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RURAL POTABLE WATER SUPPLY EVALUATION STUDY: DRAFT SCOPE OF WORK

by

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## Draft Scope of Work

### Rural Potable Water Supply Evaluation Study

The purpose of this paper is to outline an evaluation study of rural potable water supply. This is one of five areas of particular interest to AID in which the bureaus of the Agency have agreed to cooperate. The others are rural roads, rural electrification, irrigation and health. Potable water is receiving priority because of the major commitment being considered by the United States as part of the U.N. Drinking Water Decade.

Some preparatory work leading to the proposed evaluation has already been undertaken by the Office of Evaluation. The activities to date are:

1. Commissioning of a paper by Ian Burton "Issues on Rural Water Supply". The author is a recognized international expert in potable water.
2. An inventory of Agency potable water activities.
3. Formation of an inter-Agency, inter-donor working group chaired jointly by Daniel Dworkin, PPC/E/S and James Thomson, DS/HEA.
4. Workshop of AID and other experts on rural water held November 16-17, 1978.
5. Report of the workshop circulated to Missions.
6. Circulation of number of publications to Missions to aid in design of potable water projects.
7. Preparation of the scope of work and data collection documents attached.

### Past History

AID has had a long history of involvement in rural water supply and sanitation. It began with a predecessor agency, the Office of Coordination of Commercial and Cultural Relations between the American Republics established in 1940.

Progress over the years in any sector is difficult to document, but the results of the early activity in South and Central America has been particularly noteworthy. A number of semi autonomous cooperative agencies called Servicios were established in the early 1940s. This program brought together host country personnel and U.S. counterparts in water and sanitation agencies. The program was an outstanding success. Many of the personnel active in international organizations were trained under the Servicios program.

From the early start, the program in potable water supply has expanded in both the number of countries with water projects and the investment in the program. A total of \$336 million is projected for FY 1980 although much of this is security supporting assistance for two countries. The balance, \$69 million, is for projects in 22 countries. An additional amount is planned for 22 countries where rural water and sanitation is a part of other development projects.

### Present Condition

The increased level of spending is in great part a response to the high level of interest in the subsectors arising out of the U.N. Water Conference

in 1977 and preparation for the International Water Decade of the 80's. The interest has been generated by genuine need as a recent survey by the WHO indicates.

Although the figures are highly suspect, a WHO survey indicated that as of 1970 only 12 percent of the World's rural population had reasonable access to safe and reliable sources of water. The data have been updated to 1975 and with the warning in the report that "the data ..... should be considered as order of magnitude estimates only," the estimates are that as of 1975, 20 percent of the rural population had reasonable access to safe water (Figure 1).

The rate of progress has varied considerably among the regional groupings of countries used in WHO statistics (Figure 2). The rate of achievement has been good in Africa and the Western Pacific Regions and both are expected to reach a new target of 35% by 1980. Improvement has been surprisingly slower in the Americas, and it will be difficult now for the Latin American countries to achieve the 'Santiago goal' of 50% by 1980 without greatly expanded efforts.

Viewed on a world scale, the mass of the problem lies in Southeast Asia (Figure 3). Approximately 62% of the world population remaining without improved supplies in 1975 is to be found in that region—over 37% in India alone.

#### Agency Plans

The Agency is planning to expand its portfolio of rural water supply and sanitation projects. As part of the U.N. Water Decade, AID is prepared

