phases to be implemented over an 18 month period. No more than 18 sites will be involved in the project work at any given time. The city's development department, Unidad de Desarrollo Institucional (U.D.I.), is providing a program coordinator and a staff comprised of 6 engineers, 18 site supervisors, 1 warehouse manager, 1 warehouse clerk, 2 warehouse keepers, and appropriate administrative support staff. CARE will have a program coordinator, 1 purchase officer, 2 engineers, and 3 commodity supervisors. They are in charge of overseeing the implementation of the program through the checking of reports, materials and labor. CARE is also responsible for

the purchasing and delivery of materials and food. U.S. A.I.D. will fund the majority of the project materials. The communities involved are responsible for organizing committees to build, maintain, and operate the systems built, working with city social workers.

The first phase of the project was to be started in mid September 1986. However, due to unforeseen problems, work did not get started until mid November. CARE plans to monitor all labor and material inputs so that the program's success can be evaluated throughout the project.

It is felt that the checklist developed in this report can be used in evaluating the progress of the FFW program as it is implemented. Already, problems have been encountered with food subsidies and transportation. With the use of the checklist, potential problems can be mitigated with forethought, without the loss of valuable time.

CALIBRATION FOR GUATEMALA PROJECT EVALUATION

Minor revisions are proposed for the checklist evaluation in application to the CARE Food For Work project. Most of the issues addressed in the checklist are consistent with the observations made in other projects.

However, a higher weighting of 5 is suggested for the question, "Has existing population and projected growth been determined, and its effect on the projects success been determined?" The reason for this is that population growth due to improved water facilities is identified in the project proposal (see Appendix B, page 16) as a factor which can have a negative impact on the success of the project.

A higher weighting of 5 is also proposed for the question, "Have the effects of inflation been considered, if the project should be delayed?" It is felt that because of the currently high inflation rate within the country, greater emphasis should be placed on this issue.

These are the only proposed changes to the checklist. Other changes to the weighting of issues could be made by the evaluator, but should be based upon the country characteristics and not the intent of the project itself.

It is felt that long range goals and objectives are essential to improving the quality of life through a water and sanitation project. If CARE does not wish to acknowledge this, then it will be necessary to delete this

item from the checklist evaluation. However, by doing so the effectiveness of the checklist is diminished.

PART V - CONCLUSION

It is fairly evident as the International Drinking Water Supply and Sanitation Decade comes to a close in the year 1990, that the United Nation's goal of providing all people with safe water and adequate sanitation will most likely not be achieved. However, significant progress has been made and hopefully will continue as long as the needs exists.

It is hoped that this report can be of some use in the future evaluation of water and sanitation projects in the planning and development stages. There are issues that need further investigation and representation. However, this model is intended to serve as an outline or basis upon which an effective method of evaluation can be built.

It is believed that only through evaluation can a project be refined for eventual success. In the same sense, it is necessary to refine this checklist approach to evaluation through testing. Ideally, the checklist should be modified for each individual project. Because it has been developed based upon only four case studies, it is possible that research on a more diverse group of cases could prove to modify the model greatly. The model can only be effective if it is used, tested, modified and refined on the basis of experience.

Flexibility is an important factor in project development and it is hoped that this model will ensure

that economic, social, cultural, physical, and environmental factors are considered and balanced in meeting the need for water and sanitation systems.

It is important to consider also that this model has been developed based solely on problems encountered in U.S. A.I.D. projects. Therefore, the issues identified might not be entirely relevant for other international organizations.

An element beyond the scope of this report is the need for national water policies in developing countries. This should be evaluated further, because without integration of all the water and sanitation projects within a country there is little hope that future needs can be planned for.

The checklist method is only one way to begin an evaluation. It does not provide solutions to problems. The checklist developed in this report cannot be used as an indicator of a good project, it can only evaluate whether the project is meeting the criteria set. One must be careful then, of the project's intent rather than its stated goals. The influence of politics is not always apparent and can be deceiving.

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APPENDIX A - SPREAD SHEET CELL FORMULAS

CHECKLIST FOR PROJECT EVALUATION

COUNTRY:

PRECONDITION

RATING SCALE : YES = 2 PARTIALLY = 1 NO = 0

PROGRAM PLANNING FACTORS

RATING	PRE-DESIGN STUDY	WEIGHT	SCORE	PERCENT
	Have drainage patterns been assessed to mitigate potential erosion hazards?		5 +B10+F10	
	Has the appropriate system been chosen for the type of topography and geographic location?		5 +B13+F13	
	Does the soil type, compaction and erodibility correspond to the system needs?		5 +B16+F16	
	Have the effects of seasonal water availability been assessed for the project?		5 +B19+F19	
	Has existing population and projected growth been determined?	3		
	Has the projected population growth's effect on the project's success been determined?	3	+B25+F25	
	Have the number of persons who need services been identified?	3	+B28+F28	
	Have water and sanitation needs in the community been identified and integrated into the project?		5 +B31+F31	
	Have problems been identified in previously completed water and sanitation systems in the country?		5 +B35+F35	
	Will quantity of water provided meet the consumption needs of the projected population?		5 +B38+F38	
	Will the quality of water in the proposed project meet the host country acceptable standards?		5 +B41+F41	
	Has the quantity of water available for potential use been identified?		5 +B44+F44	
	Has the quality of water available for potential use been identified?		5 +B47+F47	

	Has the project been structured so that the traditional uses and habits of the users are taken into consideration?	5	+857*F57	
	Has an environmental assessment been completed?	3	+859*F59	
	Have traditional uses and habits of the community been identified?	3	+862*F62	
	Have existing health conditions been identified?	3	+864*F64	
RATING	PROJECT GOALS AND OBJECTIVES	WEIGHT	SCORE	
	Have the goals and objectives been clearly stated?	5	+868*F68	
	Have short range goals and objectives been identified?	5	+871*F71	
	Have long ranges goals been established for the project?	5	+874*F74	
RATING	TIME FRAME FOR PROJECT IMPLEMENTATION	WEIGHT	SCORE	
	Has the system been appropriately chosen based on its feasibility and ability to be integrated into the community?	5	+880*F80	
	Is the budget sufficient to implement the project as planned?	5	+883*F83	
@SUM(B10..B83)	OUT OF 34 POSSIBLE	TOTAL @SUM(F10..F83)*34	@SUM(H10..H83)	(H85*100)/F85

