WTP207

Participatory Evaluation

Tools for Managing Change in Water and Sanitation

Deepa Narayan

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Participatory Evaluation

Tools for Managing Change in Water and Sanitation

Deepa Narayan

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Abstract

There is now widespread recognition that participatory development—involving users and communities in all stages of the development process—is critical for achieving sustained benefits. By responding to felt needs, and by involving stakeholders intimately in all aspects of a program, participatory development creates "ownership," accountability, and a willingness on the part of users to manage and invest in services.

By broadening and opening up the development process, participatory development requires new approaches to planning and poses new challenges. At the policy level, participatory development requires major institutional reorientation on the part of governments to ensure responsiveness to local demand and to empower communities to act. At the program level, detailed blueprints cannot be drawn up at the outset since decisions are made jointly with communities. Problem-solving is based on partnership, not the quest for the one right answer. Since the process gives people and communities more choice, it is more open-ended.

Participatory management requires a more fluid and evolving planning process. One of the greatest challenges is to build into this process a mechanism that allows for learning, correction, and adjustment. To do this requires a clear set of objectives and indicators of success which promote accountability and participation, and which can be monitored and evaluated. The key questions managers must face are what should be monitored and evaluated and what processes should be utilized.

This document provides policymakers, managers, and planning and evaluation staff with ideas about participatory processes and indicators that can be used to involve community members and others in program evaluation. Drawing upon experience gained during the past fifteen years in more than twenty countries, the volume is structured around a framework of key indicators that can be measured to determine progress toward the objectives of sustainability, effective use, and replicability in water and sanitation programs. The methodology is relevant to other sectors, as well.

Acknowledgements

This document has had a long period of gestation. Hence, I would like to thank a number of individuals and agencies who enabled me over the course of nearly fifteen years to experiment with new methods of relating to people in poor communities to try to understand their worldview, needs, desires and aspirations.

The list of women and men who have played major roles at different times in the development of this manuscript is long. In the past three years alone, more than sixty people have reviewed various drafts. I would particularly like to acknowledge the following:

Siri Melchior-Tellier, Gunnar Schultzberg, John Blaxall, Ron Sawyer, Lyra Srinivasan, John Briscoe, Paul Boyd, Frank Hartvelt, Robert Chambers, Sam Theko, Keiso Matashane, Jim Chauvin, Mike Sacks, Aminata Traore, David Kinley, Robert Pini, and Jake Pfohl. Special thanks go to Ted Howard for his editorial and design assistance, and to Joyce Petruzzelli for design and Jennifer Sterling for page composition. I would also like to acknowledge the contributions of participants from various workshops, including those held in Kupang, Indonesia; Kibwezi, Kenya; Geneva, Switzerland; and Bamako, Mali.

Material designated in the text as a "Field Insight" is based on the experience of PROWWESS and the UNDP-World Bank Water and Sanitation Program, unless otherwise attributed.

Foreword

International development is undergoing a profound transformation in response to tough new realities in the developing world. At the same time, new windows of opportunity are opening for measurably improving life on our planet. After decades of concerted effort and experience on many fronts, a more holistic vision is emerging, one that places primacy on those actions, projects and programs that promote sustainable development and strike at the roots of poverty.

In many parts of the world, people do not have the means to fulfill their most basic needs—pure water, clean air, and fertile soil. Within the water and sanitation sector, the problem is acute. As many as 1 billion people lack access to safe water; 1.7 billion people live with inadequate sanitation. Improving access requires action that empowers the poor, especially women. Hard-won experience demonstrates that results and effectiveness are greatly enhanced when poor people have the opportunity to participate directly in their own development.

Tapping into the ingenuity and creativity of the poor, and enabling them to express their own hopes for their families and their communities, is a challenge requiring new ways of thinking and acting on the part of development practitioners. As this volume makes clear, investing in the capacity of the poor to serve as key actors in solving their own problems can unleash significant new energies for the development effort. In the end, the active participation of people and communities is essential to achieving sustainable development.

A mounting body of evidence from around the globe is demonstrating the validity of involving communities and service users at all levels in the development process—including planning, management, monitoring and evaluation, and data collection. Within the literature on this pioneering field, however, there is still a pressing need for materials that provide practical guidance to both policymakers and practitioners on how to facilitate meaningful participation. I am therefore pleased to introduce this volume on participatory evaluation by Deepa Narayan.

Its antecedents are in a UNDP project for the promotion of women in water and environmental sanitation services (PROWWESS), which in 1991 was merged into the joint UNDP-World Bank Water and Sanitation Program managed by ESD/TWU. Before the merger, PROWWESS published "Tools for Participation," by Lyra Srinivasan, to which the current volume is a companion piece. Three follow-up volumes on participatory development practices are also planned.

This work is an important component of the Bank's larger vision of turning development into a process that enables the weak and marginalized to become the guardians of their own welfare, not the beneficiaries of aid or the recipients of charity.

Ismail Serageldin
Vice President
Environmentally Sustainable Development

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Author's Note

This volume represents the lessons learned in fifteen years of work in participatory development. It is based not only on my own experiences, but on the shared experiences of hundreds of my colleagues.

I began this exploration as a social scientist keenly aware of the limitations of conventional social science research, questionnaires and long anthropological stays in rural communities. My premise was that the people who are supposed to gain from our development efforts are themselves a rich resource and that development will work to the extent that it widens their choices and enriches their skills, capacities and confidence. Wherever I worked, I attempted to involve the community—the young, the old, women, children and men—in development activities, including in the evaluation process. As I did so, I also sought tools that could more quickly provide project managers with the research results that they needed for decisionmaking.