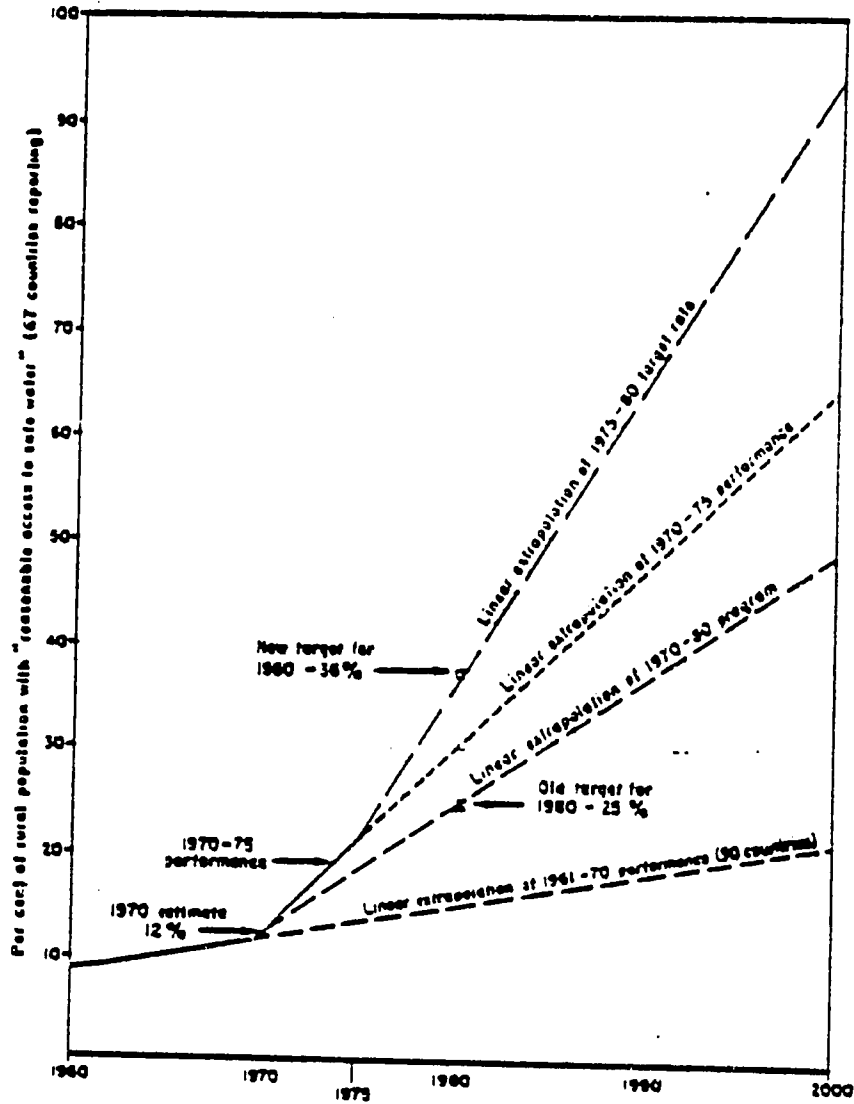


Figure 1. Linear extrapolations of rural populations with 'reasonable access to safe water' based on 1961-70 performance, 1970-80 programme, 1970-75 performance and 1975-80 target rate.