INTER-AGENCY AND GOVERNMENTAL RELATIONS

RATING	HOST COUNTRY COMMITMENT	WEIGHT	SCORE	PERCENT
	Is the National policy towards water and sanitation compatible with project goals and objectives?	5	+838*F38	
	Is the host agency aware of the benefits received with their support to the project?	1	+841*F41	

RATING	PERSONNEL INVOLVEMENT FROM THE AGENCIES	WEIGHT	SCORE	PERCENT
	Is technical expertise available within the National agency?		5 +B46*F46	
	Are the technicians available to work on the project?		5 +B55*F55	
	Are they willing to participate in the project design?		5 +B58*F58	
	Has the host agency's role within the government been identified?		3 +B61*F61	
RATING	LINES OF AUTHORITY	WEIGHT	SCORE	
	Has the project been structured to function under the host governmental structure?		5 +B71*F71	
	Has the extra time needed to deal with the bureaucratic process in the the host country been included into the time schedule?		5 +B75*F75	
@SUM(B95..B131)	OUT OF 16 POSSIBLE	TOTAL: @SUM(F95..F131)*16	@SUM(H95..H131)	(H133*1000/F133)

PROJECT INPUTS

RATING	FINANCIAL INPUTS	WEIGHT	SCORE	PERCENT
	Have salary level specifications for all levels dealing with the project been made?		1 +B85*F85	
	Has the host country financial input been agreed upon?		5 +B145*F145	
	Has the community input and user fee been established with the community?		5 +B148*F148	
	Is the international organization's role clearly defined?		3 +B151*F151	
	Have the effects of inflation been considered, should the project be delayed?		3 +B154*F154	

RATING	MATERIALS AND TRANSPORTATION	WEIGHT	SCORE	PERCENT
	Can the materials be bought in the country?		5 +B164*F164	
	Has the supplier of the materials been identified?		3 +B166*F166	
	Is it possible to obtain replacement parts with ease and at a reasonable cost?		5 +B169*F169	
	Is the technology to be used at a level that can be understood by the local community so that maintenance and repairs can be done by themselves?		5 +B173*F173	
RATING	LABOR FORCE	WEIGHT	SCORE	
	Has the community organized a committee to repair and maintain the system?		5 +B178*F178	
	Has the host agency developed a management system to over see the project after the international agency leaves?		5 +B182*F182	
	Is there coordination between all the parties involved?		5 +B185*F185	
	Are women involved in the decision making and playing a role in the development of the project?		5 +B188*F188	
	Is the community involved in the design and decision making for the project?		5 +B191*F191	
@SUM(B142..B191) OUT OF 28 POSSIBLE		TOTAL	@SUM(F142..F191)*28	@SUM(H142..H191) (H193*100)/F193

PROGRAM DELIVERY

RATING	SITE LOCATION AND COMMUNITY AWARENESS	WEIGHT	SCORE	PERCENT
	Has any existing water systems within the community been assessed?		3 +B201*F201	
	Has the level of need within the community been evaluated?		5 +B204*F204	
	Is the community aware of the costs and benefits associated with improved water and sanitation facilities?		5 +B208*F208	
	Is the community willing to participate in the implementation of the system and support the project?		5 +B212*F212	

RATING	PROJECT MANAGEMENT AND ORGANIZATION	WEIGHT	SCORE	PERCENT
	Have all levels of government involved been identified?		3 +B224*F224	
	Is the structure of management clear to all parties involved?		5 +B227*F227	
	Has the over seeing power been established?		1 +B229*F229	
RATING	PROJECT MONITORING	WEIGHT	SCORE	
	Has a system been established for monitoring of the project once it is completed?		5 +B234*F234	
	Has an entity been chosen to do the monitoring?		1 +B236*F236	
	Have criteria been established as the basis of the monitoring?		5 +B239*F239	
RATING	UPDATING THE DESIGN	WEIGHT	SCORE	
	Have alternatives been identified in the implementation process?		3 +B244*F244	
	Have possible bottlenecks been identified?		3 +B246*F246	
	Is the project flexible enough to be changed should problems occur?		5 +B249*F249	
@SUM(B201..B249)	OUT OF 26 POSSIBLE	TOTAL	@SUM(F201..F249)*26	@SUM(H201..H249) (H251*100)/F251

IMPLEMENTATION
PROGRAM MONITORING

RATING	TIME FRAME FOR JOB TRAINING	WEIGHT	SCORE	PERCENT
	Was sufficient time devoted to job training?		5 +B259*F259	
	Was an adequate level of skill developed in the time allotted?		5 +B262*F262	
RATING	MANAGEMENT PROBLEMS	WEIGHT	SCORE	
	Was it possible to locate problems within the project and correct them?		5 +B267*F267	
	Was there intergovernmental cooperation?		5 +B269*F269	
@SUM(B259..B269)	OUT OF 8 POSSIBLE	TOTAL	@SUM(F259..F269)*8	@SUM(H259..H269) (H271*100)/F271

FINAL EVALUATION

RATING	OVERALL IMPACTS	WEIGHT	SCORE	PERCENT
	Was there an improvement to the environment?		5 +B279*F279	
	Was there improvement in health i.e. less disease?		5 +B281*F281	
	Was there an improvement in the quality of water?		5 +B283*F283	
	Was there an improvement in the quantity of water?		5 +B285*F285	
	Was the project accomplished with cost effectiveness?		5 +B288*F288	
	Were there changes in the sanitation habits of the persons who benefited from the project?		5 +B291*F291	
	Was there a decrease in communicable diseases after the implementation of the project?		5 +B294*F294	
@SUM(B279..B294)	OUT OF 14 POSSIBLE	TOTAL: @SUM(F279..F294)*14	@SUM(H279..H294)	(H296*100)/F296

APPENDIX B - FOOD FOR WORK PROPOSAL

URBAN FFW PROGRAM

Project Proposal

for

July 1986 - January 1988

CARE-GUATEMALA
24 JUNE, 1986

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PROJECT PROPOSAL

MYP 1.1

Country: Guatemala

Project Title: Urban FFW Program

Program Period: July 1986 to
January 1988

Prepared by: Lizette Echols
Rodolfo Flores

I. Introduction

The Urban FFW Program will be implemented in Guatemala City and will focus on two main objectives. The first objective is to provide employment and income supplements, over an 18-month period, to a significant number of the city's unemployed and underemployed poor who inhabit the slum areas on the urban periphery. The second objective is to assist the municipal government and the FFW target communities in the development of crucial public infrastructure in over one half of the city's slum settlements.

The direct participants in the first objective will be approximately 5,690 unskilled and semi-skilled residents of the urban slum areas who are currently out of work or are underemployed. These workers and their 22,760 dependents will, for each month of their participation in FFW activities, receive food payments representing an increase in family income by US \$39 to \$58 at current market value.