Struggling to find new ways of doing things, I initially had no term to describe these activities. Today, there are many ways to characterize these new tools and this new approach to participatory development—participatory evaluation and research, beneficiary assessment, action research, participatory rapid appraisal, to name a few. During these years of trial and error and hard-won experience, we have discovered some fundamental principles to guide us in this work. These include the value of open-ended and multiple methods and approaches, the importance of placing tools in the hands of local people, the usefulness of going beyond what we are able to plan in the office, and the need for patience, listening and trust in the process.

Over the years, there have been dramatic changes in the way development projects are planned. Participatory *planning* is now widely recognized as more likely to lead to designs and strategies that work in the particular setting for which they were intended. However participatory *data collection for monitoring and evaluation* is not yet an integral part of the development process. When it comes to evaluating projects, there is still a great reluctance to move from classical "objective" methodologies that maintain a distance from the people and activities being evaluated. There is surely a place for the classical approach. But when the goal is to enhance local capacity, it is of limited value to have an evaluation process directed by outsiders and which generates reports which may not be disseminated for months or even years.

My hope is that this document will help to rectify this situation by moving participatory evaluation into the mainstream of development. Specifically, this volume seeks to equip those who are managing community drinking water and sanitation programs

in poor communities with simple, short-cut methods that can be used to foster and encourage participation while working with communities.

While participatory evaluation is of great value in bringing about changes in projects, policies and consensus building, there are also risks to the approach.

First, participatory tools and techniques can be used by managers, social scientists and extension workers as extractive techniques to gather data for their own planning and management, rather than as a way to empower people. Almost no technique is inherently participatory; only through its application does it become so.

A second pitfall occurs when participatory evaluation is relegated only to the community level. In fact, the goal of the technique is to enhance problem-solving abilities at all decisionmaking levels. Many of the tools and methods—role playing, mapping, drawing a vision of community management—have been shown to be effective in evaluating and developing country and regional workplans by senior officials of governments and external support agencies.

Third, there are many proponents of participatory evaluation and many methods. However, without some training and understanding of basic principles, all kinds of techniques can be labeled as "participatory" when they are not. When they fail, the participatory approach itself loses credibility.

Finally, participatory evaluation is not a panacea. Only with the active support of managers who place a great value on gathering and using feedback from users, can participatory evaluation make a significant impact on the environment affecting the delivery of services to the poor.

This book has been written to serve as an aid to policymakers, managers, and planning and evaluation staff in designing monitoring and evaluation activities in the water supply and sanitation sector. One of the great challenges in carrying out a participatory evaluation is to limit the universe of possibilities without foreclosing the unanticipated. To assist in this process, a framework of indicators—key factors that can be observed and measured—has been developed to guide the search. This volume is structured around that framework.

Within its pages are many indicators that can be consulted frequently and measured to evaluate progress. No evaluation, however, should incorporate them all; trying to gather too much information is one of the biggest sources of problems in monitoring and evaluation. Even if none of the specific tools and methods mentioned here are used, this document will have served a useful purpose if it helps to shape and give new dimensions to your next evaluation process.

This publication reflects the substantial body of field experience and record of accomplishment in participatory evaluation that has been gained in the past several years. The work reported in the following pages grew out of field activities in twenty-two countries: Bangladesh, Bolivia, Brazil, Burkina Faso, Ethiopia, Ghana, India, Indonesia, Kenya, Lesotho, Mali, Nepal, Nigeria, Pakistan, Senegal, Sri Lanka, Tanzania, Thailand, Togo, Uganda, Zambia and Zimbabwe. It draws on the SARAR approach developed by Lyra Srinivasan and applied over the years to the water sector. Experiences of other agencies with which we have been in contact are also reported in the text.

In the end, the only way to become both knowledgeable in and comfortable with participatory evaluation is by actually doing it. There is no formula, nor can there be a blueprint or manual. By definition, participatory evaluation is a dynamic field. Your own involvement will shape its course, and in that regard, I invite you to share your experiences, visuals and materials with us so that we may disseminate examples from the field to a wider group of practitioners around the globe.

Participatory evaluation is at an exciting stage of development—changing, evolving, and constantly inventing itself. I wish each of you inventiveness and success!

Deepa Narayan
PROWWESS Coordinator
UNDP-World Bank Water and Sanitation Program

Indicators of Progress in Water and Sanitation Programs

SUSTAINABILITY

S.1 **Reliability of systems**
S.1.a Quality of water at source
S.1.b Number of facilities in working order
S.1.c Maintenance

S.2 **Human capacity development**
S.2.a Management abilities
S.2.b Knowledge and skills
S.2.c Confidence/self-concept

S.3 **Local institutional capacity**
S.3.a Autonomy
S.3.b Supportive leadership
S.3.c Systems for learning and problem-solving

S.4 **Cost-sharing and unit costs**
S.4.a Community contribution
S.4.b Agency contribution
S.4.c Unit costs

S.5 **Collaboration among organizations**
S.5.a Planning
S.5.b Activities

EFFECTIVE USE

E.1 **Optimal use**
E.1.a Number and characteristics of users
E.1.b Quantity of water used (all purposes)
E.1.c Time taken to use facilities
E.1.d Management of water resources