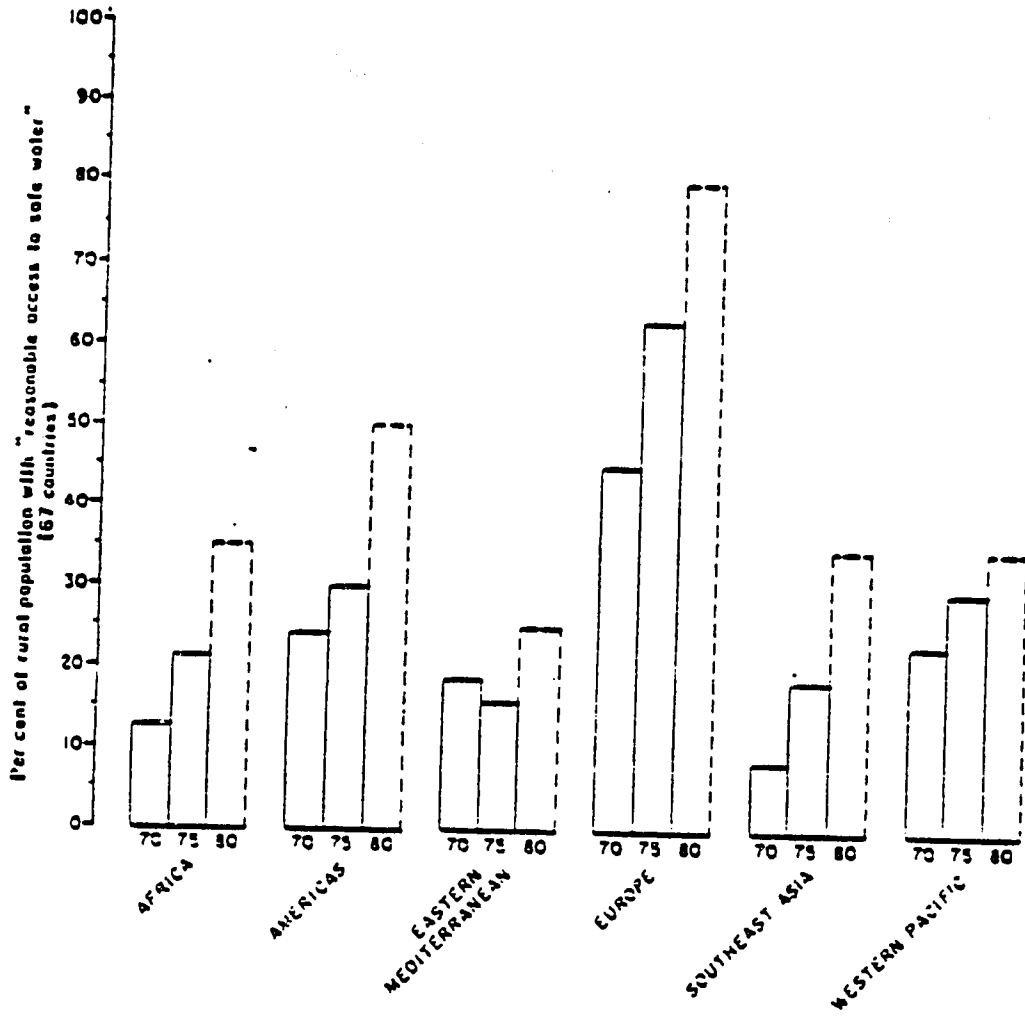


Figure 2. Progress by regions 1970-75 and revised 1980 targets

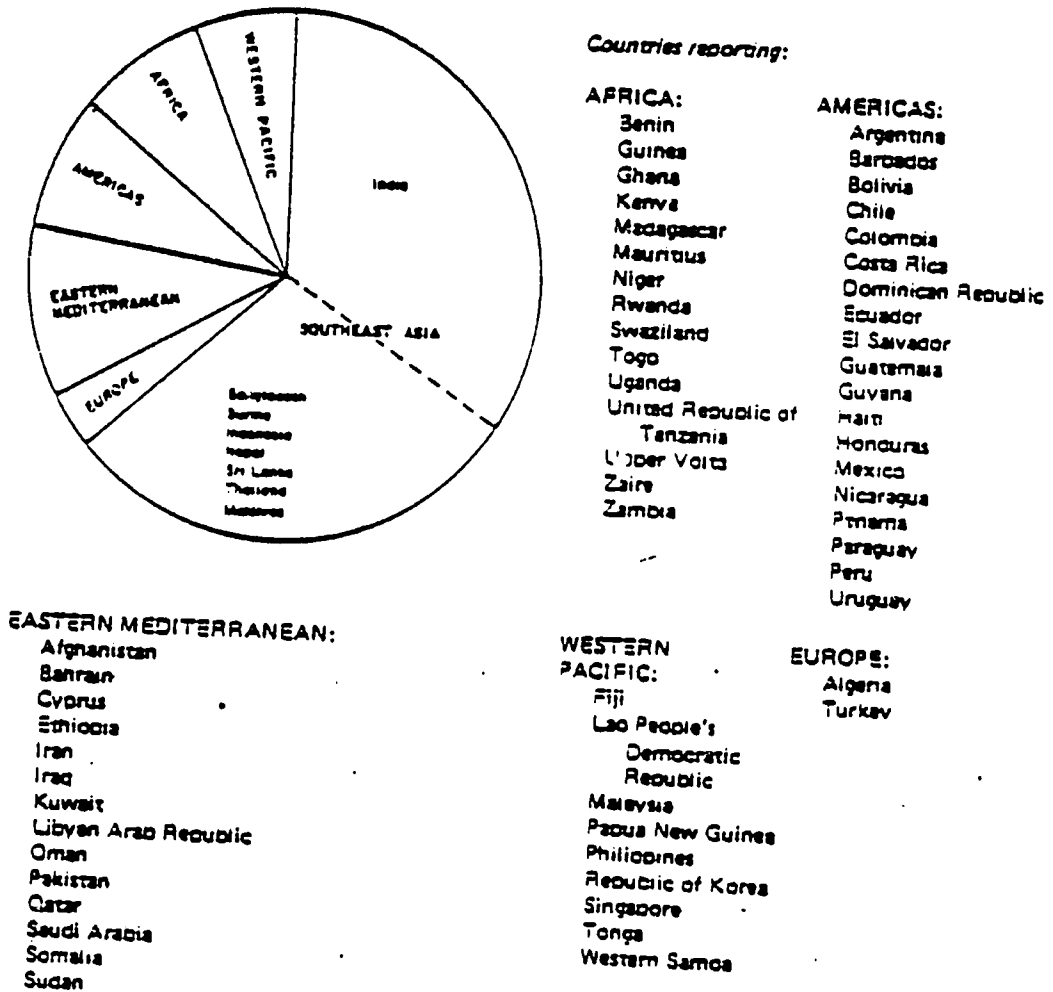


Figure 3. Regional distribution of rural populations without reasonable access to safe water, 1975. (67 countries reporting)

to consider providing major amounts of development assistance over the next ten years to help establish basic water and sanitation systems, particularly in rural areas.<sup>1/</sup>

A major expansion of the present program runs the risks of funds being used with less than maximum effectiveness. To minimize the risk, it is important that lessons from the past experience be learned and used to plan new programs.

#### Evaluation Activities of Other Agencies

AID is not alone in evaluating its rural water supply program. The following are ongoing or completed evaluations which have been considered in this evaluation effort:

1. The Development Centre at OECD has planned a predominantly comparative and statistical approach to evaluation. In-depth case studies were rejected in favor of collecting data from a large number of countries. It was proposed to study in this manner, a minimum of thirty water supply projects. Data were to be collected at three levels: the national policy level (up to 30 countries); the projects; and the village level (numerous villages). Data were to be collected by means of questionnaires administered at all three levels. The major effort has been abandoned. A modified plan based on Africa alone was tried with indifferent success. The proposed study was described in detail by the consultant (Imboden, 1977) and the results of the modified plan by Bennell, 1978.

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<sup>1/</sup> An advance commitment procedure is underway after which amounts will be announced.