The benefits of the program's second objective will accrue to 154,500 residents of 55 slum areas located on the city's periphery. These are the communities from which the majority of FFW laborers will be drawn, and the communities themselves comprise 30,602 families or approximately 15.6% of Guatemala City's population. The major development activity of the program will be the creation of a drainage and sewerage treatment system for each target community. Provided that additional complementary financing is identified, the program's second phase of activity will include: the construction of retaining walls and walkways; establishment of communal garbage treatment areas; and improvement of public water supply and storage facilities.

The program will be managed by the Municipal Government of Guatemala City with CARE assistance. It will be implemented under the direction of city supervisors and engineers working in coordination with an already established committee in each community, elected by the residents to oversee its public affairs. CARE will assist the city in organizing, supplying and supervising the project sites.

The program is expected to commence in July 1986 and to continue through December 1987. For the full 18-month period, the program's value is expected to total: \$ 5,654,197.

The projected areas of expense, amounts and sources of funding are presented below:

A. <u>Project Labor:</u>	\$ 1,007,100	:3,600.5 MT of PL480 Title II Commodity
B. <u>Project Material:</u>		
1. Phase 1 (first 9 months) Drainage & Sewerage Systems:	\$ 1,414,890	:Donated Funds
2. Phase 2 (last 9 months) Retaining Walls & Walkways; Garbage Areas & Clean-up; Public Water Sup- plies:	\$ 1,385,328	:Donated Funds
C. <u>Inland Food Transport:</u>	\$ 84,239	700 MT of Monetized Title II Commodity: AID
D. <u>Project Material Transport:</u>	\$ 821,676	:Balance of Title II Money; Donated Funds
E. <u>Direct Project Supervision:</u>	\$ 113,400	:Municipal Government
F. <u>City Administrative Costs:</u>	\$ 128,600	:Municipal Government
G. <u>CARE Program Management:</u>	\$ 129,464	:USAID
H. <u>Commodity Shipping:</u> (4,300.5 MT)	\$ 569,500	:AID

The program's ability to address its second objective will depend upon the identification of funding sources for project materials. If financing is not secured, the alternative for the program would be to employ the same laborers in cleaning and maintaining public infrastructure in the city proper, that is, streets and drains. In that event, the program's objectives, strategy, implementation procedures and costs would require redefinition. Program management costs for both the city and CARE would increase significantly. However, CARE-Guatemala is actively researching several possible funding mechanisms and is sanguine that the program described herein will secure the necessary financing.

II. Project Design

A. Statement of Problems:

1. General Problems:

Over the last decade and a half, Guatemala's economy has been weakened by a succession of natural disasters, unstable governments and civil unrest. With the exception of beans and rice, total domestic production of basic grains has been virtually stagnant since 1972. For the four basic commodities (beans, corn, wheat and rice), productivity per acre increased on average less than .74% per annum [1], (vide Attachment A). In real terms, Guatemala's import expenditures for those same commodities are now more than 9 times higher than the 1972 level, while export revenues from the same are only 2.5 times higher [2]. The cost of basic foodstuffs for the consumer, especially the urban one, has increased dramatically. For instance, since May 1985, the market prices in Guatemala have experienced the following increases: Potatoes (up 86%); Cabbage (up 1,000%); Plantain (up 895%); Meat (up 103%); Chicken (up 62%); Eggs (up 30%); Milk (up 27%). [3]

As always, price increases in the necessities have the most severe impact on those who have fixed incomes or inelastic earning power. This is the situation obtaining for that portion of Guatemala City's population which the FFW program identifies as its target group. The current situation and specific problems of the target group are discussed below. Over the next 18 months, however, increased hardship for the city slum dwellers is predicted. The new government is instituting a set of economic reform measures intended to strengthen the economy, bring inflation under control and result in more equitable access to resources. However, for the short term, the reform measures are expected to cause further

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price increases in basic necessities and reduced employment opportunities for unskilled laborers in the service and industrial sectors. The Government of Guatemala has expressed concern that the successful implementation of the reforms might be jeopardized if the austerity measures provoke a violent response, particularly from urban poor. Thus, the GOG is seeking ways to alleviate some of the negative effects that the reform measures are likely to have temporarily on this segment of the population. An urban FFW program is one of the means proposed.

2. Specific Problems:

The target communities of the program share the following characteristics: (Reference #4 and see Attachment B).

- Income:

78% of the families have a monthly income of 300 Quetzales or less (ie. \$100); 51% earn less than Q200 (\$67).

- Expenditures:

57% of the families are currently spending more than Q150 per month to live. 31% are spending more than Q200. Most of the expenditures are for food and clothes. Only 12.4% are paying rent for the land and only 4% for the houses they occupy.

- Employment:

About 60% of the population are over 14 years old, not enrolled in school and therefore constitute the potential workforce. Between 36% and 43% of that workforce are not engaged in income-generating employment. Women between the ages of 14 and 56 constitute 64% of the unemployment. Men between the ages of 14 and 56 make up about 24% of the unemployed ranks, and these unemployed males represent about 5% of the total population of the communities.

Of those who are employed, over 45% are working in the service sector as maids, restaurant workers, gardeners, guards, clerks, city maintenance staff etc. Another 21% work in the industrial sector as factory workers, construction crew members, etc. About 16% are engaged in street hawking and another 9% are listed as sub-employed. The latter would be

engaged in shoe shining, loading/off-loading trucks, guarding automobiles etc.

- Education:

Only .64% of the population has enrolled in a university. 3% have finished secondary school and only 20% finished primary school. 3.8% have had some formal vocational training.

- Family Composition:

The average family contains five members. 85% of the families are nuclear; the mother is the stable head in 45% of the families. 23% of the families have little or no contact with the father.

All of the target communities are located on public land and are virtually illegal settlements. Only 6% of the land is owned by the residents and another 12.4% is rented, probably from those who established usufruct rights over it many years ago. Most of the settlements were established 40 to 50 years ago and have seen 3 to 4 generations. The city has located primary and some secondary schools near the communities, and some settlements have MCH clinics. However, beyond the provision of a few public water taps and the installation of substandard electric lines, the city has provided no public services to the residents. The communities lack drainage, paved walkways and streets, retaining walls, garbage collection and a sufficient, stable water supply.