E.2 **Hygienic use**
E.2.a Water quality at home
E.2.b Water transport and storage practices
E.2.c Home practices to improve water quality
E.2.d Site and home cleanliness
E.2.d Personal hygienic practices

E.3 **Consistent use**
E.3.a Pattern of daily use
E.3.b Pattern of seasonal use

REPLICABILITY

R.1 **Community ability to expand services**
R.1.a Additional water/latrine facilities built
R.1.b Upgraded facilities
R.1.c New development activities initiated

R.2 **Transferability of agency strategies**
R.2.a Proportion and role of specialized personnel
R.2.b Established institutional framework
R.2.c Budget size and sheltering
R.2.d Documented administrative/implementation procedures
R.2.e Other special/unique conditions

1. Introduction

Since the mid-1980s, policy and practice in rural drinking water and sanitation projects have been gradually reoriented. For intensely practical reasons, today's emphasis is on promoting and supporting community involvement in the planning and management of projects.

Why has this happened? Experience has demonstrated that involving users in decisionmaking, goal-setting, design and management increases the chances that water and sanitation facilities will be financed, used fully and looked after properly. The end goal is not to maximize the participation of users, but to optimize participation in order to achieve sustainability through human development. Thus, the intensity of direct user involvement in decisionmaking will vary depending on the circumstances and stage of the project cycle. When stakeholders are intimately involved in all aspects of a project, there is less risk of inappropriate design, significant underuse and long periods of disrepair.

User involvement in decisionmaking—and particularly women's involvement—is therefore increasingly recognized as a means to developing sustainable programs in water and sanitation. Women are the main carriers and managers of water for household use, as well as the custodians of family hygiene. With their intimate knowledge of the community water situation, they can best determine where to place water points. As they suffer most when facilities break down, they have a vested interest in ensuring good maintenance. They provide children with their first health lessons. And they are the ones who decide not to use new facilities if they do not respond to their needs.

Many stages and techniques of project management need rethinking when projects are participatory in nature. Ensuring that people can effectively use and sustain new facilities becomes a central objective, going beyond pure physical construction. Broader indicators of implementation and success are required, and management takes on new social dimensions. A different style of monitoring and evaluation is needed in order to be consistent with, and provide support for, meaningful user participation.

Although making these changes in style and practice can be challenging for managers and decisionmakers, participatory evaluation can unleash valuable new thinking and significant new energy to enrich project design and action. Once community members have direct roles in managing projects, they can become sources, analysts and users of information on the progress and problems of implementation. They can also serve as key actors in problem-solving and in applying lessons learned from their experience.

Participatory development has an impact on monitoring and evaluation in terms of:

- the purpose and uses of the evaluation
- the indicators to be included
- the way the evaluation is organized and carried out
- who conducts the evaluation.

Many development workers interested in supporting participatory evaluation have long felt the need to combine pragmatic tools with clear indicators to enable them to encourage and ensure participation. Hence, this volume focuses on specific indicators and practical ideas of how data collection car be carried out and used for problem-solving and taking act on in a participatory way.

The role of evaluation in community-managed projects

As a management tool to assist in reaching stated objectives, evaluation is a systematic way of learning from experience and drawing from lessons to correct and improve ongoing and future activities.

Traditionally, the implementation of conventional, large-scale water and sewerage projects has depended on detailed b ueprints to provide the basis for control and predictability. In th is context, midterm and final evaluations are typically conducted by external experts to measure the achievement of production goals, quality and quantity of construction completed, and un t costs.

Participatory development broadens the scope of eva uation; this shift in purpose is reflected in project design. Detailed blueprints cannot be drawn up at the outset since decisions are made jointly with communities; problem-solving is based on partnership. Users are actively involved in the development of the evaluation framework, in data collection and assessment, and in the planning of follow-up activities. The evaluation process itself contributes to building local capacity for decisionmaking and community-centered development.

Because no two communities are alike, joint decisionmaking implies a certain element of unpredictability. Since no government agency, external sponsor or nongovernmental organization can tolerate total uncertainty, the challenge for managers then becomes *managing unpredictability* by reducing the unknown to acceptable levels without prematurely imposing inappropriate structures.

This can be done by focusing on options and designing a learning environment based on a two-way information flow between communities and agencies. Continuous evaluation allows for necessary adjustments to fit people's needs within the

framework of established and agreed upon goals. Such an environment ensures that programs can adapt and change to fit local culture, indigenous knowledge systems, organizations and needs.

This type of evaluation becomes an essential tool for management of change, and the data collection-learning-evaluation process becomes an integral part of overall implementation. While external experts may be involved to help facilitate the process, the evaluation itself is best conducted in a partnership between project staff and community people. Thus the term "participatory evaluation."

Because data collected at the beginning of the project cycle lay the basis for later evaluation, establishing the right indicators at the very outset is of central importance. These indicators determine what is monitored and evaluated, thereby ensuring that data collection does not become an end in itself but serves managers with information that is relevant and timely.

This, of course, raises the question of goals and objectives and how to monitor and evaluate progress toward achieving them.

Setting the right goals and objectives

The primary long-term goal of water and sanitation programs is to improve health, productivity and living conditions.

However, measuring a program's impact on health is difficult and expensive on a routine basis. From a manager's viewpoint, for example, long-term health goals are too distant to guide daily operational decisions. Further, experience shows that the absence of a demonstrable health impact does not necessarily mean that water and sanitation projects have failed.

