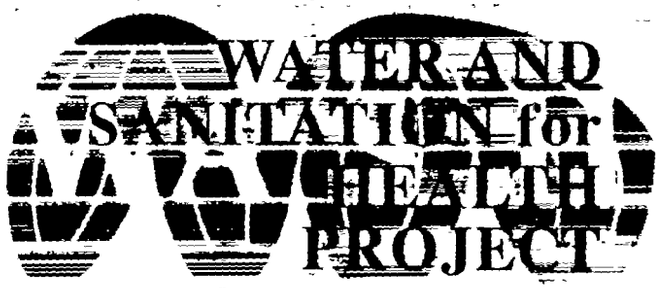
TECHNICAL REPORT

EVALUATION GUIDELINES FOR COMMUNITY-BASED WATER AND SANITATION PROJECTS

Technical Report No. 64
May 1990



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WASH Technical Report No. 64

EVALUATION GUIDELINES FOR COMMUNITY-BASED WATER AND SANITATION PROJECTS

Prepared for the Office of Health,
Bureau for Science and Technology,
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By

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CONTENTS

SECTION II. EVALUATION MODEL GUIDELINES

APPENDICES

TABLES

FIGURES

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SECTION I

OVERVIEW OF EVALUATION PROCESS AND MODEL

1

INTRODUCTION

1.1 Purpose of This Report

The evaluation of water supply and sanitation (WS&S) projects is a frequent WASH activity. In ten years WASH has completed more than 50 evaluations or assessments. In reviewing the WASH reports and those produced by other development organizations, it is clear that comparisons between projects are often difficult because of differences in the evaluation approach and in collecting and reporting information. In the interest of providing a more uniform approach and ensuring that the critical processes pertinent to WS&S are addressed, this report offers a model for such evaluations.

The model herein was chosen after a review of evaluation approaches from several U.S. and international organizations. Particularly valuable were the "AID Evaluation Handbook" and the WHO report "Minimum Evaluation Procedures." Evaluation approaches of other bilateral and UN organizations were perused to gain insights applicable to the particular needs of water and sanitation. Ultimately, a model originally developed by Dennis Warner and Raymond Isley was chosen.

The use of this model should allow 1) a focus on all project elements which affect progress and results, 2) a more qualified judgment of the appropriate indicators of success, 3) better comparisons between projects, and 4) a compilation of important lessons learned. It will enable evaluation of the four key components of a WS&S project—water supply, sanitation, health education, and community participation—usually by an interdisciplinary team with requisite skills in each subject area. The model is suited to both rural and urban uses, although the examples provided focus on the community and the specific requirements of decentralized management.

The model and approaches described herein are not meant to be inflexible. Understandably, evaluators must adapt to the specific requirements of the agency requesting the evaluation, limited time and resources, and the uniqueness that individual projects may display. The model is not intended to be a comprehensive checklist of every item that can be covered in an evaluation but instead is intended as a framework with guidance on specific issues.

The model is intended primarily for evaluators serving on WASH assignments and it presumes that the project is a USAID-funded project subject to USAID standards and procedures. However, it should also prove useful to other development organizations interested in WS&S projects.

1.2 Report Format

The report is divided into two sections. Section I, "Overview of Evaluation Process and Model," provides the background and definition of the evaluation process, and introduces the proposed model and methodologies of evaluation. Section II, "Evaluation Model Guidelines," provides a chapter outline and guidelines of what each chapter should include.

The appendices contain a tentative schedule for a four-week evaluation assignment, a questionnaire for field surveys, and a bibliography of references on evaluation.

2

EVALUATION METHODOLOGIES

2.1 Role of Evaluation

The central role of evaluation is to support management decision making. Evaluation is an indispensable tool for determining what does and does not work in project design and implementation. Evaluators should always keep in mind this role and structure their data collection, analyses, and ultimate conclusions to serve the decision maker. This implies that evaluations are often catalysts for change and therefore must reflect what is possible within the constraints that decision makers face.

Most evaluations are written for upper-level managers, the typical readers of WASH reports. But evaluators should remember that decision makers at other levels, including district agency officials and community leaders, also have a role in project implementation and should shape recommendations to accommodate their needs. These individuals often are key in carrying out decisions made at higher levels and their abilities, interests, and motivations must be equally addressed. The most important consideration in evaluation is utility. An effective report is one that serves the specific needs of project or mission management.

There are several characteristics of sound evaluation approaches:

- Agreement on the scope of work should be reached with the mission or organization prior to undertaking the assignment.
- Each member of the evaluation team should have a clear understanding of his/her role. The WASH team planning meetings are designed with this objective.
- Evaluators should cover the entire program or project. It is generally not effective to limit the evaluation to a single component, resource, or donor.
- To ensure validity, evaluators should be empowered to conduct an independent investigation without undue interference by the organization and individuals directly involved in the project.

- The effectiveness of an evaluation is governed to a large degree by the quality of project information provided. Project data and materials should be organized, to the extent possible, so that the evaluation team has them at the beginning of the assignment.

- Findings and conclusions should be supported by representative and unbiased data.

- Evaluation procedures should follow simple approaches with clear conclusions, recommendations, and follow-on directions.

- Where feasible, host country institutions and individuals should be involved in the evaluation to give it a higher level of credibility and acceptance.

- Evaluations should be viewed as a learning process and not as an audit with punitive implications.

2.2 Forms of Evaluation

Evaluations of WS&S projects, or any development projects, may take several forms, depending on the use to which the results will be put. In practice evaluations tend to be hybrid in form, and the terminology used to describe them is not uniform. To ensure a common understanding for the purposes of this report, the methodologies will be defined according to the following categories: appraisal, monitoring, periodic, audit, process, impact, participatory, and final evaluations.

2.2.1 Appraisal

Project appraisal has been given a variety of meanings. Within WASH and other development organizations, it usually describes a fact-finding assessment related to specific problem areas. USAID uses the term to define the assessment of project design before actual implementation.

2.2.2 Monitoring

Monitoring refers to the day-to-day review by project staff. It provides quick feedback to managers to improve project implementation. If adequately recorded, the results of this review may serve as an input to other evaluation methodologies. Monitoring, by itself, does not provide conclusions regarding project performance.

2.2.3 Periodic Evaluations

Periodic evaluations or assessments are carried out during project implementation, typically for one or more of the following reasons:

- To relate progress toward outputs within the project's purpose and assumptions
- To reassess the relevance of project design, purpose, and objectives, and to take a preliminary look at impacts
- To recommend solutions to particular problems of implementation
- To document reasons for the project's success or failure

Periodic evaluations rely heavily on adequate monitoring systems established within the project. It is most common for WASH to perform "mid-term" evaluations, a type of periodic evaluation, to assure that the project is on track in achieving its goals.

2.2.4 Audits

Project audits are undertaken primarily to measure quantifiable inputs in relation to the production of quantifiable outputs. Audits of finances are the most common type and are performed to ensure that project funds have been properly utilized and are correctly accounted for. Audits may also compare quantifiable project objectives with outputs. For example, the number of wells constructed or the number of people served would be a common output to be audited. While audits are an integral part of any evaluation, and may stand alone if a limited evaluation is acceptable, they are not sufficient to determine project effectiveness and impacts for which more sophisticated methodologies are needed.

2.2.5 Process Evaluations

Process evaluations strive to assess the functioning of the system and to determine the degree of utilization of project outputs. A project which has provided outputs such as well construction, training for government health workers, or reorganization of an institutional framework, cannot be considered effective unless these outputs are functioning and are being utilized in the intended manner.

Assessing system utilization is the primary objective of process evaluations. It is important to know, for example, if project beneficiaries use the project outputs to the degree expected. Has per capita water consumption increased since the water system was completed? Are project water points being used or is a pond or stream the preferred choice because it is more convenient? Are project latrines being ignored because they are hot and smelly? The thrust of these questions is to determine the utilization of project outputs. The process methodology is employed to determine the effectiveness of the project.

2.2.6 Impact Evaluations

Impact evaluations attempt to assess the effect of system utilization on the long-term improvements in health, in economic, social, and environmental conditions, and in the lives of women. In practice these impacts are difficult and expensive to measure, and few projects can afford to use project resources for such evaluations. Questions related to the reduction of diarrheal diseases, for example, can be accurately answered only through research that uses sophisticated medical techniques and personnel. This is costly and is complicated by many internal and external factors that affect water and sanitation benefits.

Although impact evaluations of WS&S projects are seldom undertaken per se, it is often valuable to predict future impacts from the results of process evaluations. The introduction of a protected well with convenient potable water for a community previously dependent on water from a pond can be predicted to have a significant impact on health. When sanitation and health education components are added, the impact can be predicted to be even greater. While such predictions can seldom be verified, it is the role of evaluators to make subjective judgments by extrapolating the results from similar projects.

In reality, impact evaluations are best done several years after project completion. WASH has never been requested to undertake a post-project evaluation, although the merits of such an evaluation have been favorably discussed.

2.2.7 Participatory Evaluations

Participatory evaluation is based on the principle that the role of development is to assist beneficiaries to become self-reliant. They should evaluate themselves according to their own criteria and use the results to improve or expand their participation in the project.

Participatory evaluation is the logical extension of increased involvement of beneficiaries in all project activities, including design and implementation, that some development organizations are stressing. It presumes that the beneficiaries have the necessary analytical skills, time, and interest for evaluation and have been substantially involved in project activities. If, as in many projects, government field agents or other employees are among the

beneficiaries, they should participate in both the collection and analysis of data. In many cases a combination of outside evaluators and project beneficiaries may be appropriate.

Two forms of participatory evaluation are recognized. The first draws on host country professionals to work with expatriates from the donor organization. They are typically mid- to upper-level government staff who have not worked directly with the project but are from agencies with an interest in it. Such agencies or ministries include finance, planning, and interior, as well as organizations directly involved such as health, water, rural development, sanitation, and social services. Host country professionals provide valuable insights into the bureaucracy, politics, and sociology of the country, but often lack evaluation experience.

WASH has undertaken several assignments in recent years using this approach. Usually little is known of the background of host country members and significant time must be devoted to on-the-job training, which varies between countries and individuals and often produces uncertainties that require adjustments as the evaluation progresses. But these disadvantages are outweighed by the value of having a host country perspective and by the knowledge that training has improved the evaluation skills of the participants.

The second form of participatory evaluation relies on project beneficiaries to undertake all or part of the evaluation. In theory, they are ideally situated to determine whether the project is actually meeting their needs or solving their problems. If they have had a say in formulating project objectives, the process has a good foundation on which to begin. If they have not, then participatory evaluation is not generally recommended.