Almost half of the target settlements are located on steep hillsides, heavily eroded by rain and waste water. The risk of landslides during heavy rains or earth tremors is extremely high. All of the communities suffer from muddy walkways transected and often overrun with sewerage. Garbage and trash encircle the settlements. On average, two families share each household and housing itself is congested and substandard. Over 75% of the dwellings are made of tacked-up wood planks, old zinc or scrap metal. About 15% are constructed out of odd bits of trash. Where there are pit latrines, they are shared by from two to ten families. Despite the extremely poor and, in some regards, dangerous living conditions, it is notable that 80% of people currently inhabiting the settlements migrated to those areas from the city itself, not from the countryside. The presumption is that they moved to these areas and remain there from necessity, not choice. Their earning power is not sufficient to cover rental or purchase of housing.

The Municipal Government is neither unaware of nor unsympathetic to the problems of these settlements. Through BANVI (Banco Nacional de la Vivienda) and with loans from various international banking institutions, the city has begun the laborious, expensive task of improving housing and services for its now 107 slum communities. However, without additional resources, the process will take many years. Realizing this, the city is attempting to achieve some immediate improvements in all of the communities by enlisting and supporting them in self-help development activities. Toward that end, the city government has encouraged the communities to elect committees which work with the mayor's representative (Alcaldias Auxiliares) in the zone in order to identify and solve local problems. The city's department, Unidad de Desarrollo Institucional (U.D.I.), is responsible for overseeing those activities. Moreover, the city is also considering a proposal to establish an agency, Centro de Desarrollo Comunitario Municipal (CEDECOM), to be devoted specifically to promoting and assisting the self-development of the slum areas (Vide Attachment C).

In the present instance, when the municipality learned that FFW resources might be available for urban programming, the U.D.I. presented a proposal to USAID and CARE identifying 55 slum areas which the city considered most in need and suggesting a range of activities that might be undertaken therein. The CARE project proposal grew out of the U.D.I.'s original suggestions.

The program is designed to address two of the most critical needs discussed above. The first need is to provide income supplements, in the form of food, to the most vulnerable families in the target areas during an 18-month period when the government's austerity measures are expected to cause increased difficulties for the poorest urban families. The most vulnerable families are those who subsist on inelastic wages earned through occasional manual labor employment. The program's wage structure and nature of employment are expected to attract only the workers most in need. The program will not compete for workers satisfactorily employed elsewhere. The types of manual labor employment offered are selected with a view to providing each worker with full employment over a significant period of time. Each worker's wages will depend on his/her actual productivity. Because the projects will be done within the workers' own communities, the majority of laborers will not incur incidental expenditures for transportation and food. Moreover, particularly important for those participants having household duties to perform as well, the projects will not take them far from their homes.

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The second critical need the program seeks to address is the lack of basic public infrastructure in the participant communities. The key areas of need which most directly affect the quality of life in these communities are lack of sanitation systems, adequate water supplies and reliable thoroughfares. In addition, almost half of the communities are seriously at risk from erosion and landslides. The project activities are thus chosen and scheduled on the basis of the following criteria:

- will create full employment for a significant period of time for a significant number of the unemployed;
- will have the greatest impact on improving the quality of life in the target communities;
- will be mutually reinforcing and logically scheduled to ensure that maximum benefit is realized from each activity;
- will permit a high degree of accountability, particularly in ensuring that the participants receive their intended benefits and that the investment yields a high quality return.

In line with the above, the program will first address the problem of drainage and sewerage treatment in 55 slum areas. This phase of activity will cover nine months and will create 366,201 man/days of employment. In the second nine-month phase, the program will fund construction of retaining walls and walkways, garbage dumps and community clean-up, and improved water facilities in the same communities. This phase will create 316,110 man/days of employment. The local committees and municipal employees under the direction of U.D.I. will be responsible for project organization and implementation. CARE staff will assist in project organization and oversight, in expediting resource supply and in ensuring accountability. (See Project Strategy section).

B. Final Goal

Significant improvement in the quality of life for 154,500 urban slum dwellers in Guatemala City.

Indicators

- 80% of the households are connected to the new sewer system by the end of program life, ie. Jan 1, 1988;
- 75% of the target communities form maintenance groups to oversee the operation and repair of new infrastructure; achieved by Jan 1, 1988;
- 18% of the target population enjoy increased family incomes worth between Q117 (\$39) and Q175 (\$58) for each month of program participation; achieved by Jan 1, 1988.

C. Intermediate Goals

1. Improved environmental conditions in 55 marginal urban communities.

Indicators

- 55 target communities have operable drainage and sewerage treatment systems by May 1987;
 - 25 communities located on steep hillsides have needed retaining walls in place by November 1987;
 - 55 communities enjoy paved walkways and steps by January 1988;
 - 55 communities enjoy three-fold increase in public water supplies, over pre-program levels, by January 1988.
2. Improved employment opportunities for significant number of the unemployed in the target group.

Indicator

- 3.7% of the target community population are fully employed for six months during program life. Achieved by January 1988.

D. Project Activity Targets

ACTIVITIES	1st 9 months	Next 6 months	Last 3 months
1. Construct Drainage Systems; # of systems constructed:	55	--	--
2. Build Sewerage Treatment Plants; # of plants built:	48	--	--
3. Construct Retaining Walls; # of communities served:	--	25	--
4. Construct Walkways and Steps; # of communities served:	--	36	19
5. Create Garbage Treatment Systems; # of systems created:	--	36	19
6. Build Water Tanks; # of communities served:	--	36	19
7. Employ Unskilled Labor on Above Projects; # of Crew/days created:	288,333	157,202	61,498
8. Employ Mason Crews on Above Projects; # of Crew/days created:	19,467	17,467	6,833
9. City provides on-site super- vision and engineering guid- ance:			
a. # of person days of on- site supervisors provided:	3,240	2,160	1,140
b. # of engineer man/days provided:	1,080	720	360
10. CARE provides adequate oversight:			
a. 3 CARE commodity super- visors visit sites on average 1.5 times per week. Total # of site visits:	2,970	1,296	342
b. 2 CARE engineers visit site on average once a week. Total # of site visits:	1,980	864	228

E. Program Conformity to CARE Programming Principles

1. Fundamental Principles:

Though the program is expected to be of short duration (18 months) and has as one of its main objectives to create short-term employment, it is nonetheless designed to cause a fundamental change in the living conditions of a significant percentage of Guatemala City's urban poor. As discussed in the preceding sections, the target communities contain 15.6% of the city's population and over 50% of its lowest income group. The communities will participate fully in the program, not only providing labor and tools, but also contributing personnel for site management, handling and guarding project materials, and also warehousing facilities. Municipal government personnel will be directly responsible for program management and project implementation. The city will also arrange funds to cover much of the transport and all of the material costs. Both the communities and the city government fully participated in the identification of the program's priorities.