Hence, the search for intermediate objectives or working goals that go beyond installation counts (immediate production outputs) but stop short of trying to assess ultimate health impact. Because of the diversity of groups involved in water and sanitation programs—including interdisciplinary teams from government, NGOs, consulting firms, the private sector, research institutes and external support agencies—identifying intermediate goals acceptable to all is essential.

Development programs in low-cost water supply and sanitation have, almost as a rule, dual objectives. The first relates to the production of facilities—constructing drinking water installations, latrines and so forth. The second objective is concerned with sustainability and capacity building, both for the community and for the implementing agency. For communities, this usually

means being able to manage their own water and sanitation systems, possibly including expansion of the program; this could include subcontracting work to the private sector. For agencies, this could mean an ability to implement and support similar programs in other areas.

In the short run, these objectives may appear to be in conflict. Capacity building requires an initial investment in time and other resources, and often is seen as a factor that delays achieving the more easily managed and measured production objective. Moreover, the performance of those responsible for program implementation is usually measured on the basis of production results achieved.

Given all of these factors, the overriding goal of water and sanitation programs must be stated in a way that incorporates both production and capacity building into a single, inclusive objective. This objective can be stated as:

To achieve sustainable and effective use of water and sanitation facilities through methods that are replicable.

Within this goal, *sustainable* implies a problem-solving capacity, including the capacity to keep the system functioning. *Effective use* implies that practices and attitudes are geared toward optimal, hygienic and consistent use of the facilities. *Replicable* implies that the processes and benefits can be duplicated. These then become the objectives against which water and sanitation programs are monitored and evaluated.

Establishing the right indicators

In any development project or program, clearly defined indicators are essential for accurately and realistically measuring results toward goals and objectives. Within the context of participatory management, the *process* employed to realize these results is also key; capacity building is one of the main requirements for achieving progress.

To support this process, while at the same time providing a framework for participatory evaluation, a series of indicators has been identified to measure conditions related to achieving the objectives of sustainability, effective use and replicability. These indicators have evolved from field experience and have been further tested in differing situations in water and sanitation projects around the world.

The indicators reviewed in this document are organized within a framework of categories. Not all indicators will be applicable in every situation; priorities will be different from place to place, as will the most important indicator of success. Readers are encouraged to use a phased approach and select the minimum number of indicators which are most relevant to their immediate evaluation objectives.
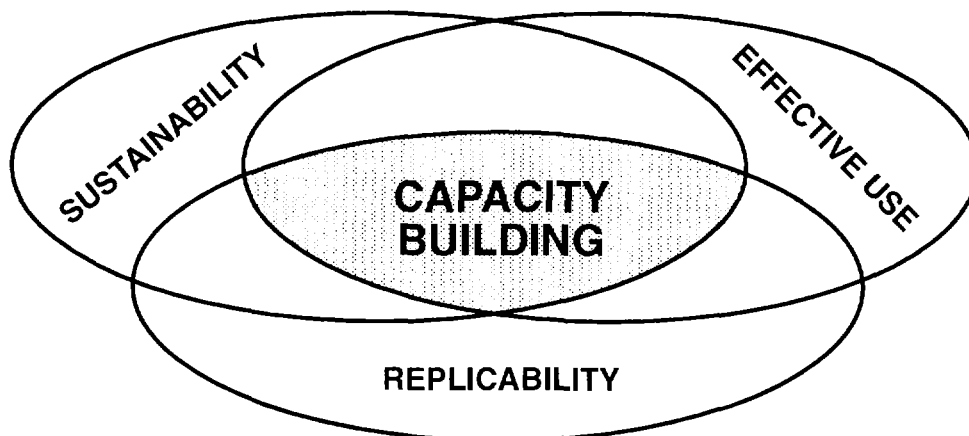
Readers will note that similar methods of data collection are relevant to different indicators. We have deliberately reproduced the methodology wherever relevant to enable the reader to most efficiently use this book in meetings and field situations

The chapters which follow examine in detail many such indicators and how they can be measured. Indicators are not listed as a recommendation favoring their use, but only as elements which, if considered important in a given setting, need to be assessed. For example, boiling water to improve water quality is listed because this practice is fairly widely used; this does not mean to suggest that it should be more widely adopted (with such negative environmental effects as increased firewood consumption, forest depletion and greenhouse gas emissions).

Particularly important is collecting gender-specific data to assess whether project resources and benefits are reaching women.The framework of goals and key indicators that will be used throughout this document is as follows:

SUSTAINABILITY

S.1   Reliability of systems
S.2   Human capacity development
S.3   Local institutional capacity
S.4   Cost-sharing and unit costs
S.5   Collaboration among organizations

EFFECTIVE USE

E.1   Optimal use
E.2   Hygienic use
E.3   Consistent use
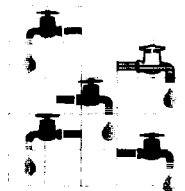
REPLICABILITY

R.1   Community ability to expand services
R.2   Transferability of agency strategies

In the pages that follow, Chapter 2 elaborates on the value of participatory evaluation, and how it differs from traditional evaluation. Chapter 3 provides a complete framework of indicators for measuring progress in water supply and sanitation programs. The full listing of these objectives, key indicators and sub-indicators is found on page 25. Chapters 4, 5 and 6 take up each of the objectives—sustainability, effective use and replicability—providing a basis for selecting in each case:

- Indicators and sub-indicators
- Targets
- Data required
- What to monitor/evaluate
- Methods of data collection

Chapter 7 concludes the book with a discussion of indicators and methods for assessing perceived change in the social, economic, health and environmental conditions of a community. As noted in this chapter and elsewhere in this book, it is important to collect gender specific data to assess whether project resources and benefits are reaching women.