2.2.8 Final Evaluations

At the end of a project there are two types of evaluation that may be carried out--project completion reports and final evaluations. The difference between the two is essentially in the intensity of the review, its scope, and the resources committed.

Project completion reports emphasize an audit approach to establish inputs, outputs, and status indicators, and perhaps give a preliminary estimate of the project's impact. They are usually prepared by the project officer and are the minimum required to close out a project.

Final evaluations focus on an in-depth assessment of project effectiveness, impact, and lessons learned, and draw upon several intermediate methodologies. As such, they may be considered the most rigorous and complete form of evaluation. They usually require an interdisciplinary team and at least three weeks of field work. WASH is often asked to carry out such evaluations, and this report is therefore written to serve as a model for a final evaluation. As such, most of the approaches detailed for a final evaluation can be selectively applied to any of the other forms of evaluation if desired.

Figure 1 provides a summary of the evaluation types and their use within the project cycle.

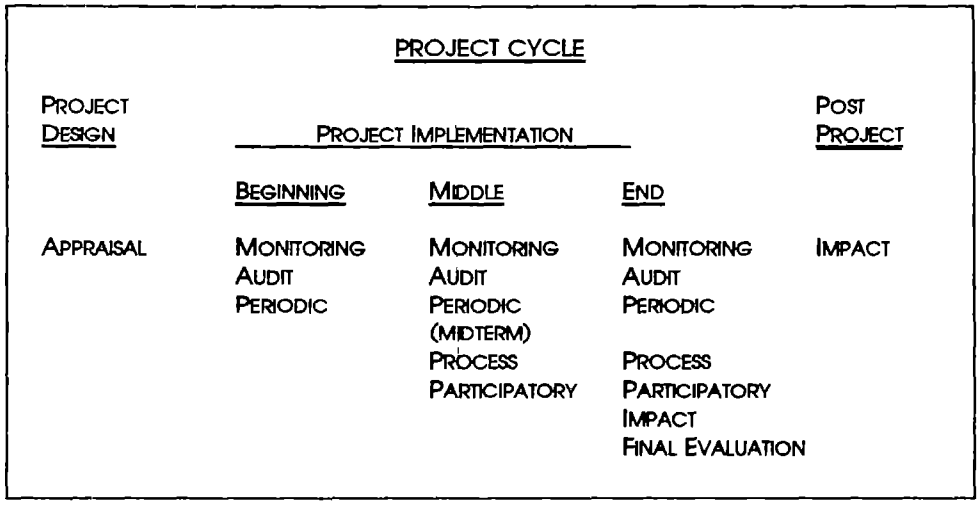


Figure 1

Evaluation Types and Their Use Within the Project Cycle

3

DATA COLLECTION

Information and data for evaluations are collected through literature reviews, interviews, observations, and measurement.

3.1 Literature Reviews

A significant portion of an evaluator's time will be spent reviewing documents written prior to the project start-up and during implementation. These documents, which should be assembled at the USAID mission or project headquarters before the evaluation team arrives, include

- Project Identification Document (PID) and Project Paper (PP)
- Project files (monthly reports, prior evaluations, memos, letters, cables, etc.)
- Project technical data (well logs, construction designs, operation and maintenance (O&M) plans, management plans, etc)
- Project social data (knowledge, attitudes, and practices (KAP) surveys, household surveys, community surveys, etc.)
- Project economic/financial data (willingness to pay, cost of spare parts, user charges, etc.)
- Project operational cost data (accounting sheets, commodity purchases, audit reports, etc.)
- Host country development plans and policies
- Research studies
- Sector studies (World Bank, UNICEF, bilateral, etc.)

Of particular importance are the AID logical framework (or "log frame") and baseline surveys. The log frame serves as a handy reference for evaluators to understand project objectives, verifiable indicators related to the objectives, and the assumptions for the objectives to remain valid. The verifiable indicators are clear points of focus that evaluators must address. Typically, these include such indicators as the number of wells and latrines constructed, community health committees formed, staff trained, and health education campaigns completed.

Baseline surveys, when available, are most valuable for evaluators as they allow comparisons between preproject conditions and conditions at the time of the evaluation. They are sometimes conducted during the design stage, and the results are often attached as appendices to the project paper. If not undertaken before project start-up they should be an early objective of the project itself, although care is needed to ensure that the project does not influence the results. KAP surveys designed to collect information related to project objectives are particularly valuable. Hygiene practices and knowledge of water-related diseases, for example, are parameters which relate to improved health for project beneficiaries and are typically a major part of such surveys.

Surveys of willingness and ability to pay are also an important part of baseline information, influencing the choice of technology and the level of service to be provided. Recent development approaches have stressed the need for project beneficiaries to have a financial stake in project outcomes so as to ensure their continued support.

3.2 Interviews

Interviews are used to collect information from project personnel, beneficiaries, and other individuals with knowledge of the project and the sector. Chief among these are:

- Project director and key staff
- USAID project officer
- Directors and key staff of related government organizations (finance, planning, women's welfare, hydrogeology, local government)
- Regional directors and extension agents
- Village water or health committees
- Representatives of private sector organizations

- Representatives of other international agencies (World Bank, UNICEF, etc.)

Interviews with project beneficiaries are conducted either individually or in group sessions. Appendix A provides examples of questionnaires to be applied in field situations. The questions are meant to be given to a variety of individuals and groups within the village. In some cases, specific individuals such as the president of the water committee or the pump caretaker will be sought out. In other cases a group of village women, for example, may be selected at random.

A questionnaire survey gives precision to findings and, if properly set up, yields data for statistical analyses. But it requires substantial resources for planning, training of interviewers, and coding and analysis. A poorly planned and executed survey can be very misleading.

3.3 Observations

About one-fourth of the time an evaluation team spends in country should be devoted to observations, primarily in the field. The team should inspect such items as pumps and latrines, note the application of hygiene standards in the home, and observe meetings of the village water committee and training sessions on health themes by the district field agents. Observations outside the field would include inspections of warehouses and inventory control systems and financial bookkeeping procedures, for example. Appendix A contains examples of observation questions.

3.4 Measurement

Measurement should always be considered as a technique that provides accuracy and added credibility to an evaluation. However, it tends to require more time and resources than most evaluations can justify. An exception might occur when project personnel, or perhaps a university group, are assigned to assist the evaluation team, sometimes even before it arrives in country. Examples of measurements that might be carried out are:

- Number of operable pumps
- Quantity of water consumed per capita
- Water quality
- Number of cases of Guinea worm disease

- Number of people with access to oral rehydration solutions
- Number of people who receive and understand health messages

The functioning of facilities and services should be measured, whenever possible, by rigid inspection and scientific observation. For instance, an inoperable pump should be inspected by an engineer (and not merely recorded as inoperable because of a report by a user). Polluted water should be analyzed for bacteria and mineral content (not recorded as polluted merely because someone said it was dirty or tasted bad). The opinions of users should certainly be recorded, but whenever possible should be verified by direct inspection and laboratory reports.

The functioning of educational services can be measured through surveys which record responses from a sample of beneficiaries regarding their understanding of educational messages. Both the number of people who received the messages and the number who understood them can be measured.

3.5 Survey Sampling

Most projects will cover more villages than an evaluation team can conveniently visit. A selected sample is therefore necessary and, ideally, should be drawn randomly from the total list of villages. If the project reflects several technological choices (springs, boreholes, rainwater catchments, for example) or regional diversity (mountains versus lowlands, political or ethnic divisions), the list should be broken down into proportional sizes for random selection from the sublists. Visiting only showcase sites which misrepresent the overall situation should always be avoided.

If it is not possible to visit a statistically representative sample of project villages, this should be stated, indicating that subjective judgments were utilized in reaching evaluation conclusions.

3.6 Collaborative Approach

WASH has found during its 10 years of existence that a collaborative approach by evaluation team members produces reports which are more thorough and accurate in their conclusions. Interaction between team members provides a filter to exchange, complement, and test information and ideas related to the evaluation. Indeed, the interdisciplinary nature of WS&S projects requires integration of institutional structures and the resulting analysis and understanding of these relationships.

4

EVALUATION MODEL

4.1 Description

Water and sanitation projects, or any development project, may be described within a model that follows a sequential set of events beginning with project design and implementation, followed by system utilization, and culminating in benefits or impacts. Project benefits are defined during project design and stated as goals. This model (modified from Isley and Warner) is diagrammed in Figure 2.

Project implementation refers to the carrying out through project functions of the activities described in the project paper. It is the process of marshalling the requisite inputs of finances, materials, equipment, and personnel and using these resources according to the project design to achieve project objectives. Project implementation involves the development of institutions, either by improving existing institutions or creating new ones to guide project operations. The institutions thus utilize the previously mentioned inputs to produce outputs.

A typical example of a WS&S project would be one which proposed to construct wells and latrines in rural villages to improve health through the reduction of diarrheal and other diseases. The project would arrange health education campaigns and training for village water committees which would be expected to operate and maintain the water and sanitation systems. It would provide several technical advisors, and purchase vehicles, equipment, and tools. The host government would assign employees from participating institutions to receive training and assume responsibility for project activities at all levels--from national to regional to local.

With these inputs the project would proceed to the operational stage, where institutions from the national to the local level would carry out adopted approaches, often with the support of technical advisors from donor organizations. Factors such as management, policy, and planning would influence the efficiency of progress in achieving project objectives. Assuming the project was operated with reasonable efficiency then outputs would be achieved. Usually outputs can be quantified to indicate, for example, the number of villages served, wells and latrines constructed, villagers trained as members of water committees, and government employees trained in community development. Thus, at the project implementation stage inputs would be provided, the project would be operated at some level of efficiency in utilizing the inputs, and, as a result, outputs would be achieved. From these numbers evaluators can judge the efficiency of project functioning and implementation.