2. The study for UNICEF-WHO is now nearing completion. This study is intended to evaluate both water supply and sanitation as a component of primary health care. The two main components of the study are a search and synthesis of documentary materials, including published papers and materials in agency files, and a series of commissioned national case studies in 12 countries. The documentary materials are being studied by two consultants (Adolfo Mascarenhas and Allison Howell) and the national studies have been requested from national governments (and their national water supply and sanitation agencies) and paid for directly. Reports had been completed for nine countries by July 1978. These are Bangladesh, Bolivia, Columbia, Ghana, India, Iran, Nepal, the Philippines and Romania. The reports are confidential and are not available to AID.
3. An International Bank for Reconstruction and Development study was commissioned in 1976. The consultant, Charles S. Pineo, visited eight developing countries (Peru, Colombia, Dominican Republic, Kenya, Upper Volta, Korea, Malaysia and Bangladesh) for approximately ten days each. A series of country reports are available (IBRD September 1978), and each deals with the following topics:
  - i) history of the national program
  - ii) administration of the national program
  - iii) community level promotion and community participation
  - iv) technology and design
  - v) selection of communities for projects

- vi) house connections, water rates and financing
- vii) materials, equipment and construction
- viii) operation and maintenance
- ix) excreta disposal

The Pineo study for IBRD provides up-to-date information on the status of country plans and programs, and permits some comparative evaluation based on first-hand observations of a single investigator.