2. What is Participatory Evaluation?

Participatory evaluation is a process of collaborative problem-solving through the generation and use of knowledge. It is a process that leads to corrective action by involving all levels of users in shared decisionmaking.

The most important principle guiding participatory evaluation is the utilization of findings at different levels and in different ways. When stakeholders are involved in the process that leads to the findings, the likelihood increases that they will use the findings to take corrective action.

The partnership approach to problem-solving differs from the usual process of project evaluation. The users became actively involved in the development of the evaluation framework, in data collection and assessment, and in the planning of follow-up activities. As a result, corrective actions can often be taken directly and promptly, and the evaluation process itself contributes to the building of local capacity for decisionmaking and community-centered development. Participatory evaluation is thus crucial when the overall goal of development efforts includes local capacity building.

Fully involving users means reaching out to anyone affected by decisions that are made: local community members; government and community officials; project and program staff. As the primary users of improved water and sanitation services, women are particularly encouraged to play a pivotal role.

Participatory evaluation does not preclude the involvement of external experts, or hiring people for different aspects of data collection. However, the expert plays a facilitating role in partnership with the community or program staff, rather than being the "expert supreme" who decides in isolation how the evaluation will be conducted.

Results from participatory evaluation procedures can usefully feed into conventional evaluation exercises required by most agencies at midterm and upon completion of a project. However, since the essential nature and purpose of the two processes is different, their respective methodologies are distinct and should not be confused. These differences are summarized in the box on page 12.

Characteristics of participatory evaluation

Among the distinguishing characteristics of participatory evaluation are:

- Collaboration
- Problem-solving orientation
- Generating knowledge
- Releasing creativity
- Using multiple methods
- Involving experts as facilitators

Collaboration

The process of building local capacity through collaboration is more important than the methods used or the output. Usually the collaborative process improves the quality of the output and the relevance and interpretation of findings.

Collaborative decisionmaking among all those affected by project decisions includes "beneficiaries" as well as program and project staff. Special efforts are made to ensure meaningful

participation of those traditionally overlooked—women, children, the poor and junior project staff such as extension workers.

Project staff are closely involved with the users in collecting data and responding to requests for technical advice. However, simply asking community people to respond to questionnaires does not qualify as meaningful participation. Similarly, merely including women on household survey teams does not equate to women's involvement or collaboration.

Problem-solving orientation

Participatory evaluation is oriented toward developing an understanding of a problem or situation in a way that can lead to timely action and resolution.

The driving force is not accountability to outsiders, but rather human growth and development at the local level. Community participation taps into the creative potential and knowledge of people and further builds their capacity to direct their own development. Thus, participatory evaluation becomes a process whereby the participants in a development project are empowered to learn and take effective action in solving problems.

Generating knowledge

Participatory evaluation aims to generate knowledge among local people, at the community and at the project level. When users are actively involved in data collection processes, information becomes transformed into knowledge and leads to self-sustained action. Consistent with the goal of capacity building, knowledge generation can be distinguished from information collection in several key ways:

- Information is bound up with reports or machines; knowledge with people
- Information often consists of discrete, unrelated units; knowledge consists of a network of interrelated units comprising a whole system
- Information can be collected easily through multiple choice questionnaires and surveys; systems of knowledge cannot
- Information can be controlled by a few; knowledge resides in all
- Information without context has little value; knowledge involves interpretation and attaching meaning to information.

Releasing creativity

An interviewer arriving in a village with questionnaires in hand knows just how difficult it can be to get people to sit down long enough to give frank answers to questions.

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┌─────────────────────────────────────────────────────────┐
│                  Box 2-1. Differences Between            │
│        Conventional Evaluation and Participatory Evaluation│
│                                                           │
│                                                           │
│  Who    External experts              Community members,  │
│                                        project staff, facilitator │
│                                                           │
│  What   Predetermined indicators of    People identify their own │
│         success, principally cost and  indicators of success, which │
│         production outputs             may include production │
│                                        outputs            │
│                                                           │
│  How    Focus on "scientific objectivity"; Self-evaluation; simple │
│         distancing of evaluators from   methods adapted to local │
│         other participants; uniform,    culture; open, immediate │
│         complex procedures; delayed,    sharing of results through │
│         limited access to results      local involvement in evalua- │
│                                        tion processes     │
│                                                           │
│  When   Usually upon completion;        Merging of monitoring and │
│         sometimes also midterm          evaluation, hence frequent │
│                                        small evaluations  │
│                                                           │
│  Why    Accountability, usually         To empower local people │
│         summative, to determine if      to initiate, control and take │
│         funding continues               corrective action │
└─────────────────────────────────────────────────────────┘
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Participatory methods are creative and fun, and learning in this environment builds self-esteem and confidence essential for initiating action. People become involved in defining and carrying out the work. Through the participatory process, tasks like mapping, drawing and sorting pictures release such energy and enthusiasm that the challenge often becomes bringing the process to a close rather than struggling to keep it going.

Using multiple methods

Participatory methods are eclectic, borrow from many disciplines, and are adapted to meet the specific jobs at hand. If available tools are considered inappropriate, new tools are created.