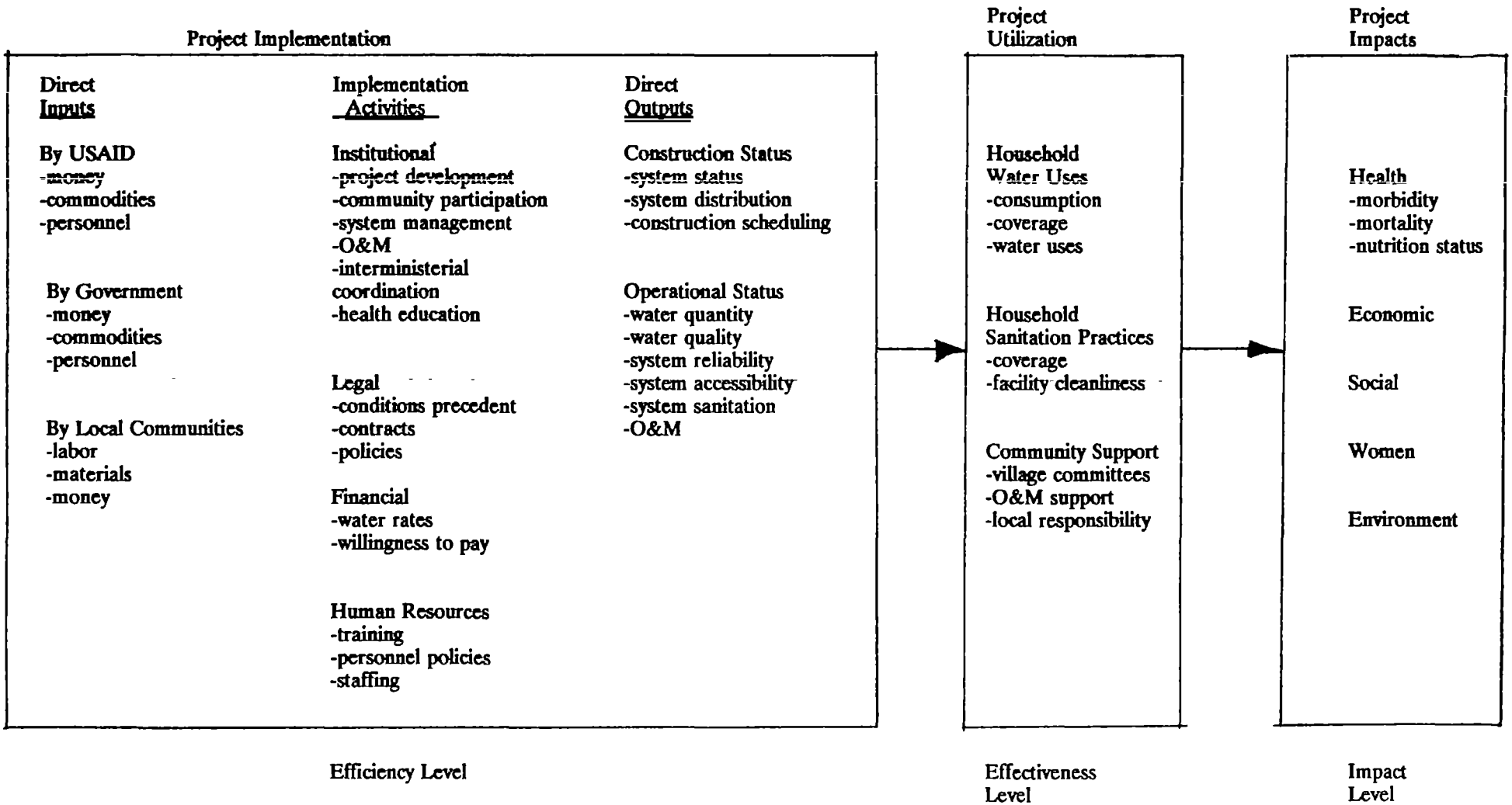


Figure 2: Evaluation Model for Water and Sanitation Projects

The next step is to evaluate the use to which these facilities and skills have been put. Outputs may be quantified, but more important is the question of how thoroughly, and to what degree, the outputs are utilized. Utilization must be judged on the basis of effectiveness, which can be determined from answers to some typical questions:

- Are all members of the community using the well water or do some continue to use unimproved sources?
- Does everyone use the latrines?
- Are clean and covered water vessels being used in the homes as prescribed in health education messages?
- Have the water committees used their learned skills to establish a maintenance fund to keep the pump in proper repair?

After establishing that the project has provided facilities and skills that are being effectively utilized, the third step is to evaluate the project impacts. As stated earlier, these are not easily determined in WS&S projects. Expensive and sophisticated techniques beyond the resources of most projects are often the only way to identify direct health benefits. Diarrheal diseases, for example, can result from several environmental factors, and improved water supplies may only be partially responsible for reducing these diseases. On the other hand, the reduction of some diseases, such as Guinea worm, can be more easily ascribed to clean water and will often be an immediate and measurable impact.

Some impacts may take a long time to be visible. Social and economic improvements occur only gradually, and it may be years after project completion before they are apparent. For example, the introduction of a convenient and ample water system to a village may entice new settlers and small businesses to relocate there. The impact on the economy of increased opportunities for employment and commerce may become more significant with time.

If, as is often the case, impacts are not measurable or apparent at the time of the evaluation, it is appropriate to state this fact but also to predict what will probably occur in the future. The evaluator's experience in similar development situations should guide this decision.

The model is meant to accommodate a logical sequence of findings, conclusions, and recommendations. Typically, the evaluation scope of work will contain specific questions which must be answered. These are addressed under the appropriate heading whether it be project implementation (inputs, institutional development, outputs), utilization, or impacts. The findings thus support and lead to conclusions, which in turn will usually, although not always, lead to recommendations stemming from them.

4.2 Evaluation Model Guidelines

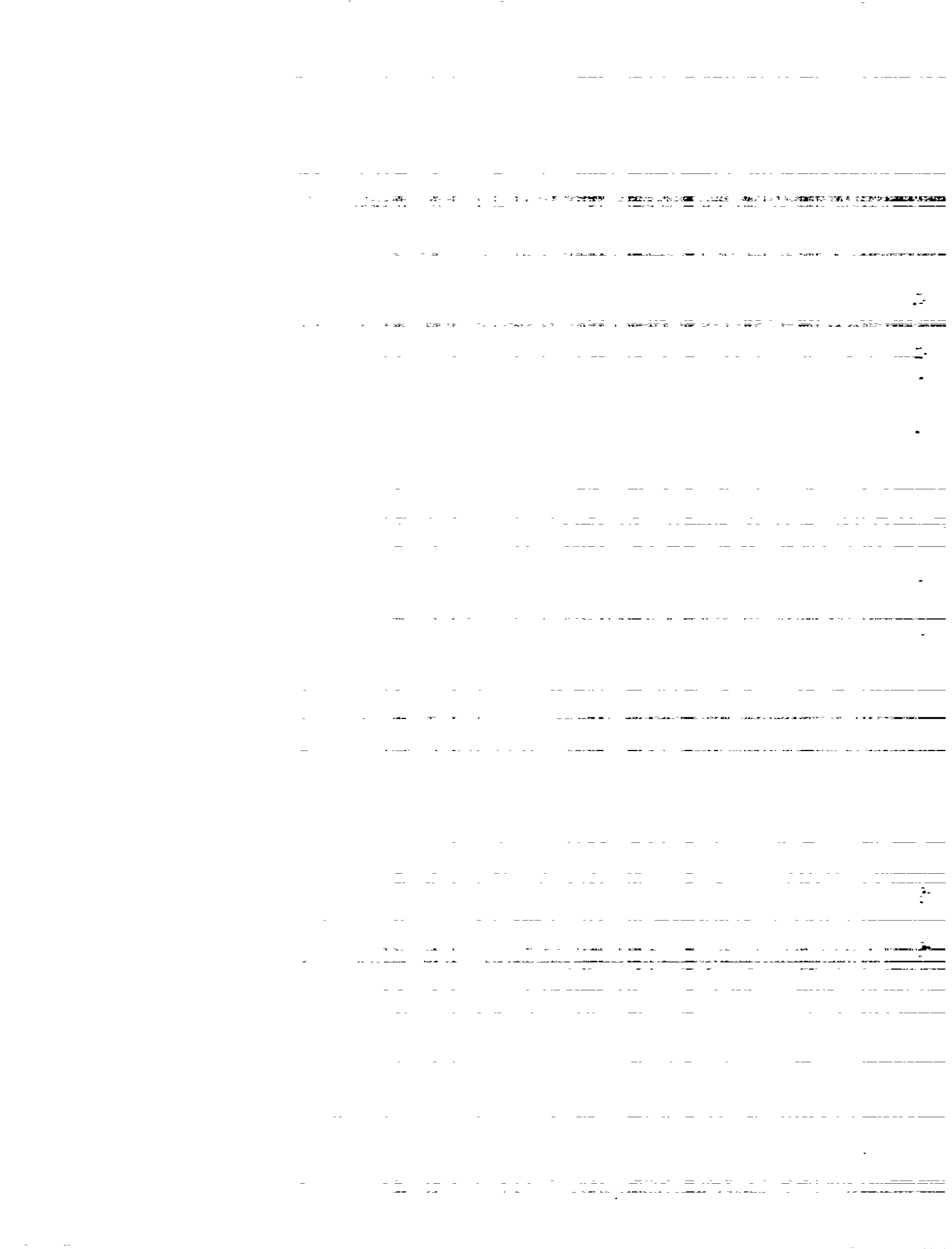
Section II of this report provides a chapter by chapter discussion of the evaluation model. An example of a table of contents is provided in Figure 3.

Figure 3

Evaluation Table of Contents

SECTION II

EVALUATION MODEL GUIDELINES



1

INTRODUCTION

1.1 Background to Evaluation Assignment

A brief description is needed of why WASH was requested to undertake the evaluation. Who requested the evaluation? What type of evaluation is being requested--midterm, final, other? What sort of expertise is needed?

1.2 Members of the Evaluation Team

The team members, their areas of specialization, and their employment affiliations should be identified. Team members may include WASH staff, WASH consultants, USAID staff, or host country nationals from specific ministries or bureaus.

1.3 Scope of Work

A scope of work for the evaluation should be included either in the text or in the appendix. It will have been discussed, perhaps modified, and ultimately agreed to by the mission and WASH. Usually this is completed in advance of the assignment but occasionally events will require some later changes. In either case the scope of work included should be the final version.

1.4 Methodology

The evaluation approaches and methodology should be outlined. The methodology (Section 1, Chapter 2) and means of data collection (Section 1, Chapter 3) should be explained. To supplement this section it is suggested that the following items be included as appendices of the report.

- Persons contacted
- Villages and sites surveyed
- Trip schedule
- Bibliography

1.5 Project Background and Objectives

A brief but sufficiently detailed history of the project should be included for the benefit of the uninformed reader. Successes and problems, dates of significant happenings, and previous evaluations or assessments and important conclusions or recommendations should be mentioned. The major project objectives should be outlined. A complete description of the goals and objectives, including the log frame, may appear as an appendix.