4. A second World Bank study has been conducted during the period 1976-78 to inquire into and evaluate appropriate technology for both water supply and sanitation in both rural areas and for the urban poor.

Twenty countries have been included in the overall study which has a budget of \$6 million. They are Japan, Taiwan, Korea, Indonesia, Malaysia, Vietnam, India, China, Afghanistan, Egypt, Sudan, Botswana, Ghana, Nigeria, Tanzania, Zambia, Colombia, Guatemala, El Salvador, and Nicaragua.

A large number of reports have appeared or are in preparation. The outcome of the project will be books and field manuals designed to aid decision-makers in developing countries, development agencies, and consultant organizations to evaluate alternative technologies both technically and economically. One report available in draft from Nicaragua illustrates the nature of these evaluation studies (IBRD 1978).

5. The International Reference Centre is developing a handbook for evaluating rural water supply projects. The handbook is divided into sections on how to measure and evaluate the following components of water schemes:

- technology
- costs
- water use
- water quality
- health problems and health benefits
- local organizational capacity
- effectiveness of education/extension component
- distribution of benefits
- administration — planning, construction, operation, maintenance
- financing — reserve policy and ability to pay
- economic benefits

The handbook contains suggestions for field evaluation methods and research design. It stresses the importance of evaluation in the field and at the village level rather than questionnaires designed at national or international levels.

The proposed AID evaluation differs from the efforts outlined. It is designed to provide the following information on success and failure and to the extent possible, why the conditions exist.

1. Is the project operational? The study would provide a valuable service by documenting the extent to which taps are continuing

to supply water after project implementation. Projects partially or completely nonfunctioning could be rehabilitated. This might be a cost effective use of funds.

2. Is the water used? If not used, in preference to existing sources of lower quality, there can be few benefits to the health of the community.
3. Who uses the water and how much is used? If water is not used for personal and household sanitation, much of the potential impact on health will be lost.