Validity and reliability are achieved through the use of multiple methods and by including different users and stakeholders in consensus building. Because those affected by a project are included in the decisionmaking, with consensus governing the process, large sample surveys are unnecessary. Since community members have many demands on their time, shortcut simple methods of sampling, data collection, and analysis are preferred.

With emphasis placed on the use to which findings are put, results are disseminated in a variety of ways adapted to user preferences—slides, videos, pictures, stories, role plays, discussion groups, workshops, and written reports of different lengths and different formats.

Involving experts as facilitators

The role of the external expert, if any, is to facilitate shared decisionmaking throughout the entire process of participatory evaluation, including identifying the purpose of the evaluation and selecting methods of data collection and analysis, field implementation, and disseminating and acting upon findings. If experts are involved, their role is to merge specialized expertise with local experience and indigenous knowledge and learning systems.

The task of the facilitator is to share ideas, help people consider options, and let the process be taken over as far as possible by users, community people, and project staff.

In addition to the technical skills they bring, participatory evaluators must also have strong skills in facilitation, as well as humility, respect for others, and the ability to listen. They must also have a strong belief in human potential and a high tolerance for ambiguity. When many people are involved in decisions and tools have to be adapted or developed to fit the local situation, decisionmaking naturally takes longer and is less clear-cut initially than when one person or a small group is in control.

However, because participatory evaluations use simpler, shortcut methods, the overall process is usually quicker than conventional evaluation.

The participatory evaluation cycle

Agencies committed to supporting community self-evaluation processes invariably find that they must adopt similar approaches themselves. More than a technique, participatory evaluation is a framework from which to operate.

Hence, it is important for project agency staff not only to be familiar with the methodology of supporting community involvement in evaluation, but also to utilize similar approaches in their own work at the agency project level.

At the project level, self-evaluation takes place frequently and at any stage in the project cycle. The distinction between monitoring and evaluation then becomes blurred, as information steadily flows through the project, to be analyzed and used to shape plans, and bring about corrective action.

Figure 2-1. The Participatory Evaluation Cycle
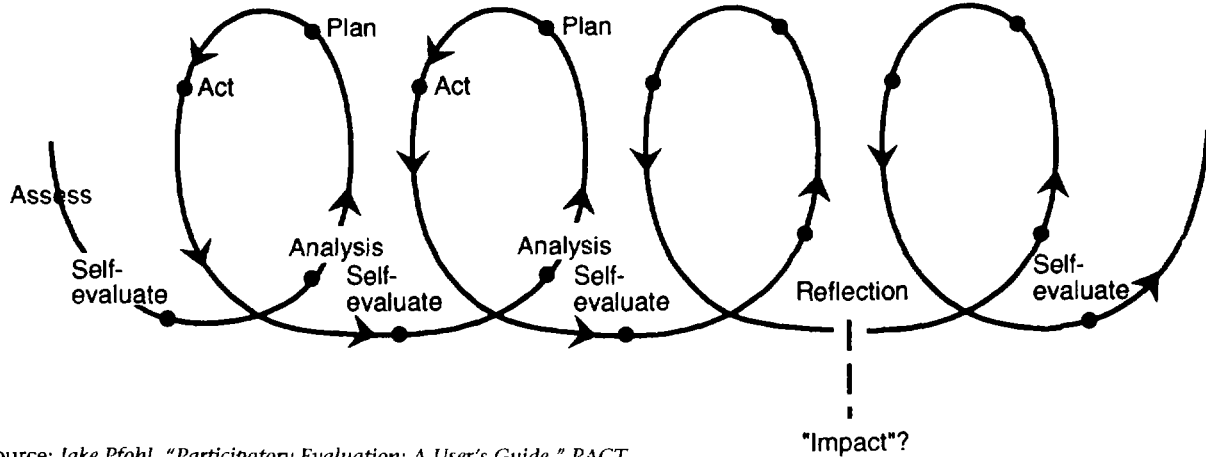
Whether at the community or the project level, the following questions must be answered to create this information flow and conduct an evaluation:

- What are the objectives of the evaluation?
- What are the issues and problem areas that must be addressed, and what information is needed to do so?
- How should the information be collected?
- Who should collect the information, and from whom?
- How will the data be analyzed?
- What does the information mean?
- Given the meaning of the information, what actions are appropriate and who will take them?

Local stakeholders—those who will be affected by a project and must have the capacity to sustain and make it effective—are involved in asking and answering these questions. Local people participate in deciding whether an evaluation should be undertaken, defining the purpose of the evaluation and determining how the information is collected and used in follow-up actions.

Many books and guidelines on conducting evaluations already exist, and such readily available information does not need to be reproduced here. Some examples of workshops that have focused on differing evaluation objectives, and changing *conventional* evaluation to *participatory* evaluation are included in the appendixes. The following guidelines, however, are important to keep in mind when adopting participatory evaluation methods.

Keep your methods simple

While the methods used depend upon the purpose of the evaluation, in general, participatory evaluation calls for simple, shortcut methods throughout the entire evaluation cycle.

Field Insight—Sri Lanka

In a village in Sri Lanka, the village water committee requested the assistance of an external evaluator to determine why the level of community interest in and financial contribution to a water project was so low. Working with the committee, the evaluator developed a very brief questionnaire and then probed in depth one or two issues of particular interest to the committee. Since the community was small, every adult was interviewed.