If additional funds were available, program activities could be continued and replicated in the remaining slum areas of Guatemala City, and also be initiated in other urban centers in the country. In the former instance, CARE management assistance would be only minimally required. In the latter case, CARE would probably have to assume a much more active role.

For the target communities themselves, the program is expected to increase their confidence and organizational capability to undertake further self-development projects.

2. Strategic Principles:

The project activities interface with each other in a way that is intended to maximize the resultant benefit of each. Together they should be powerful enough to cause a significant change in the living conditions of the target group. Even greater impact will be achieved if, as planned, the program successfully links up with the efforts of other PVO's and church groups working in the slums on health education, latrine construction and community development projects.

3. Sectoral Principles:

The program, though in some ways an emergency relief project, also falls in the sector of community infrastructure development with an emphasis on sanitation and water.

III. Project Overview

A. Project Development

The concept of an urban FFW program, supported by Title II commodities, grew out of discussions in December 1985 between AID Administrator McPherson and senior level officials of the new Guatemalan government. Those talks centered on ways to alleviate the short-term impact of the planned austerity measures on the especially vulnerable, low income groups in areas of chronically high unemployment and underemployment. Follow-up discussions between USAID, the Municipal Government of Guatemala City and Ministry of Development, CARE-Guatemala and CLUSA provisionally identified an urban program covering a wide range of labor-intensive activities for unskilled workers. Many of the proposed activities addressed the infrastructure and sanitation needs of the workers' own communities. The Municipal Government of Guatemala City, having a large force of qualified personnel as well as direct responsibility for creating and maintaining urban infrastructure, was considered to be CARE's logical counterpart for program implementation.

As discussed in Section II, the city's agency, U.D.I., further refined the intended program's scope and activities by identifying 55 areas on the urban periphery which, because of their relative poverty and lack of public infrastructure, were considered the most appropriate sites for FFW employment and project activity. Through socio-economic studies and meetings with the concerned committees, U.D.I. also identified the main infrastructure and service needs, and the community priorities. Those findings were presented in a report to CARE and USAID, along with a plan outlining how the city would organize and implement a FFW program to address those needs. Beyond providing short-term employment for the urban poor, the city enunciated two other key objectives:

- To involve local communities, through their elected committees, in organizing/implementing self-help development projects;
- To use FFW resources to assist the city in financing lasting improvements in the standard of living of the target settlements.

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In view of the impending economic reforms, there was a felt urgency to have the program begin as soon as possible. USAID, therefore, telexed Washington for early approval of commodity for the program and CARE drafted a brief operational plan to support that request. On May 9, 1986, Washington agreed to grant CARE 3,600.5 MT of Title II commodities (corn, rice, beans) for labor payment and 700 MT of rice for local sale to generate funds for inland transport. For CARE's operational costs and any other legitimate expenses associated with the program, Washington suggested that the USAID mission look to Title I local currency generation for funds.

In this case, a major portion of the program's funding was approved before the program itself was designed. CARE began that design work in mid-May. The task included intensive field research, discussions with local committees and city authorities, a review of the pertinent studies and an analysis of the capabilities of the city, the communities and CARE for addressing the program. CARE's research had to identify the probable size and composition of the FFW workforce, determine the project activity ideas most suitable for FFW funding, confirm that the most appropriate target areas had been selected and gather the information required to prepare a detailed work plan and budget. CARE concluded that research in mid-June and prepared this proposal.

B. Project Strategy

1. As noted above, the proposed program grew out of the new government's concern to alleviate the distress of the urban poor during the economic reform period. Moreover, the program was designed in conformity with the new municipal government's policies to improve the living conditions in the slums. The program also complements USAID's efforts to promote economic reforms with a view to achieving "growth with equity", and the International Development Bank's support for improvements in urban infrastructure.
2. The program will be implemented by the city, through U.D.I. For the purpose, the city will identify a program coordinator and put him/her in charge of the following staff:
 - 6 engineers
 - 18 site supervisors
 - 1 warehouse manager
 - 1 warehouse clerk
 - 2 warehouse helpers
 - appropriate admin. support staff for coordinator's office.

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Throughout the program life, eighteen sites will be involved in project work at any given time. On each of these sites, the city will post a full-time supervisor. His tasks will be to work with the committee to organize and oversee the workers; measure work output and determine payment; supervise the offloading and proper storage of project materials. The supervisor will also be responsible for ensuring correct usage of materials, keeping the coordinator informed of any supply needs or site problems and maintaining the project records on labor payments and material stocks. The supervisor will pay the workers on the basis of their measured output the appropriate amount in food coupons. Payment will be made on fixed days at weekly or fortnightly intervals, as the community prefers. The coupons will be redeemable at the city's warehouse which is located in the middle of the main project area. For sites distant from the warehouse, the city will either truck the food to the site or the workers to the warehouse.

The FFW earthwork laborers will be organized into teams of ten and out of their number the team members will elect a leader. The supervisor and committee will assign each team to a specific work area and will measure team output periodically. Payment will be made to the team leader and he will divide the coupons appropriately between his team members. The payrate will be based on the average work norm of 3m³ per six hour day. For this amount of earthwork, the municipality pays casual laborers Q5.85. This is equivalent in value, at current market prices, to 4.68 Kgs. of the FFW ration mix, which is 3 parts rice to 2 parts corn to 1 part beans. Thus, the earthwork laborer's pay will be calculated on the rate that each m³ of earthwork will earn 1.56 Kgs. of the ration mix.

The mason labor will be organized and assigned work areas much like the earthwork crews. However, in this case, the mason is responsible for bringing his own assistants, for directing their work and paying their wages. The general size of the mason crew will be four workers: one head mason and three assistants. The crew will be paid on the basis of output as calculated against the city's standard rates for different types of mason work. Using the current market value of one 4 Kg FFW ration at Q5, the value of the mason crew's work will be calculated in Quetzales, then converted to an equivalent value of FFW rations. The head mason will receive the food coupons for his crew and will distribute them as appropriate to his assistants.

Each of the city's six engineers will be assigned three projects to oversee at any given time. They will visit each project 3 times a week, for one half day each visit. Their work will be to ensure that the project design is being followed, that proper materials are being used and that workmanship is of standard quality. They will instruct the supervisors and committees on project layout and execution, and check their work. They will countersign all material requests, check stock usage and labor payment records, and will keep the coordinator informed of project status and site problems.