2

PROJECT EFFICIENCY

2.1 Inputs

Inputs refer to all resources utilized by the project—finances, commodities, and personnel. They should be classified by their origin and their ultimate disposition or use within the project.

Identifying inputs is important because projects can be compared only if the inputs are known and are judged to be similar in magnitude and apportionment. WASH has often found it difficult to make comparisons between projects because many evaluations, while complete in addressing the attainment of objectives, fail to list inputs in sufficient detail. Projects with large differences in inputs, albeit with similar objectives, may lead to unfair comparisons and conclusions.

The gathering of information on inputs often requires special efforts by the project accountant to collect and organize needed financial and commodity data, since projects do not always categorize data in the manner desired. The request for this information should be made early in the evaluation to allow the accountant time to assemble it.

2.1.1 Financial

Project finances may come from the following sources:

- Donors
- Host government
- Community

Donors include USAID and sometimes other international organizations such as UNICEF and CARE when projects are cofinanced. Typically, the costs are shared, with each organization making a specific contribution such as personnel or equipment costs. Project finances are always specified in the project agreement, but these are broad categorizations and not always rigidly followed since some shifting of financial resources may occur within the total financial amount.

The host government typically is responsible for the salaries of government personnel, utilities and rents of government buildings, duties paid on imported items, and sometimes fuel for project vehicles. In principle, the host government bears all recurring costs, although there is no formula as to how donors and host governments divide other costs.

Community contributions may be significant where they are provided for civil works construction, such as springs with gravity-fed pipelines. As an example, in Haiti, 25 percent of the financial resources in a USAID-funded WS&S project were of community origin. In some cases community labor is paid, particularly if it is skilled labor such as masons, and the accounting is straightforward. More often, however, labor is unpaid and the value of the contribution must be estimated. This is done by a sampling of the time required for a particular project activity and multiplying it by the minimum wage established by government for laborers. Materials such as sand and gravel should be priced at market rates.

Some estimates for community contributions cannot be accurately made and it is sufficient for evaluators to explain the basis for them. But all community contributions must be included. Too often they have gone unreported merely because they are estimates, resulting in insufficient recognition of the important role they play.

Project costs should also be categorized by components or functional use, again so that projects can be compared equitably. These components include

- Construction for water supply
- Construction for sanitation
- Health education
- Community participation
- Operations and maintenance
- Administration

Each of these components is fairly distinct in most projects, with its own staff, equipment, materials, and vehicles. Water supply construction, for example, may require the use of a drilling rig, several trucks, and other specialized equipment purchased only for use within the water supply component. Specialized staff for this component will be assigned by the government and perhaps the donor. Hydrogeologists, rig operators, truck drivers, and laborers are included among these.

The costs associated with sanitation construction will likely include masons, trucks, and materials. Some items, such as trucks, are sometimes shared by components and the time a truck spends on each component must be estimated. Major equipment items should be depreciated (straight line is appropriate) over their expected life. Only part of the cost of a

drill rig, for example, which may have an expected life of ten years but be used for only five, should be charged to the project.

Health education costs primarily cover staff salaries. Vehicles, fuel, and teaching aids are also included.

The costs associated with community participation are also made up primarily of staff salaries and transportation for the staff. Many projects purchase motorbikes for the field extension staff, who must make frequent visits to the villages.

The costs allocated under operations and maintenance should be only those concerned with training and with setting up the O&M management plan during the life of the project. Recurring O&M costs will remain the responsibility of the community and government organizations designated for that duty and will continue long after the project is completed.

Administration costs are mainly staff salaries. The project manager, technical advisors, accountants, storekeepers, and secretaries are included. If a technical advisor is responsible for a particular component, such as health education, that component should be charged.

Costs should be expressed in U.S. dollars. Expenditures made in local currencies should be valued in U.S. dollars at the official exchange rate, which also should be clearly expressed. If steep inflation rates, artificial exchange rates, or devaluation has occurred during the project, the method of accounting should be explained.

2.1.2 Commodities

Major commodities and the quantities purchased by the project should be identified. They may include:

drilling rig
casings and screens
pumps
laboratory equipment for testing water quality
vehicles (heavy trucks, passenger vehicles, motorbikes)
visual aids and teaching materials
construction materials (cement, reinforcing bars, etc.)
fuel
office furniture and supplies
computers

Identifying project commodities will, again, allow comparisons to be made between projects. It will further serve to show the magnitude of commodity requirements for future WS&S projects. Evaluators should be aware that questions may be posed about the final disposition of unused commodities and those such as vehicles that have a remaining life. They must decide how the commodities are to be used after the project ends.

2.1.3 Personnel

A listing of project personnel by job title should be provided to include both permanent and temporary employees. Personnel should be listed according to the component to which they are assigned. Large WS&S projects can sometimes have 200 or more employees.

2.2 Implementation Activities

A complete description of the institutional, organizational, and managerial arrangements established by the project should be provided. This should include not only the arrangements within the project itself but also the project's relationship to existing government institutions. Organigrams are useful for this purpose.

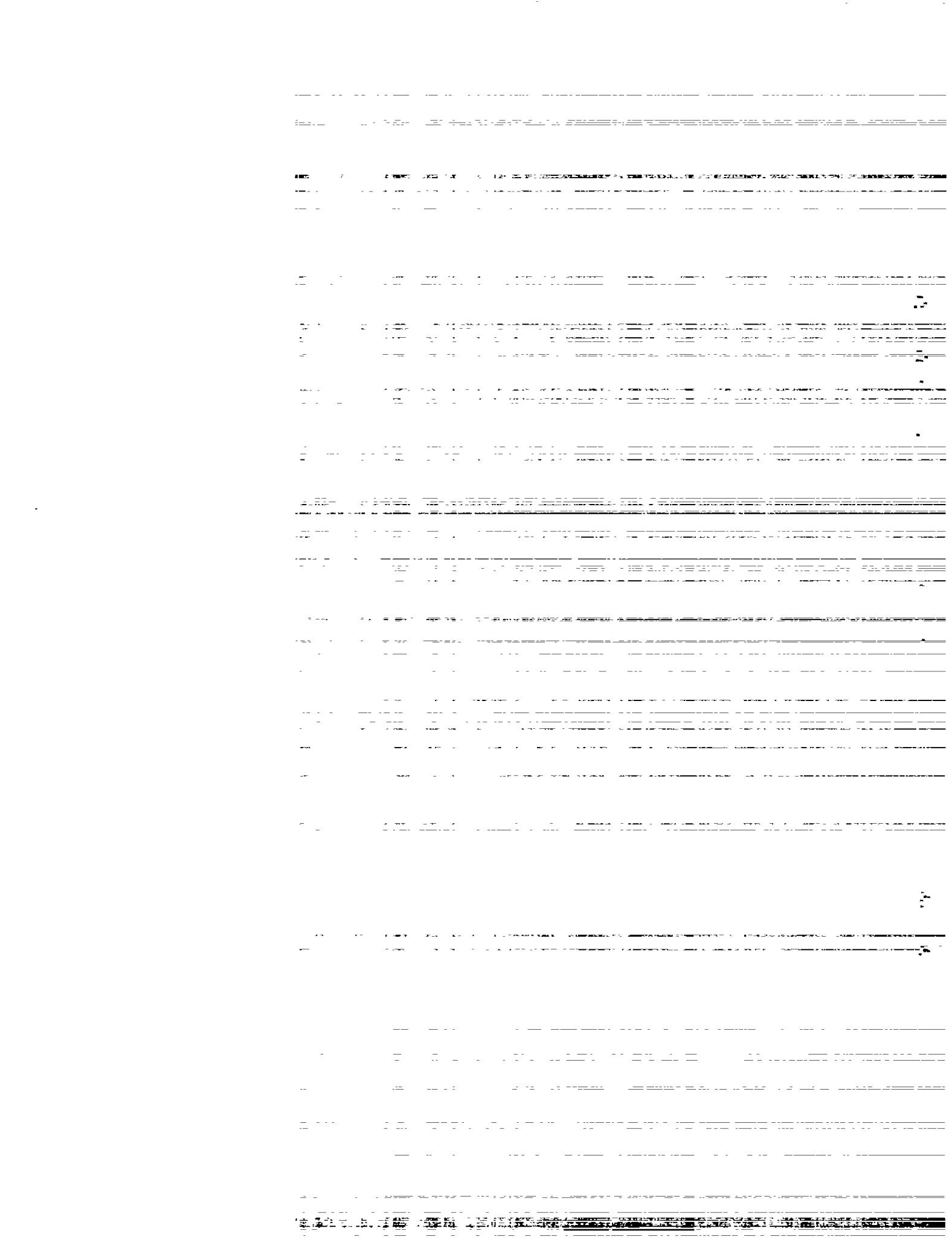
The evaluators should describe the approach of each project component and its success in achieving project objectives. Judgments must be made as to the relative efficiency of project implementation. In many ways this is the heart of the evaluation process, since it provides the rationale for whatever recommendations the team may offer. It must be sufficiently broad to explain the overall process but detailed enough to draw attention to problem areas where changes are needed. Evaluators should also not fail to explain in detail favorable points of project implementation that offer lessons for future projects.

Community participation and health education must be given particular attention in determining the efficiency of project implementation. Since these components utilize training to achieve behavioral change in both project staff and project beneficiaries, considerable emphasis must be placed on judging the success of training approaches in adult education. Consideration should be given to the training design and whether it is an appropriate solution to the problem.

2.3 Outputs

Outputs should be compared with objectives in a tabular format showing the percentage of completion as an indication of project progress. The log frame will provide a listing of objectives along with the variable indicators. Many of these objectives are quantifiable (number of wells constructed, village water committees formed, extension agents trained); others are not (establishing a water supply maintenance system, having beneficiaries adopt specified hygienic measures). The latter should be listed and an estimate made of their completeness. For midterm evaluations, most of the objectives should be about halfway complete. Those that are not should invite the attention of the evaluation team and lead to recommendations for corrective action.

It is illuminating to calculate unit costs of project outputs. Typical examples include cost per well, per capita, or per extension agent. Careful consideration must be given to the number of villages included as beneficiaries since population figures for rural zones are often inaccurate, as are assumptions that all people in a village are actual beneficiaries.