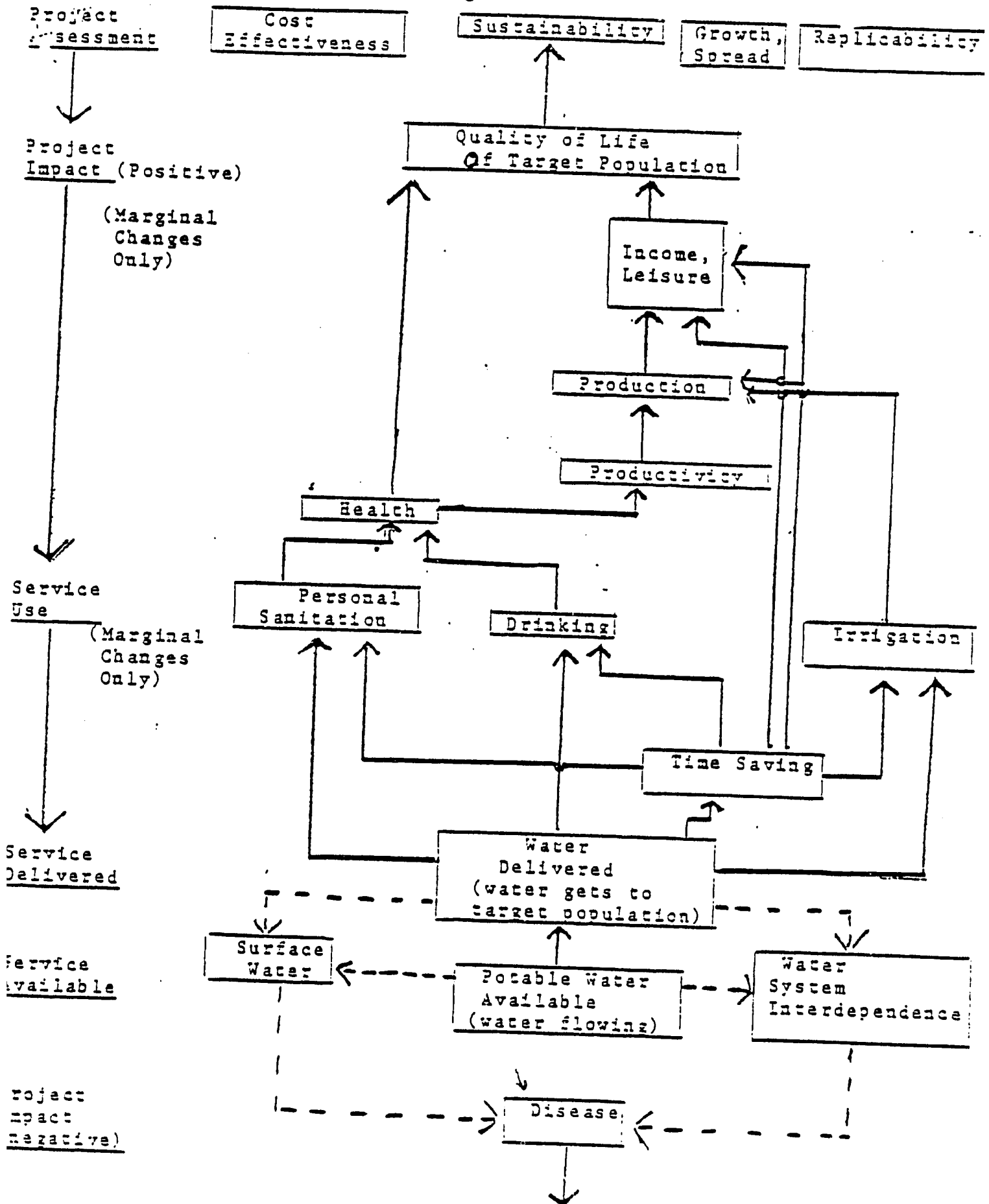
The evaluation will also measure other aspects of rural water projects including time savings, supplementary uses such as minor irrigation and associated sanitary practices particularly excreta disposal. The study formulation at the site, project and user level is diagramed in Figure 4.

The status and use of the system is assumed to be a function of a number of conditions, including national programs, agency capabilities, project design and implementation, and maintenance. Data that has been collected as part of existing surveys will be used if available and supplemented where necessary.

Data will be collected at the following levels with the indicated purposes:

1. National level data on country plans and commitment. In great part, this data is subjective. An unstructured series of interviews will be conducted to determine the level of country commitment.
2. Agency capability. Data collection instrument has not been designed. The objective will be to determine the bureaucratic functioning

Figure 4



personnel practices and training, maintenance capability and activities. In part the capability of the Agency will be determined by the field activities.

3. Project and site level data. The draft data collection instrument is attached as Tab A.
4. User data. Data will be collected on use and preception of benefits (Tab B).

#### Data Collection Instruments

The two major instruments have been formulated and attached as Tab A and B. The project and site level questionnaire has the following categories and purposes:

##### I. Social Economic and Physical Characteristics

###### 1. Resource Distribution

The purpose of this section is to gain a picture of the distribution of resources within the project area.

###### 2. Economic Activity

The purpose of this section is to get a sense of the significant types of economic activity in the project area.

###### 3. Social Stratification

The purpose is to identify social distinctions that the project must work with, around and through.

###### 4. Organization

The purpose is to determine the level of organizational development of the area and the relationship of organization (if any) that is

concerned with potable water to other formal or informal organizations. This section is also a first-cut effort at determining the form of participation.

5. Physical Characteristics

The purpose is to determine the physical characteristics of the area and the extent to which government policies, philosophy and commitment affect the potable water project in relationship to other resource commitments in the area.