The city's warehouse staff will maintain records on the receipt, disbursement and stocks of all commodity and project materials (probably only cement and some tools) which pass through the warehouse. CARE will deliver the food at regular intervals to the city warehouse. The warehouse staff will be responsible for weighing out the appropriate rations of commodity against the food coupons received.

The city's project coordinator will be responsible for assigning and supervising all his staff, for ensuring that all sites are properly supplied, and that FFW laborers are receiving their due wages. In the above regard, the coordinator will remain in close contact with CARE so that problems can be identified and resolved quickly. The coordinator will also collaborate with the city's engineering and social work departments to ensure that the projects are expeditiously and correctly designed, and that the social workers are active in the participant communities advising on the use and maintenance of their new systems.

To assist the city in site supervision, supply and maintaining accountability for program resources, CARE will also appoint a program coordinator. His staff will consist of one purchase officer, two engineers and three commodity supervisors.

The commodity supervisors will each be responsible for 6 sites, which they will visit on average 1.5 times a week. Their specific tasks will include: checking reports of labor output and payment against the physical reality and worker statements; checking material stocks against site records; assisting the site supervisor and committee in solving labor problems. Each week, one of the commodity supervisors will visit the city warehouse to cross-check payment records, and to verify the balance stocks against warehouse records.

The CARE engineers will each be responsible for nine sites which they will visit once a week on average. They will be responsible for checking that project designs are being followed, that appropriate materials are being used and the workmanship is acceptable. They will advise the city site engineer on any problems observed and will report their findings to the CARE coordinator.

The CARE coordinator and his purchase officer will assist the city coordinator in the purchase and delivery of project materials. The coordinator will ensure that the city has an adequate supply of commodities to meet its payments. He will supervise his field staff, check their reports and will compile fortnightly status reports for the city. He will meet frequently with the city's coordinator to discuss and resolve issues.

The work at project sites will take place between 7:30 AM and 2:30 PM, Monday through Friday. The city warehouse will be open until 5 PM each weekday and from 9 AM to 5 PM on Saturdays.

Attachment D contains the program's organogram, project schedule and map of target sites. Attachment E includes the formats suggested for site and warehouse recording-keeping. Attachment F presents draft formats for CARE monitoring instruments and fortnightly computer reports, as well as project activity approval and completion reports. Attachment G contains the job descriptions for the CARE project staff.

C. Project Impact

If the projects succeed in fundamentally improving the living conditions in the target communities by making a cleaner and safer environment, it is reasonable to suppose that the health of the residents, particularly the children, will also improve. The degree of improvement will, of course, depend on the community's use and maintenance of the new systems.

As discussed above, the program will bring the communities and city government into a close relationship as they work together to achieve rather ambitious objectives. That experience should build the self-confidence and organizational capabilities of both, and lay the foundation for continued development collaboration between the city and marginal communities.

At the time, it is not known whether the program will attract mainly men or mainly women as project workers. There are some indications that the women may, in fact, be the

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direct participants in the FFW unskilled labor activities. The first indication is that the women comprise the bulk of committee membership and take the leading and most active role in communal affairs. The second is that, during the day, the majority of women remain in the communities, handling household chores and watching the children. Most of the men travel to the city every day to earn cash wages in a variety of tasks. It is to be doubted whether many men, even if they are underemployed, will be attracted by food payments at the opportunity cost of sacrificing possible cash earnings. It may be that the program will only attract the "hard core" unemployed males. CARE and the city will begin a "pilot" project in one of the target areas in August in order to test various program assumptions and operating systems. If, at that time it becomes apparent that women will be the main participants, CARE will revise the man/day norms and project time schedules to accommodate the slightly reduced productivity expectations. City social workers will also be sent to help the women organize a temporary day-care system so that mothers of small children may have an equal opportunity for participating in FFW.

The program might have a negative impact if its success in achieving better living conditions or its employment opportunities resulted in increased migration from the rural areas to the city. On the one hand, the potential danger can be lessened by not publicizing the program beyond the city limits. On the other hand, it should be understood that the residents in the communities actively discourage migration into their areas, which are already too congested. The committees have the power (officially or unofficially) to refuse new entrants, and have been known to exercise it. As noted in Section II, the target communities have been established for over 40 years and most of their residents came from the city itself. They are not likely, therefore, to encourage rural immigrants.

Another impact of the program, not strictly a negative one but one the program communities may initially perceive so, is that each household will have to make an investment in improved sanitation facilities and some PVC pipe. Moreover, they will have to make a continual investment of time and money to ensure the upkeep of their communal systems. Each community will be made fully aware of the attendant costs before the project is begun. Since the identified project activities conform closely to the highest priorities expressed by the committees, it may be assumed that most communities will be willing to bear the associated costs. CARE and the city can assist them in bearing the expense of the initial investment by encouraging other organizations working in the slums to help finance water seal toilets and waste water pipes. Moreover, CARE expects to keep project

funds in a special interest-bearing account. If the donor agrees, the accrued interest will be shared among the participant communities to finance part of their initial costs, say, in constructing water seal toilets.

System maintenance will not require a high per capita expense, but will need a strong sense of community participation and periodic assistance from the city in flushing drain pipes and cleaning out the garbage dumps. The major expense to community residents in this regard will be energy and time.

D. Project Continuity and Potential

As discussed in Section II,E., given the resources and government's backing, the program could be replicated in other slum areas in Guatemala City and outlying urban centers. CARE's programming and management assistance would be critical only in the start-up phase. CARE's continued involvement in project supervision and monitoring would only be required if it were responsible for supply of some program resources.

E. Project Constraints

In the pre-implementation phase, the major constraint will be in securing funding commitments from the city, national government or other sources for material purchase and transport, and from USAID for support of CARE operations. Failing those commitments, the program as described will not be undertaken. In that event, CARE would have to consider less costly alternatives and to determine whether their expected benefits justified continued investment of CARE's time and energy.

Assuming that the program will be implemented as planned, the major constraints are likely to be involved in securing the adequate supply and timely delivery of project materials. All materials will be purchased locally, so import problems are not expected to arise. The program will require approximately 393,890 concrete pipes of various sizes, which will be manufactured at the city's pipe factory. An early start on pipe production and the employment of three work shifts will be necessary if the projects are to proceed according to schedule. The program in the first nine months will also need 310,745 bags of cement, some 2.4 million bricks and 61,530 m³ of sand/gravel. The city and CARE will have to locate reliable sources of supply before the program commences.