3

PROJECT EFFECTIVENESS

3.1 Effective Use

The evaluation of project effectiveness goes beyond the assessment of efficiency discussed in the previous chapter to an inquiry of how well the facilities, training, or institutions established are being used. The intent is to carry the evaluation beyond the simple tabulation of numbers. Intermediate behavioral indicators should be documented that provide evidence of potential future impacts. This requires a subjective approach that depends largely on the experience of the evaluators.

Among the several areas that warrant attention, the physical facilities, such as wells and latrines, are the most obvious. Evaluators might seek answers to the following questions:

- Are the wells (or other water points) being used by all the intended beneficiaries? Understandably, interest can be expected to decline as the distance from the well increases, assuming there are convenient alternatives.

- If not, what other sources are being used? Sometimes there is significant seasonal variation in the use of wells, with more convenient but temporary sources being used during the rainy season.

- Are the latrines being used? Sometimes there is a difference by age group, with less use by young children. Also, family latrines are more likely to be used than communal or public latrines.

In the area of training and human resource development, information is needed on the following questions:

- Is the training given to government extension agents (well drillers, pump mechanics, accountants, or any other group within the project) being utilized as planned? Sometimes effective training might be ineffectively used because of a factor such as poor morale arising from low salaries.

- Is the training provided to the community being utilized? Training of village water committees differs from training of government or project employees. The problems and incentives for community volunteers are different and require a different measuring standard.

Operations and maintenance is an area of particular importance in judging effectiveness, and the following questions should be considered:

- Are the pumps and other mechanical systems being maintained as planned? An acceptable allowance for downtime, say 10 percent of the time, should be established and maintenance should be judged against that standard. Sometimes downtime cannot be attributed to ineffective maintenance but to a falling water table or some other factor unrelated to pump breakdowns.

- Is the management system adequate for all operational needs? Funds and spare parts are critical components of the management system and may require major efforts by the community. In many cases the management system is a chain of organizations each of which has a stake in the outcome.

- Are water quality standards being maintained? While WHO standards may not be appropriate in certain instances, less stringent standards should be established and evidence collected to verify that compliance is in effect.

WASH Technical Report No. 35, "Assessment of the Operations and Maintenance Component of Water Supply Projects," is recommended for further details.

3.2 User Behavior Change

The ultimate measure of project effectiveness is a positive change in user behavior. Only when beneficiaries have accepted the value of new ideas and are eager to apply them can a project be termed truly effective. The health benefit of potable water at the pump is partially negated if users do not maintain the water to the same degree of cleanliness in their homes. Similarly, a community fund for maintenance when the well is constructed will be of little value if it is not replenished regularly to pay for future pump breakdowns.

The following questions are appropriate:

- Has the consumption of clean water increased? It is important that a convenient source of water be used and that consumption exceed preproject levels in order to achieve health improvements. Users should be convinced of the need to use greater quantities of water for drinking, cooking, personal hygiene, and cleaning of household utensils and the home.

- Is water in the home stored in an acceptable manner? Clean receptacles properly covered should be the norm.

- Are the home and yard free of fecal matter particularly, and of other solid waste as well? Disposing of children's feces is often a problem.

- Is personal hygiene being practiced in accordance with project health messages? Observable practices such as hand washing before food preparation and frequent bathing of infants should be in evidence.

- Are water treatment methods known and utilized? Even the best-managed water systems will be out of order sometimes. Users should be able to explain how they would treat their water supply (e.g., by using chemical disinfectants, filtering, or boiling) when this happens. Such explanations are evidence that they understand the dangers of contaminated water.

3.3 Sustainability

Sustainability is the process, or more precisely a set of processes, by which project benefits endure over a long period. The benefits of a sustainable project should continue, and preferably be increased, after the donor discontinues assistance, assuming the project has been correctly designed and implemented. A fundamental ingredient of sustainability is the existence of institutions with a mandate and the resources to operate and maintain facilities that supply benefits to targeted populations and to reinforce health education messages. Institutions are defined in the broad sense here and include all entities that have a role in O&M and health education—government agencies, community water committees, and private sector organizations. But institutions are made up of individuals, and even the best-designed organization is no better than the individuals who compose it. If they are not adequately trained and motivated, the organization will be ineffective. This is as true at the village as at the national level.

The individual is also important as a beneficiary. Targeted beneficiaries must perceive, for example, that the use of latrines can prevent certain diseases, and must be willing to maintain and repair these latrines by investing either their time or their money. They do this by weighing the benefits against the costs, although it may not be done consciously.

Also inherent in the concept of sustainability is the notion that the benefits must continue over an extended period defined by the life expectancy of project inputs. A water well, for example, which consists of a borehole, casing, concrete apron, and hand pump can be expected to serve for 20 years. Except for the hand pump, which will require periodic repairs and replacement of parts during this period, all the elements should withstand normal use. Another example is the training given to government extension agents. This training might be useful over their lifetime, but it is more likely that after some years they will advance into other jobs where the training would not be directly relevant.

In many ways sustainability requires the flexibility to meet problems that are bound to arise in the long term. The more problems the system has experienced and successfully overcome in the short run, the more confidence one can have in the future. This suggests that the system must have had the opportunity to stand on its own without outside support from technical advisors, donors, or whoever provided such support during the project.

An example will illustrate the need for innovative problem solving. In Benin, an O&M program depended on spare parts imported from Togo and stocked by local entrepreneurs. Water committees were expected to utilize regional repairmen to fix their pumps. When government red tape delayed imports, some villages persuaded repairmen to cross over into Togo and bring back the needed parts illegally. While the project could not sanction this, the system demonstrated that it was resilient and could survive.

This discussion points up the thorny issues surrounding the sustaining of project benefits over a long period. Evaluators must look at the potential life expectancy of project outputs and consider the institutions, key individuals, and time factors involved in safeguarding these outputs before making a judgment on sustainability.

3.4 Institutional Viability

While the previous sections have, for the most part, focused on individual behavior as a measure of effectiveness, the role of institutions, which reflect the collective behavior of their staffs, must also be stressed. It is necessary to consider not only specific institutions but also the relationships between them to accurately judge effectiveness.

Several host government institutions will be involved in most WS&S projects–the ministries or offices of water, health, sanitation, and rural development more directly than the offices of finance, planning, local government, and other parts of the administration. Each of these

institutions may have a small but critical role in the chain of events that leads to achieving project objectives, but their interests in the project outcome may be quite disparate. The priorities they place on the project may differ widely, and it is not unusual to find at least one institution that retards the progress of the others. Many projects find that coordination between institutions within the WS&S sector is difficult to achieve but critical to project success.

Other institutional characteristics to be considered are policies, management and administrative capacity, and training. Policies which affect the water and sanitation sector can influence project performance. Examples include policies on tariff or fee rates, importation of spare parts, role of the private sector, and ownership or responsibility for WS&S facilities.

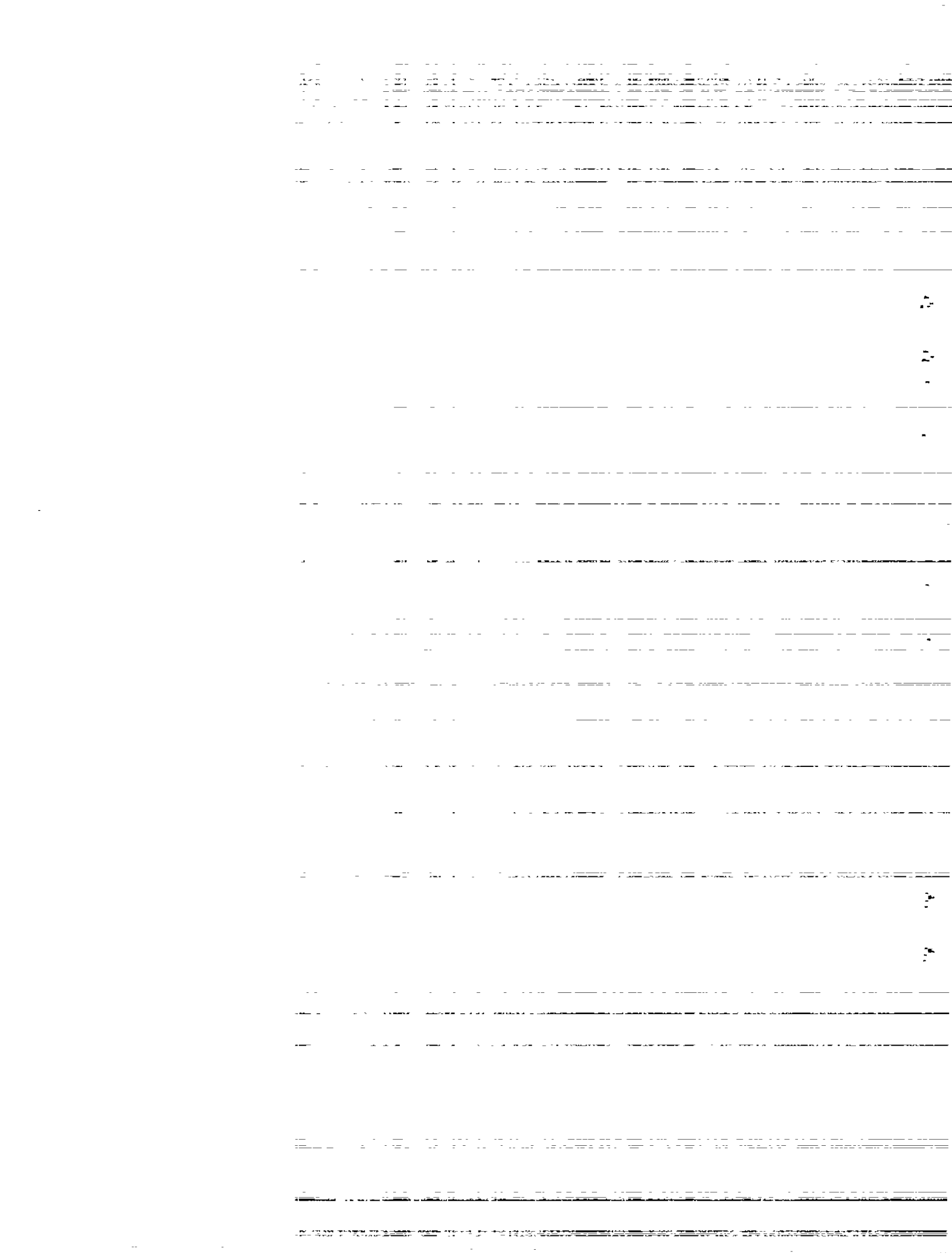
Skilled managers are, of course, needed to assure that people and equipment are employed in the requisite balance and to provide leadership in envisioning strategies to achieve project goals. Personnel matters such as staffing levels, pay scales, career advancement, and certification systems are important factors as are support systems including office facilities, supplies, transportation, and equipment. Administrative skills are particularly important to the functioning of an institution, but are often lacking in a sector that values technical qualifications as a first priority.