The data were analyzed and a meeting was held with the village women to discuss the findings. What emerged was a perception among the women that the burdens and benefits from the planned piped water system would be unequal. Specifically, the higher castes and those that were better off were thought to be contributing less and benefiting more because of the proximity of the water to their houses.

Meetings were held with all the stakeholders and solutions negotiated. The layout of the piped system was changed to ensure a more equitable distribution of the network.

For example, use informal sampling methods where possible, and sample from different parts of a settlement: the rich and the poor, the users and the non-users, men and women, and so forth.

Checklists can be extremely useful, especially when developed in collaboration with project staff and community people. These can be used for interviews, group discussions, observations and to direct household surveys.

Make a special effort to include women

Participatory methods are very useful in reaching those who are often excluded in decisionmaking, particularly women. However, unless special efforts are made to involve women and build their confidence, they will usually be bypassed in participatory evaluation activities, as well. Commitment and sensitivity to this issue are essential throughout the evaluation cycle to ensure inclusion of women and improvement in the quality of their lives.

Involve the users in analyzing data

Data analysis techniques that involve users in discussing findings and formulating recommendations and follow-up actions are more effective than meetings in which final reports and recommendations are presented.

Involving community members in activities such as drawing or making a three-dimensional map can become the basis for participatory planning, monitoring change and for data analysis and evaluation.

Supplement brief written reports with alternative methods for disseminating findings, such as community and project staff workshops, photographs, slides, videotapes, open-ended stories, or role plays. All have proven useful in increasing the likelihood of follow-up action.

Don't sacrifice effectiveness for "accuracy"

The purpose of self-evaluation is to enable the users to undertake new or corrective action. The issue of the accuracy and detail of the information collected must be viewed within this context. In most situations, the margin of error or lack of precision that can be tolerated is much higher than that for scientific, academic, rigorous research.

For example, traditional household surveys devote much time and effort to accumulating detailed information on family size, household composition, income and wealth. However, whether household size is 6.7 or 6.1 has little implication for the community in designing water and sanitation systems. The same is true in trying to assess income by rigorously counting chickens and land plot size.

For the purpose of participatory monitoring and evaluation, ranking households into three categories may be all that is needed. Since rural communities usually have intimate knowl-

Where Do You Want This Evaluation?

Source: *"Evaluating AIDS Health Promotion," WHO Report, Issue II.*
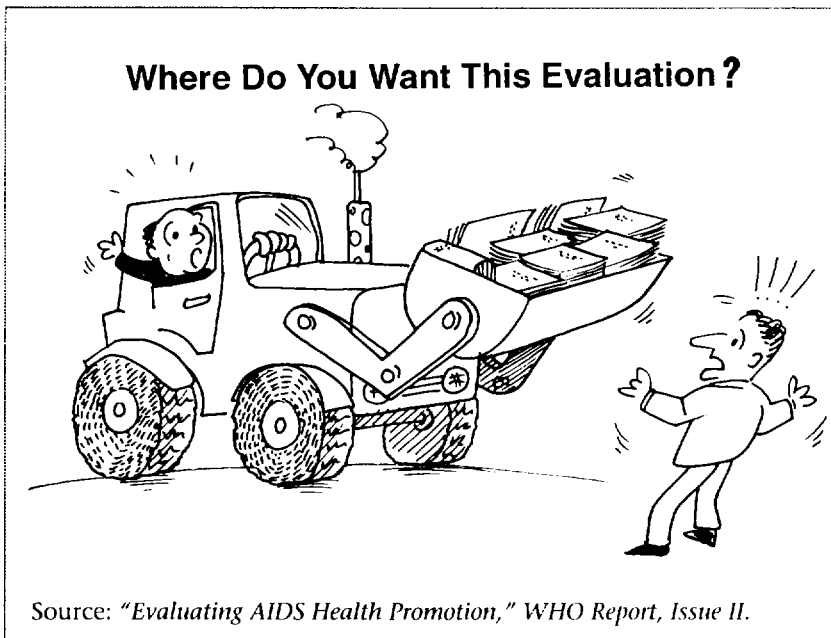
edge about themselves, they can quickly rank families by size, wealth (rich, average, poor), presence of children under five years of age, female-headed households and so on.

On occasion, greater accuracy may be desired, such as when the number of diarrhea episodes is being tracked. Here too, experience indicates that village women, using a calendar and simple drawings, can keep track of the number of diarrhea episodes of their children.

Get only the information you need

The biggest temptation in any evaluation is to try to find out everything at the same time. Resist the temptation, and help other people resist it! The guiding principle should be "optimal ignorance." Generating information that is unnecessary to the purpose of the evaluation is a misuse of time and vital resources. If information needs are varied, use a phased approach; evaluate a few issues in depth and get a general sense of the other issues.

There is no formula

There is no formula for participatory evaluation. The only way to learn is through action. The question to keep always in mind is: "Does this process help users generate information to solve problems they have identified, using methods that increase their capacity to solve similar problems in the future?"

Any tool or technique can be participatory or not depending on how it is used. The key is who makes the decision and who is in control. Project staff and evaluators often find that one of the most difficult challenges in participatory evaluation is giving up total control, or "letting go" of their notion of the right way, the right question, the right wording, the right order, the right answer.

While there are as yet very few documented examples of "pure" participatory evaluation in the water and sanitation sector, there is gradual movement toward participatory applications of conventional techniques, as well as the creation of new tools and techniques that can be put in the hands of local people.