Transport of materials will be done mainly with trucks hired on a contract basis. The city has pledged itself to handle carriage of all materials, but it is apparent that it lacks the trucking capability to provide the 11,000 days of transport needed in the first nine months. Transport funds must, therefore, be made available--and to ensure timely material delivery, CARE at the outset should have the responsibility for managing transport activities.

The program may have trouble in drawing sufficient labor to execute the projects as scheduled. Conversely, it may happen that the program will attract mainly women, and in that instance, the FFW labor force may be greater than anticipated. CARE's field assessment of the available and probable FFW workforce indicates that out of an average community population of 2,925, there will be approximately 77 unskilled laborers and one mason crew for every nine earthworkers. The program's time schedule (see Attachment D) is based on that assumption. The pilot scheme in August will test that assumption and the schedule will be revised as necessary.

The size of the labor force will not affect the project budgets for labor, material and transport expense. A greater or lesser labor force than planned would, however, affect city and CARE operational budgets, material supply and trucking schedules and the ultimate number of activities that could be accomplished during program life. These factors must also be reviewed in light of the pilot scheme experience.

IV. Project Implementation

A. Pre-Implementation Conditions

<u>Activity</u>	<u>Party Responsible</u>
1. Secure Municipal Government's personnel and funding commitments. Agreement signed by 15 July, 1986.	CARE
2. Secure donor funding commitment for first 9 months of project material supply. Agreement signed by 15 July, 1986.	CARE with USAID assistance
3. Secure donor funding commitment for last 9 months of project material purchase and transport. Agreement signed by 1 January, 1987.	CARE and City with USAID assistance

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| 4. Identify funds for covering CARE's operational costs. Agreement reached by 1 July, 1986. | USAID |
| 5. Finalize agreement for sale of 700 MT commodity. Agreement signed by 15 July, 1986. | CARE with USAID assistance |
| 6. Design management & monitoring system for program. Completed by 1 July, 1986. | CARE and City |
| 7. Hire and train personnel in program management. Completed by 1 August, 1986. | CARE and City |
| 8. Identify suppliers and prepare orders for first 3 months' requirements. Accomplished by 15 August, 1986. | CARE and City |
| 9. Purchase 5 motorcycles for CARE field staff. Purchased by 1 August, 1986. | CARE |

B. Implementation Plan and Schedule

The overall schedule of program activities is discussed in Section II and depicted on the chart in Attachment D. The roles and responsibilities of the main actors in the program are outlined in Section III, B. Project Strategy and further in Attachment G. The record-keeping, monitoring and reporting activities of the program and who is responsible for each are presented in Attachments E and F.

The plan below, therefore, briefly outlines the main steps to be taken in the implementation of any project activity.

1. City informs community a month in advance that project activity will be undertaken;
2. City engineers survey the site, design and cost out project. Submit plan to city and CARE at least 2 weeks before project due to start;
3. Community identifies laborers and organizes them into teams. City social workers assist in this process. Community also identifies storage facilities and selects guards;
4. City and CARE arrange material purchase and initial deliveries to site 1 week before project commencement. City appoints site supervisor and committee arranges community volunteers to off-load materials;

5. City and CARE engineers advise committee and site supervisor on project layout. City and CARE supervisors assist committee in final organization of laborers, and inform all parties on project regulations, the wage payment system and work schedule.
6. City supervisor and committee assign labor teams and mason crews to tasks, oversee their work and measure their output. City supervisor distributes food coupons to team leaders and head masons;
7. City engineers frequently visit site to supervise work, advise on technical aspects and check material supplies;
8. CARE commodity supervisors visit site (and city warehouse) frequently to ensure that workers are receiving correct payment, that records are accurate and to assist city supervisor and committee in solving labor problems;
9. CARE engineers will visit site frequently to check project quality, appropriate use of materials, and assist the city engineer in overcoming technical and material supply problems;
10. The city and CARE program coordinators will ensure that their staffs function effectively, submit accurate reports, and that the site has an adequate and timely supply of materials. The CARE coordinator will ensure transfer of commodity as needed to the city's warehouse. The City coordinator will ensure that project workers are paid correctly and on time;
11. City program personnel will maintain site and warehouse records, and will be responsible for supplying the city and CARE coordinators with periodic reports;
12. CARE personnel will monitor project and provide information to CARE coordinator. The CARE coordinator will use this information to prepare fortnightly status reports for the city and other project donors. The CARE coordinator will also inform the city coordinator immediately of any serious problems observed;
13. The city coordinator will arrange for municipal social workers to visit the community frequently to advise residents on the use and maintenance of the new system. The social workers will assist the committee in organizing maintenance systems;

14. At project completion, the city and CARE will collect the balance materials and special equipment, and will jointly conduct an assessment of project accomplishment and quality.

C. Technical Considerations

The program will require the full-time services of qualified sanitation and water engineers, and part-time assistance from some structural engineering staff. The Municipality of Guatemala has sufficient and highly qualified personnel in both departments and has pledged their services to the program. No special technologies will be required.

D. Procurement Requirements

The program will not require special equipment purchase, except for a Compaq computer for facilitating CARE's monitoring and reporting work. The computer should be in place by September 1986.

The target communities will provide the basic tools (shovels, picks and headpans) and the city will provide hand tampers, water barrels and the like from its existing stocks.

Project materials will be purchased locally and two months supply will be kept in stock at any given time. The material requirements for the first 9 months are shown below:

<u>Item</u>	<u>Amount</u>	<u>Source</u>
Concrete pipes (various sizes)	393,890	Municipal Pipe Factory
Cement (bags)	310,745	Private or Public suppliers
Sand/Gravel (cubic meters)	65,514	Private Contractors
Bricks (number)	2,461,439	Private or Public suppliers

The above requirements are based on detailed cost analysis of drainage/sewerage treatment systems for the 55 target communities. That analysis may be found in Attachment II.

Material requirements for the last 9 months of program activity are estimated below to be: (see Attachment I)

<u>Item</u>	<u>Amount</u>	<u>Source</u>
Stone 4" (m3)	: 22,875 m3	: Private Contractors
Gravel (m3)	: 37,383 m3	: Private Contractors
Sand (m3)	: 43,235 m3	: Private Contractors
Cement (bags)	: 380,315 sacks	: Public/Private Suppliers
Manhole Covers (nos.)	: 275 nos.	: Public Supply
Concrete Pieces (m3)	: 24,593 m3	: City Supply
Concrete Blocks (nos.)	: 242,000 nos.	: Private Suppliers
Steel Rod (nos.)	: 18,150 nos.	: Private Suppliers
Water Taps (nos.)	: 1,925 nos.	: Public Suppliers
Float Valve (nos.)	: 275 nos.	: Public Suppliers

The total estimated cost for all project material, including incidental items not listed above, is:

<u>First 9 months</u>	<u>+</u>	<u>Second 9 months</u>	<u>=</u>	<u>Total</u>
Q 3,537,224	+	Q 3,463,320	=	Q 7,000,544
				@ 2.5 Q/US\$
				= \$ <u>2,800,218</u>

3. Personnel Requirements

No international personnel will be required for this program beyond the part-time oversight of the CARE mission director. Job descriptions and qualification criteria for CARE program staff are presented in Attachment G.