Institutions should also have a training capability or the means to arrange training to ensure that job skills match job requirements.

The private sector plays a significant role in many projects. It operates with the profit motive, its paramount interest, to provide goods and services to public nonprofit organizations. In this relationship, the influence of market forces on project objectives is not without significance and should enter into any evaluation of effectiveness.

The definition of an institution should be broad enough to include village water committees. They do, after all, follow a set of operational rules, establish policy, and have an identity beyond that of their individual members. Their effectiveness should be evaluated in terms of their contribution to project design, their mobilization of labor and oversight of construction, O&M management, financial responsibility, and ongoing monitoring. Although their participation may not always cover all these inputs, it is significant.

For more details on evaluating institutions, it is recommended that the reader refer to WASH Technical Report No. 37, "Guidelines for Institutional Assessment: Water and Wastewater Institutions."



4

PROJECT IMPACT

Few projects enjoy the luxury of hard data to measure impacts on intended beneficiaries, because data acquisition requires large outlays of financial and personnel resources. Moreover, benefits accrue gradually over time. More often such impacts are predicted on the basis of the evaluators' experiences elsewhere.

The impacts of WS&S projects fall into six categories: improvements in health, social and economic benefits for communities, modifications in the status of women, strengthening of institutions, and changes in the environment.

4.1 Health

Domestic water supplies may affect disease spread by four transmission mechanisms: water-borne, water-washed, water-based contact, and water-related insect vectors. Table 1 lists these transmission mechanisms, some of the diseases for which they are responsible, and suggestions for preventive strategies. Evaluators should look for information on project impacts but be aware that data are seldom available.

Ideally, preproject data would provide a baseline for comparison, but few projects have programmed the research to generate this information. There are two reasons for this. First, providing the required medical personnel, laboratory equipment, and supplies is expensive. In Haiti, for example, the USAID mission rejected a research design to provide this baseline data because of the high cost, and instead chose to use the funds for increasing WS&S coverage.

The second reason for not investing in health baseline data is the ambiguity of the results. For example, controlled studies have shown that the median for reduction in diarrheal morbidity as a result of WS&S projects is 37 percent but the reduction can range from zero to 100 percent. With such evidence, most WS&S projects elect not to invest in scientific measurement but to presume that benefits of some kind will occur.

Even without scientific data to rely on, evaluators should consider the possible impacts of project interventions. If, for example, a project has provided clean water, sanitation, and health education to a population that did not have them, significant improvements in health can reasonably be expected. Where project components are found to be less than effective, predicted health improvements can be correspondingly reduced.

Guinea worm deserves particular mention as a disease often immediately affected by WS&S projects. In villages where protected water supplies have replaced unprotected surface water sources, beneficiaries can point out the remaining cases of Guinea worm and quick surveys by an evaluation team can document this.

Table 1

WATER-RELATED DISEASES

Transmission Mechanism	Preventive Strategy	Major Diseases
A. Water-borne	Improve water quality	Cholera, typhoid, hepatitis, bacillary dysentery, "diarrheal disease"
	Prevent casual use of unimproved sources	
B. Water-washed	Improve water quantity	Typhoid, bacillary dysentery, scabies, trachoma
	Improve water accessibility	
	Improve hygiene	
C. Water-based contact	Decrease need for water	Schistosomiasis, Guinea worm, ascariasis
	Control snail populations	
	Improve quality	
D. Water-related insect vectors	Improve surface water management	Malaria, yellow fever, dengue
	Destroy breeding sites of insects	
	Decrease need to visit breeding sites	
	Remove need for water storage in the home or improve design of storage vessels	

4.2 Social Benefits

Social benefits from WS&S projects fall into three categories. First, participation in planning, organizing, constructing, and managing a WS&S project often encourages the community to undertake other projects of a completely different nature, such as introducing new crop varieties, or raising chickens or pigs. A new water system with adequate capacity often creates an interest in irrigating gardens or investing in a fish pond. Other community endeavors might include purchasing oxen for animal traction, planting wood lots, and purchasing a grinder for milling grain. In larger villages or periurban areas there may be an interest in brick making for housing and in artisan activities such as weaving and dyeing and, in more affluent villages, in household connections to bring piped water into the home.

The second category of social benefits from an assured water supply is the attraction of outside resources to the village. Schools, health clinics, and commercial enterprises are among these. Often the state will consider bringing in power lines, improving roads, and generally upgrading the infrastructure. In Haiti, many communities stated that their next priority after household water connections was to get electricity for the village.

WASH has found that water projects help facilitate the acceptance of other health programs, such as immunization and oral rehydration therapy, which introduce concepts not easily understood by less educated groups.

The third category of social benefits is the general improvement in the village environment. This may slow migration to the cities, particularly among the younger men, but bestows its greatest advantages on the women and children. Generally, communities show renewed pride in their villages when they can point to successful WS&S projects.

In Togo, communities were reminded that the water system was only the first step in the development process and that they should be ready to address other perceived problems later. Unfortunately, the project fell short of funds to support them, underscoring the fact that capital is always a bigger limitation to development than the unwillingness of communities to help themselves.

4.3 Economic Benefits

The economic impact of a project is closely related to its social impacts. Many larger projects have an immediate effect in the employment of personnel, such as drill rig hands, truck drivers, masons, plumbers, accountants, and secretaries. In Burkina Faso, 342 people on a USAID WS&S project had jobs for six years. The purchase of cement, fuel, hand tools, stationery, and office supplies brings a major influx of funds, and service industries such as auto repair also benefit.

After project completion, maintenance provides opportunities for the supply of pump spare parts and plumbing fixtures and the services of local repairmen. In a few countries, of which India is the most prominent example, water projects have spawned new industries for the manufacture of hand pumps. In Kenya, some plastics manufacturers have retooled to make specialized parts for hand pumps.

4.4 Status of Women

Any WS&S project in countries where women are the principal purveyors of water will inevitably have an impact on their lives. The most obvious benefit is the time saved in reaching a more convenient water source, a benefit that is easily measured and documented. A more convenient source may sometimes lead women to make additional trips to collect greater quantities of water and thus not change appreciably the net time expended. But generally there will be more time to devote to such tasks as child care and food preparation.

Many projects have stressed the importance of increased participation by women in all project activities, particularly the planning phase. Since women have the most to gain, they should be included in the decision-making process to maximize their interests. Some projects have even set quotas on the number of women that must serve on water committees. In Sri Lanka, women have been trained to serve as pump mechanics.

The extent of women's participation will vary among societies, but it is unlikely that traditional roles will change dramatically within the span of a single project. However, evaluators should be sensitive to any modification in the status of women, of which there will often be subtle evidence.

4.5 Institution Building

A key question for evaluators is the extent to which the systems, structures, and personnel patterns established by the project will continue after support is withdrawn. In other words, has institution building been effective? In many ways this is perhaps the single most important impact, since it determines the long-term sustainability of the project. True development cannot occur without substantial institution building.

Institution building in most cases begins with what exists. Typically, project resources will be devoted to training the personnel of agencies directly involved in the project and perhaps upgrading their equipment inventory. Indirectly, government agencies that participate only peripherally will learn by observing the approaches adopted. In both cases evaluators should determine whether institution building was emphasized in the project and whether the performance of the institutions involved improved.

In some cases new institutions will be created by a major reorganization of agency structures. For example, in Zaire, USAID helped to create a water agency responsible for the development of all rural water supplies. In several projects elsewhere, to improve coordination between ministries and agencies, interministerial committees have been created with authority to order the support of individual agencies.

Institution building in its broadest sense should also consider village water committees. As with government institutions, some will already exist and others will have to be created. In either case community participation will greatly influence them. Those responsible for O&M, particularly for pumps, have a critical role in determining the long-term benefits of the project, and their establishment as an institution should be carefully evaluated.

The private sector should also be considered under institution building. Many projects depend on an effective private sector for specific services and may endeavor to assist it. Often this will be done through increased contracting opportunities, which provide business and foster the growth of experience. This was the case of USAID WS&S projects in Lesotho and Botswana. In other cases specific training for private individuals is provided as, for example, in Benin, where regional repairmen were franchised and taught pump repair.

4.6 Environmental Impact

Environmental impacts should be considered from both positive and negative perspectives. Positive impacts have been discussed in previous sections under improved sanitation and overall village cleanliness. But WS&S projects also have several potentially detrimental environmental impacts. These include:

- Pumping at rates above the sustainable yield of the aquifer
- Pollution of the aquifer from drainage or wastewater disposal including latrines
- Concentrations of people and animals which cause deforestation or overgrazing beyond the regenerative capacity of the natural vegetation

Sustainable yield is a pumping rate which does not exceed the aquifer recharge, a function primarily of annual rainfall and the geological characteristics of the aquifer. There is little concern when hand pumps are used in scattered rural locations. However, when motorized pumps are used, or wells are concentrated in a periurban area, evaluators should confirm that the principle of sustained yield is being observed.

Pollution of aquifers generally occurs when wells are improperly constructed and drainage water from the well itself or nearby latrines enters the aquifer. Sealing of wells according to acceptable standards of well construction and locating latrines at a safe distance from water sources should prevent pollution. Evaluators should check water quality samples for bacteriological and nitrate pollution. Periurban zones with concentrations of latrines and open wells are particularly susceptible to pollution. Increasingly, pollution of water sources from garbage disposal sites is a concern, particularly if there are industrial wastes mixed in the garbage. If industrial wastes are involved, then checks for heavy metals should be made. WHO guidelines for water quality (referenced in appendix) could be used as a checklist.

Water development in rural areas often attracts stockraisers and provides the possibility of overgrazing if natural water sources are in short supply. Also, concentrations of people who settle in towns or urban fringe areas because of improved water supplies and other amenities, and who rely on firewood for energy, can put great pressure on forest resources. The removal of vegetative resources from around water development sites is a major problem leading to desertification for many towns in semi-arid areas of Africa, Asia, and the Middle East.

5

LESSONS LEARNED

"Lessons learned" is a compendium of the project's unique contributions to the body of knowledge about water, sanitation, and health. The lessons are meant to provide guidance for future projects within the country and elsewhere and should offer insights that are new. Lessons learned may be seen as advice for development professionals about planning and implementation strategies.