6. Population and Settlement Patterns

The purpose is to determine the population and settlement patterns in the area.

II. Project Evaluation

The project evaluation section seeks to gather data on the project from inception through project maintenance. The specific sections of the evaluation cover the full range of activities of the project from the earliest stage.

1. Planning

The purpose is to determine the locus of project inception within the host country and the concerns raised during the planning period. It also tries to capture the involvement of people, time and professionals in the process.

2. Start Up

Who was involved, what was the timing, what was the role of the project beneficiaries?

3. Implementation

The purpose is to provide the details of project support and divergence from planned funding levels. This section will also cover the qualifications of persons involved in the project, the appropriateness of assistance planned or furnished, the maintenance plans and budgets and the components of the plan.

III. Technical Information

The purpose is to provide data on the technology used in the project.

IV. Service Availability

The purpose is to determine the amount of time the project services are available.

V. Service Delivery

The purpose is to determine how and who gets the water.

VI. Service Use/Impact

The objective is to determine the impacts of the water project on users.

VII. Sustainability

The purpose is to determine whether the benefits will continue after the external funding steps.

VIII. Growth

The purpose is to determine if there is any evidence that project activities will spread to other areas without additional resource commitments.



## IX. Spread

The purpose is to determine if there is any evidence that this project will lead to other development activities in the area.

### Perception Study

An additional aspect of this evaluation will be an impact study. This will gather data on the perceived consequences of the project. A number of studies have attempted to establish benefits of water supply in a rigorous unequivocal manner. These have invariably been either trivial, i.e., cost benefit analysis using savings in time and established wage rates as a benefit measure, or unsuccessful. A recent IBRD publication, "Measurement of Health Benefits of Investments in Water Supply" (January 1976) concluded in part "..... attempts at a rigorous quantification of health benefits of (Bank) water supply projects are likely to be futile."

As an alternative to unsuccessful attempts, a separate interview instrument will be developed, tested, and used to gather data on the perception of health benefits (and other benefits) especially in relation to other inputs of excreta disposal, health and sanitation education, and community involvement.

If people served by a water project consider that the project has had considerable benefits in health and other ways, then it probably has. The result would, if nothing else, be important in guiding the planning of health education programs and community involvement strategies. A draft of a perception study is attached as Tab B.

Study Implementation Plans

An IQC contractor will be used to assist in field testing and further development of the interview schedules. Questions to be addressed in the field test include:

- (a) Are the questions contained in the data collection documents reasonable in terms of being:
  - 1. unambiguous in meaning;
  - 2. suitable to field conditions;
  - 3. answerable, given field time and budget constraints; and
  - 4. relevant to critical potable water issues as seen from field perspective?
- (b) Are the data collection documents structured in a manner to facilitate the recording of responses?
- (c) Do the documents include safeguards to avoid unnecessary personal and sensitive subjects?

The collection document will be tested at at least four potable water project sites in one country. The collection documents will be revised in accordance with findings of the field test.

The revised documents will then be used to collect data at six or more potable water project sites in each of four countries of which the first will be the one in which the field test takes place. The data collection will be performed by Daniel Dworkin, PPC/E/S, and one of the Senior Design and Evaluation Specialist working with a consultant hired locally in each of the four countries. A separate consultant will be hired locally to

translate, test and administer the perception study. Upon completion of each two-country field trip, the data collected will be analyzed to determine what factors are critical to the success of potable water projects. These analyses will serve as the basis of a policy paper on the design of future potable water projects to be prepared by PPC/E.

### Article III - Reports

The IQC contractor will provide the project team leader with a revised collection of documents during the first country visit. Prior to the second country visit, the contractor will provide the project team leader with a written critique of the original project collection documents. The final report of the evaluation will provide answers to the original questions posed:

1. The extent to which projects are operational and why.
2. The extent to which the improved supply supplant traditional sources.
3. Who uses the water and how much is used and what is the perceived impact.

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