V. Project Evaluation

The indicators for tracking the achievement of the final and intermediate goals are given in Section II, B. and C. The nature of the program and its anticipated impacts make measurement of goal achievement a relatively simple matter. In the first place, the program sets out to create infrastructure where none currently exists. Secondly, it purports to make a fundamental change only in the physical conditions under which the target communities live; it does not promise to change their habits, improve their health or even simplify their daily existence. The present conditions in the target settlements have already been well researched and documented by the municipal government. This obviates the need for a special baseline study. Therefore, tracking progress toward and achievement of program goals will in large part be handled through CARE's monitoring and reporting system. (Vide Attachments E and F). For instance, monitoring will collect all the data needed to

assess the number of laborers fully employed and for how long, and what amount on average they received. It will also provide data on how many projects were successfully completed, when and where.

Monitoring data will also provide continual feedback on the operation of various program systems and procedures including the performance of personnel. This information will allow the program coordinators to refine mechanisms and eliminate weaknesses throughout program life.

Monitoring, however, will not yield data on what action the participant communities may or may not take in regard to the use and maintenance of their new infrastructure. For ascertaining that, a special follow-up study will be needed. This study will be conducted in January 1986 and will cover a random, representative sample, (but no less than half) of the 55 program communities. The researchers will not only find out what maintenance systems the committees have devised, but will also physically verify that the infrastructure is being used and by how many, and that it is in fact being maintained. The study should also identify any unexpected problems which the new infrastructure has caused for the communities.

The research will be conducted by a qualified local firm on a contract from CARE. With two field teams operating, the field research should require about 2 1/2 weeks; tabulation and summation of the data, another week and a half.

The municipal government and CARE will jointly determine the study's parameters and approve the firm's research design.

VI. Project Funding

Overview:

As noted previously, project activities fall into two distinct phases, each nine months in duration. The first phase will undertake construction of drainage and sewerage systems in 55 target communities. For the average size community of 2,925 population, the work will take 3 months. Operating 18 sites at a time, the work in all communities will be accomplished by the end of 9 months. CARE has detailed cost estimates for this work, based on visits by the municipal engineers to three representative sites. CARE has budgeted the material cost estimates and material transport requirements separately from those for the second phase. These are presented in Attachment II. In order to avoid further delays in program commencement, CARE is seeking funding support for those requirements now. It will later pursue support for the same type of requirements in the second phase, ie; construction of retaining walls, walkways, garbage dumps and improved communal water systems, as soon as

the costs can be projected with more certainty. The costs presented herein for the second phase projects should be considered as conjectural only. They are based on standard designs, but not on an accurate assessment of each community's actual requirement. This will be researched during the next two months, and the second phase budget will be revised accordingly. The costs estimates for the second phase are detailed in Attachment I.

However, CARE operational, M & F and food transport costs are budgeted for the entire 18-month program life. The municipality's program operational costs are likewise budgeted (vide Attachment J).

At this time, it is not clear whether CARE or the Municipality will handle project funds. It is recommended, however, that CARE hold the funds for material purchase and transport in a special program account. Such an account would serve to expedite project work. That fund management arrangement is reflected below.

A. <u>CARE-Managed Inputs</u>	US \$
1 CARE Operations and Establishment	: 107,660
2 CARE Inland Food Transport*	: 84,239
3 CARE Food Handling Charges	: 21,804
4 Purchase of 3600 MT Commodity	: 1,007,100
5 Shipment of 4300.5 MT Commodity	: 569,500
6 First Phase, Project Materials	: 1,414,890
7 First Phase, Material Delivery *	: 660,000
8 Second Phase, Project Materials	: 1,385,328 **
9 Second Phase, Material Delivery	: <u>161,676 **</u>
	Total....\$ <u>5,412,197</u>

* Includes value of 700 MT monetized commodity.
 ** Estimated

B. <u>Non CARE-Managed Inputs</u> (Municipality of Guatemala)	
1 Program Personnel Support	:\$ 153,900
2 Warehouse and Office Rental	: 15,840
3 Vehicle Operation and Maintenance	: 50,260
4 Supply of Incidental Material/Equipment	: <u>22,000</u>
	Total....\$ <u>242,000</u>

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**A PROPOSED CHECKLIST APPROACH TO THE EVALUATION OF WATER AND
SANITATION SELF-HELP PROJECT IMPLEMENTATION**

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AN ABSTRACT OF A MASTER'S REPORT

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requirements for the degree

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The intent of this report is to develop a methodology for the evaluation of water and sanitation self-help projects. This methodology does not address the implications by political factors which dictate the projects intent. The methodology has been developed with the hope that it could be applied to the CARE Food For Work Project under implementation in Guatemala.

Part I reviews the importance of improved water and sanitation as it relates to health and general welfare for future development, and the role international organizations can play in this development. The historical development of evaluation models for water and sanitation projects is also reviewed.

Part II of this report presents four case studies based on projects implemented by U.S. A.I.D. Each case study is presented based on the projects structure, and its successes and failures. The case studies are then compared and key indicators to project success are identified.

In Part III, a methodology is then developed based on the conclusions from part II and supplementary readings. A checklist approach to evaluation is developed addressing all significant indicators identified from the previous research. A weighting system has been applied to aid in the analysis of each phase of development. The aggregated value itself has no significance except in comparison to scores attained on other successful projects. The checklist has been provided in a Lotus 123 spread sheet format for

simplicity of analysis.

In order to fully apply the proposed checklist, it is necessary to refine it through testing. Ideally, the checklist should be modified for each individual project. The model can only be effective if it is used, tested, modified and refined on the basis of experience.

Suggestions are then given for the modification of the checklist for the application to the CARE Food For Work Program in Guatemala City, Guatemala in Part IV.

Finally, it was concluded that the checklist method of evaluation is only as good as the stated project goals and objectives. It can be very effective in assessing whether a project has met its intended goals, but it cannot evaluate their worth.