Lessons learned are meant to go beyond the conclusions and recommendations for the specific project being evaluated. Those conclusions and recommendations are meant for existing conditions. Lessons learned, in contrast, are meant for the future. They are meant to assist future projects to benefit from the experience gained through the present one. They may draw on some recommendations unique to the present project, but should also consider how the project might have been shaped if specific changes had been made.

In some cases, there may be few or no lessons to be learned. Evaluators should not stretch the findings by presenting vague generalizations. But subject areas that could yield fruitful ideas are the relevance of project concept, sustainability, and replicability.

5.1 Relevance of Project Concept

The project concept, as developed in the project paper, begins with a description of physical, socioeconomic, and institutional conditions within the target area and proposes a strategy to address these conditions. Goals, objectives, and the means to attain the objectives are stated in detail to provide a rationale and approach to guide project activities. For a variety of reasons projects sometimes fall short of their goals. Limited knowledge at the beginning of the project might preclude an adequate understanding of WS&S problems and their solutions. Host country institutions with different agendas from those originally perceived might not be prepared to cooperate. Dynamic social and economic forces in many parts of the world might generate rapid changes that no one could have foreseen during the project design stage.

All of these possible circumstances raise questions about the relevance of the project concept. For example, several recent WS&S projects have combined the objectives of water supply with latrine construction. Water development has proven popular with the rural beneficiaries but latrines much less so. Clearly, the project concept was faulty for assuming that both

components would be equally acceptable. In Togo, the original objective of 10,000 latrines was later reduced to a pilot program of 500 latrines.

Another common error in developing project concepts is assuming the willingness and/or ability of participants to meet operations and maintenance costs. In some cases, technologies such as motorized pumps have been provided to communities, who were expected to pay fuel and repair bills. Rising fuel costs and expensive spare parts were later found to be beyond the communities' means to pay. Too often such assumptions are proven false towards the end of a project when there are too few resources and too little time to change course. Again the relevance of the project concept is open to question and may serve as a lesson learned, a cautionary reminder that the mistake is not to be repeated.

5.2 Sustainability

Sustainability has been discussed under project effectiveness (Chapter 3). All projects, both good and bad, should teach several lessons which should be summarized in this section.

5.3 Replicability

A key element of the development process is the expectation that a project will have a multiplier effect and set the stage for similar projects in other areas of the country. This effect will come about only if the project establishes institutions capable of duplicating project approaches. Evaluators will need to apply several tests to determine project replicability.

Decisions affecting replicability begin at the design stage when a determination of how the project is to fit into existing institutions is made. In most instances projects are designed to expand or upgrade established institutions. Sometimes temporary institutions or offices are created for project activities with the expectation that they will be closed at the end of the project, as was the case of the USAID project in Burkina Faso. In some instances new institutions are created. The rural water development agency in Zaire is an example. Community water committees are sometimes created through project activities, although in many instances the committees are simply variations of an existing community structure. An initial test of replicability is to ask whether the designers intended project activities to be duplicated.

A second test concerns the training component of the project which should build skills either through on-the-job training, workshops and short courses, or attendance at an accredited school. As the project progresses, the staff should be given increasing levels of responsibility so that they can take full charge near the end.

The last test is to determine whether the institution has the physical and financial resources to carry out new projects. Financial resources often are in short supply. Lack of vehicles and fuel is another problem. In some instances specialized equipment, such as expensive drilling rigs, cannot easily be replaced after their useful life is complete and this precludes further work in well construction.

6

SUMMARY

The summary chapter is straightforward and includes a complete but concise account of conclusions and recommendations. All conclusions should be developed and supported through the findings and analysis presented in preceding chapters. This chapter will consolidate each conclusion in a sentence or short paragraph which is numbered for easy reference. The summary should be divided into three sections: conclusions on project design; conclusions on project implementation; and recommendations.

6.1 Conclusions on Project Design

The project design obviously determines the goals and objectives and the approaches taken to reach them. While there is sometimes room for modification after the project has begun, most of the fundamental decisions are made during the design stage and must be implemented as directed. The evaluators must judge whether, in retrospect, the designers made the best decisions. If a midterm evaluation is being conducted and fundamental changes are warranted, a project amendment may be recommended. If an end-of-project evaluation is being undertaken, the conclusions will be valuable for succeeding projects.

6.2 Conclusions on Project Implementation

Conclusions regarding project implementation are to be summarized on the basis of findings presented in the section on implementation (Chapter 2, p. 24). They should address the efficiency and effectiveness of the approaches taken by project management in achieving objectives. All key questions in the evaluation scope of work should be answered and any important observations by the evaluation team should be added.

6.3 Recommendations

As a general rule, each conclusion should be followed by a recommendation. If the conclusion is positive, the recommendation may simply support it and suggest continuation of the present approach. A negative conclusion would be followed by a recommendation to modify, substitute, or stop a particular activity.

Recommendations should always indicate who, or what organization, is to carry out the specific actions and when. Evaluators should be as specific as possible, although it is recognized that, for diplomatic reasons, some recommendations are best stated in general terms. It is also advisable to discuss recommendations beforehand with whoever is expected to carry them out to be sure that there are no misunderstandings or insurmountable barriers that would preclude or limit their completion.

APPENDICES

A

QUESTIONNAIRES FOR FIELD EVALUATIONS

A-1. Health–Interview with Health Extension Agent

A-2. Health–Interview with Village Health Committee Members

A-3. Water Supply–Interview with Village Health Committee Members

A-4. Health–Interviews with Randomly Selected Villagers (men and women)

A-5. Water Supply–Interviews with Randomly Selected Villagers (men and women)

A-6. Health–Observations Regarding Sanitary Water Use

A-7. Water Supply–Interview with Pump Caretaker

A-8. Sanitation–Observations Regarding Use and Construction

NOTE: The questionnaires in this appendix were designed to collect information for a rural water and sanitation project with components of health education, community participation, and latrine construction. They require approximately two to three hours to be completed by a team of two people, and therefore, when travel time is included, only two villages per day can normally be covered. The forms allow rapid compilation of results and could be used for computer analysis. The questions should be modified, deleted, or expanded to fit specific situations. The answers in particular will require changes to cover the approximate range of possible responses.

A-1. HEALTH— Interview with Health Extension Agent

1. How many villages are you responsible for?

   a. 1 - 5
   b. 5 - 10
   c. 15 - 20
   d. more than 20

2. How frequently are you supposed to visit the villages?

   a. Every week
   b. Twice a month
   c. Once a month
   d. Less than once a month

3. In reality, how often do you manage to visit them?

   a. Every week
   b. Twice a month
   c. Once a month
   d. Less than once a month

4. Do you have a means of transportation (mobylette)?

   a. Yes
   b. No

5. Does it allow you to visit all villages when you want to?

   a. Yes
   b. No

6. If not, why not?

   a. Lack of fuel
   b. Frequent breakdown
   c. Poor state of the roads
   d. Other

7. According to you, what are your most important tasks?

   a. Curative medical advice
   b. Preventive health education
   c. Providing chloroquine and other medicines
   d. "Animation"
   e. Pump maintenance
   f. Don't know

8. What do you think the villagers appreciate the most about your work?

   a. "Animation"
   b. Curative medical advice
   c. Providing chloroquine
   d. Preventive health education
   e. Don't know

9. How do you see your relationship with the village health committee?

   a. Supervision of activities
   b. Provide them with advice
   c. Check the health fund(s)
   d. Other

10. Did you participate in training the village health committee?

   a. Yes
   b. No

11. If yes, how?

   a. Conducted training in "Animation"
   b. Conducted training in accounting
   c. Conducted training in hygiene education
   d. Conducted training in other

12. Have you noticed any changes in the villages since you began health education or water and sanitation?

   a. Yes
   b. No

13. Could you tell me ways that diseases are transmitted?

    a. Dirty (contaminated) water
    b. Germs/bacteria
    c. Dust
    d. Insects
    e. Don't know
    f. Other

14. Could you tell me ways to prevent diarrhea?

    a. By drinking clean water from the well/pump
    b. Other

15. Please explain how you can make oral rehydration solution?

    a. Correct
    b. Wrong
    c. Don't know

16. Do you have visual aids to facilitate health education in the village?

    a. Yes
    b. No

17. Ask the health extension agent to pretend that you are a member of the village and to convince you not to throw garbage everywhere in the village.

    a. Acceptable
    b. Unacceptable

A-2. HEALTH— Interview with Village Health Committee Members

1. What are the tasks of the health extension agent?

   a. "Animation"
   b. Health education
   c. Demonstrations
   d. Curative services
   e. Sanitation
   f. Don't know

2. During the past year, how have the committee members helped the extension agent in his/her work?

   a. "Animation"
   b. Community organization/participation
   c. Maintenance of well/latrines
   d. Health education
   e. Management of the health fund

3. Do you know how people get sick?

   a. Dirty (contaminated) water
   b. Dirty hands
   c. Spoiled food
   d. Insects
   e. Don't know
   f. Dirty environment

4. Can you tell me some ways to prevent diarrhea?

   a. By drinking clean well or pumpwater
   b. By drinking boiled or filtered water
   c. By drinking river or lake water
   d. Good sanitation
   e. Personal hygiene
   f. Don't know
   g. Other

5. How did the villagers contribute to well construction?

a. Labor
b. Local materials
c. Cash
d. Housing and food
e. No contribution

6. What is the name of the well caretaker?

_____ Correct
Incorrect

7. What are his responsibilities?

a. Daily checking of well/pump use
b. Greasing
c. Sanitary protection and maintenance
d. Inform the committee in case of breakdown
e. Call the repairman in case of breakdown
f. Buy/get spare parts

8. How many latrines have been built in the village since the creation of the committee?

a. None
b. 1 - 5
c. 6 - 10
d. More than 10

9. Why haven't more villagers constructed a latrine? (assumes latrine construction is below expectations)

a. Lack of technical know-how
b. Lack of interest
c. Insufficient willingness to spend money on it
d. High cost
e. Don't know
f. Other
g. Lack of materials

10. How frequently does the health extension agent visit your village?

a. At least twice a month
b. Once or twice a month
c. Less than once a month

11. What does he/she do with the committee during visits?
a. Training
b. Educational meeting
c. Supervision
d. Inspects the well/pump
e. Inspects latrines
f. Checks the health fund

12. Observation: Ask a committee member to convince you to build a latrine.

a. Acceptable
b. Unacceptable

A-3. WATER SUPPLY— Interview with Village Health Committee Members

1. Do you have a special fund for the O&M of your pump/well?

   a. Yes
   b. No

   If yes, was the fund created before or after the installation of the pump/well?

   a. Before
   b. After

2. How have you financed this O&M fund?

   a. Equal contributions by villagers
   b. Profit of collectively owned fields
   c. Other

3. For which purpose have you used the money from the fund?

   a. Buy spare parts
   b. Pay labor
   c. Pay the repairman
   d. No expenses incurred yet

4. Do you have a ledger/notebook for recording expenses?

   a. Yes
   b. No

   Are the notebook entries up to date?

   a. Yes
   b. No

5. Who decides what the fund is used for?

a. The committee members
b. The committee chairman
c. The health extension agent
d. The committee treasurer
e. Other

6. How much money do you presently have in your O&M fund?

a. Nothing
b. Less than $100
c. $100 - 200
d. $200 - 300
e. More than $300

7. Who keeps the money?

a. Treasurer
b. Bank account
c. Other

A-4. HEALTH— Interviews with Randomly Selected Villagers (men and women)

1. Can you tell me how people get sick?

   a. Dirty (contaminated) water
   b. Dirty hands
   c. Spoiled food
   d. Insects
   e. Don't know
   f. Other

2. Can you tell me ways to prevent diarrhea?

   a. By drinking clean well or pumpwater
   b. By drinking filtered water
   c. By drinking river or lake water
   d. Don't know
   e. Other

3. If you are sick, to whom in the village do you go?

   a. Traditional healer
   b. The health extension agent
   c. The village midwife
   d. The nurse

4. What is the name of the health extension agent?

   _____ Correct
   Incorrect

5. What kind of work does the health extension agent do?

   a. Provides curative services
   b. Health education
   c. Sanitation
   d. Latrine construction
   e. Don't know

6. Have you constructed a latrine at your home?

a. Yes
b. No

7. If not, why not?

a. Too expensive
b. Don't need it
c. Don't know how to make it
d. Other reasons

8. Have you participated in the construction of the new well?

a. Yes
b. No

9. Is there a village health committee in the village?

a. Yes
b. No
c. Not stated

10. If yes, what are its tasks?

a. Pump repair
b. "Animation"/community organization
c. Manage the health fund
d. Provide hygiene education
e. Choose the well caretaker
f. Buy spare parts
g. Don't know

11. Since the installation of the new well in the village, resulting in an increase in water availability, do you think your health has improved?

a. Yes
b. No
c. Don't know

A-5 WATER SUPPLY— Interviews with Randomly Selected Villagers (men and women)

1. Before the construction of the new well, where did you collect water?

   During the rainy season:

   a. Stream
   b. Well
   c. Pond
   d. Roof catchment and cistern
   e. Spring

   During the dry season:

   a. Stream
   b. Well
   c. Pond
   d. Spring
   e. Other

2. Before the construction of the new well, how much time did you require to collect water needed for one day?

   a. Less than one half-hour
   b. One-half to one hour
   c. One to two hours
   d. Two to three hours
   e. More than three hours

3. How much water did you use per person per day? (Interviewer must ask to see containers and estimate volume of containers and also ask the number of people served.)

   a. Less than 5 liters
   b. 5 - 10 liters
   c. 10 - 15 liters
   d. 15 - 20 liters
   e. More than 20 liters

4. After the construction of the new well/pump, where do you collect water?

a. From the new well/pump only
b. Well and stream
c. Well and pond
d. Stream or pond only
e. Other

5. After the construction of the new well/pump, how much water do you use per person per day? (Interviewer must ask to see containers and estimate volume of containers and also ask the number of people served.)

a. Less than 5 liters
b. 5 - 10 liters
c. 10 - 15 liters
d. 15 - 20 liters
e. More than 20 liters

6. Does the new well provide sufficient water for your needs in all seasons?

a. Yes
b. No

7. Does the water taste good?

a. Yes
b. No

8. Since the installation of the pump, has it broken down?

a. Yes
b. No

9. If yes, how many times?

a. 1
b. 2
c. 3
d. 4 or more

10. Who repaired the pump the last time?

a. Someone from the project
b. Pump caretaker
c. Regional repairman
d. Government agency
e. Don't know
f. Other

11. How long did it take to repair it?

a. Less than one week
b. Less than one month
c. More than one month

A-6. HEALTH— Observations Regarding Sanitary Water Use

1. Observation (all wells)

   Are the receptacles in which the women collect water clean at the time of collection? Do the women rinse them before filling?

   a. All the receptacles are clean
   b. Most of the receptacles are clean
   c. None of the receptacles are clean

2. Observation (large diameter open well only)

   Is there a place near the well where the drawing receptacle can be kept clean?

   a. Yes
   b. No

3. Observation (all wells)

   Is the area around the well clean and well-maintained (proper drainage, no stagnant water, etc.)?

   a. Yes
   b. No

4. Observation (in private yards/houses)

   Ask several villagers to show you where they store their water. Inspect the storage arrangement and determine its cleanness.

   a. Clean
   b. Dirty, prone to contamination

5. Observation (private yard/house)

Ask for a drink of water. Determine if the way people draw water from the storage container could contaminate it.

a. Yes, prone to contamination
b. No

A-7. WATER SUPPLY– Interview with Pump Caretaker

1. As well/pump caretaker, what are your responsibilities?

   a. Daily checking of the well/pump
   b. Get/buy spare parts
   c. Sanitary protection measures
   d. Advise the repairman in case of breakdown
   e. Advise the health extension agent in case of breakdown
   f. Periodic greasing
   g. Other

2. Have you received any kind of training to become caretaker?

   a. Yes
   b. No

3. Did you receive any tools or supplies?

   a. Yes
   b. No

4. Can I see your tools and supplies?

5. What means of transportation do you have to get spare parts and/or call the artisan?

   a. On foot
   b. Bicycle
   c. Mobylette
   d. Other

6. According to you, why does the well not cover your needs?

   a. Too many people use the well
   b. The flow of the well is insufficient
   c. Too far from my home
   d. The animals also need to be watered
   e. Other

7. If the well does not provide sufficient water for your needs, how many additional wells are required?

a. 1
b. 2
c. More than 2

8. What contributions could the village make in that case?

a. Financial support
b. In kind (labor, local materials)

9. According to you who is responsible for repairing the pump when it breaks down?

a. The pump caretaker
b. The village health committee
c. The government agency
d. The regional repairmen
e. The government extension worker
f. Don't know
g. Other

A-8. SANITATION— Observations Regarding Use and Construction

1. What is the state of cleanliness of latrines?

   a. Very clean
   b. Clean
   c. Dirty

2. How much are latrines used?

   a. Used a lot
   b. Used some
   c. Not used

3. Are latrines constructed according to design?

   a. Yes
   b. No

4. Which design was used for latrines?

   a. Modern VIP
   b. Modern concrete slab
   c. Traditional

5. Is garbage disposed of correctly?

   a. Yes
   b. No

6. Are pools of waste water from houses present?

   a. Yes
   b. No

B

TENTATIVE SCHEDULE FOR FOUR-WEEK EVALUATION

PREDEPARTURE WEEK

Day	Task	Notes
Th	Team planning meetings	
F	Team planning meetings	
S	Travel	

WEEK 1

Day	Task	Notes
M	Initial meetings	• Meet USAID project officer, project manager and other clients • Review list of entry questions • Establish list of people and organizations to visit • Set up appointments
T	Continue meetings	• Meet representatives of other participating organizations • Review documents
W	Same	
Th	Same	
F	Visit nearby project sites	• Field test questionnaire
S	Arrange logistics for field travel	• Revise questionnaire

WEEK 2

Day	Task	Notes
M	Travel to field sites	
T	Visit Sites 1 and 2	• Conduct questionnaire at sites
W	Visit Sites 3 and 4	
Th	Visit Sites 5 and 6	
F	Visit Sites 7 and 8	
S	Visit Sites 9 and 10	

WEEK 3

Day	Task	Notes
M	Return to project headquarters	
T	Review findings with project staff	• Tabulate results of staff questionnaire • Complete needed appointments
W	Write draft report	
Th	Same	
F	Same	
S	Same	

WEEK 4

Day	Task	Notes
M	Revise draft report	
T	Finalize draft report	
W	Present rough draft report to USAID	• Present report to other clients as well • Prepare for briefing
Th	Briefing with USAID	• Briefing with USAID, and maybe other clients
F	Revise report and print draft copy for Mission	• Revisions based on comments received at briefing
S	Depart	

C

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THE WASH PROJECT

With the launching of the United Nations International Drinking Water Supply and Sanitation Decade in 1979, the United States Agency for International Development (A.I.D.) decided to augment and streamline its technical assistance capability in water and sanitation and, in 1980, funded the Water and Sanitation for Health Project (WASH). The funding mechanism was a multi-year, multi-million dollar contract, secured through competitive bidding. The first WASH contract was awarded to a consortium of organizations headed by Camp Dresser & McKee International Inc. (CDM), an international consulting firm specializing in environmental engineering services. Through two other bid proceedings since then, CDM has continued as the prime contractor.

Working under the close direction of A.I.D.'s Bureau for Science and Technology, Office of Health, the WASH Project provides technical assistance to A.I.D. missions or bureaus, other U.S. agencies (such as the Peace Corps), host governments, and non-governmental organizations to provide a wide range of technical assistance that includes the design, implementation, and evaluation of water and sanitation projects, to troubleshoot on-going projects, and to assist in disaster relief operations. WASH technical assistance is multi-disciplinary, drawing on experts in public health, training, financing, epidemiology, anthropology, management, engineering, community organization, environmental protection, and other subspecialties.

The WASH Information Center serves as a clearinghouse in water and sanitation, providing networking on guinea worm disease, rainwater harvesting, and peri-urban issues as well as technical information backstopping for most WASH assignments.

The WASH Project issues about thirty or forty reports a year. WASH *Field Reports* relate to specific assignments in specific countries; they articulate the findings of the consultancy. The more widely applicable *Technical Reports* consist of guidelines or "how-to" manuals on topics such as pump selection, detailed training workshop designs, and state-of-the-art information on finance, community organization, and many other topics of vital interest to the water and sanitation sector. In addition, WASH occasionally publishes special reports to synthesize the lessons it has learned from its wide field experience.

For more information about the WASH Project or to request a WASH report, contact the WASH Operations Center at the above address.