Box 2-2. Start, Stumble, Self-Correct, Share

Participatory Rapid Appraisal (PRA) is one among a family of approaches for reversing centralization, standardization, and top-down development. PRA enables and empowers the poor to do more of their own analysis, to take command of their lives and resources and to improve their well-being as they define it.

The core of good PRA is our own behavior and attitudes. It involves:

- being self-aware and self-critical
- embracing error
- handing over the stick
- sitting, listening and learning
- improvising, inventing, adapting
- using our own best judgment at all times.

So we can ask who lectures, who holds the stick, whose finger wags? Whose knowledge, analysis and priorities count?

Ours? Theirs, as we assume them to be? Or theirs as they freely express them?

Good PRA is empowering, not extractive.

Good PRA makes mistakes, learns from them, and so is self-improving.

Good PRA spreads and improves on its own.

So start. Do not wait. Get on with it. Relax. Try things. Learn by doing. Experiment. Ask: what went well?; what went badly?; what can we learn?; how can we do better?; how can we help others to do better?

PRA is what we make of it. It is a potential, not a panacea. If you do not like it, leave it. No one will mind. It is not for everyone. But if you like it, and use it, share and help others to share. Have a go. Why not?

Source: *Condensed from Robert Chambers, 1992.*

3. A Framework of Indicators

To measure progress achieved in water and sanitation projects, the objectives of sustainability, effective use and replicability need to be spelled out in detail. This is done by (1) identifying the most important elements—the key indicators—within these three objectives and (2) breaking down each of these elements into a number of more detailed, measurable sub-indicators.

For example, measuring progress toward hygienic use involves a sequence extending from water collection sites to the home environment and personal hygiene practices. Within this sequence, indicators for measuring hygiene in the home include the availability of cleansing materials, cleanliness of facilities, waste water disposal, provision for latrine emptying and so on.

In the following chapters, specific key indicators have been formulated and organized into a framework for evaluating progress toward the three overall objectives (see page 25). The remainder of this volume is focused on this framework. Detailed information is given on the target to be achieved for each sub-indicator; the data required in order to determine progress toward the target; what to monitor and evaluate; and suggested methods to use in carrying out participatory evaluation.

As a tool to organize thinking, this framework is broad enough to incorporate most indicators of concern at the community and project/program levels. It can also incorporate unexpected outcomes as well as negative outcomes. At the same time, it is focused enough to limit the search to crucial and relevant information. Development and sector personnel at different levels around the world have tested it in the field and against many other documented studies. A phased approach to using the indicators is encouraged based upon need. Through further field experience, no doubt the framework itself will continue to evolve.

From the global experience already gained through field use of the evaluation framework, certain patterns have emerged:

1. **The objectives of sustainability, effective use and replicability have wide relevance.**
    The specific indicators of each vary according to context. For example, full cost recovery may be important in one setting, while in another the presence of private sector mechanics or a two-tier maintenance system may be central to sustainability. When project objectives are clearly stated and highly specific, indicators can be developed to track the achievement of objectives.

2. **Different communities will find different indicators of greatest importance.**
    In one it may be reduction of guinea worm; in another it may be increased reliability; in a third, shorter walking distances to water sources and defecation facilities.

3. **In the same community or project, the relative importance of different indicators will vary over time.**
    In the early phases of a project in one community, people were most concerned about the total number of water sources to be improved with government assistance; two years later, their primary concern was maintenance fees collected; still later, it was the number of latrines being built.

4. **Gender differences can influence the chosen indicators of success.**
    In one village, while the men focused on the fact that women were growing more vegetables, women focused on the relative proximity of water. Women are more likely to be concerned with the health of children and environmental hygiene than men, whereas men often give primary importance to the availability of water for cattle.

5. **Indicators of success differ for community people, community leaders and project staff.**
    Community leaders are often more interested in the total number of water points in the community than ensuring equitable access to all. In one community in Nepal, health workers focused on reduction of mortality and morbidity rates while community women focused on the fence built around a pond to keep cattle out.

    In constructing latrines, project staff are usually most concerned with the total number of household latrines built, while at the community level, this is often of little concern. In one urban sanitation project in Nepal, women stated that the key indicator of success should not be the number of individual cubicle toilets constructed in different locations, but rather the total number of women who could simultaneously use one public facility. For the women, latrine use also meant their only opportunity to sit and talk together; thus a communal toilet was more desirable than individual privacy.

6. **Community people have the ability to develop, select, monitor and evaluate which indicators are of importance to them.**
    In many programs dealing with primary health care, water and sanitation, community people select and monitor indicators of the most prevalent diseases. Community groups have developed locally relevant indicators of poverty, wealth, health care, healthy children, good water, wells, latrines, and so forth. The problem is usually not the capacity of the community people, but our capacity to work with them in supportive ways.

7. **Capacity building, at the individual, community and institutional level, is more likely to occur if it is a specific objective and indicator of success.**

    Capacity building is both the process and the end point of which physical outputs are a byproduct. Rather than primarily focusing on the physical artifacts of development—such as a pump or latrine—the emphasis shifts to include growth or empowerment that emerges from user involvement in the process of developing the pump or latrine.

8. **When project objectives are clearly stated and highly specific, it is easier to develop indicators to monitor and evaluate their achievement.**

    For example, the general objective of increasing the involvement of women can be made more specific by characterizing it as "promoting leadership among women as measured by the number of committee leaders, managers or artisans who are women."

9. **To succeed, participatory evaluation requires the active support of managers.**

    Participatory evaluation can only be successful when senior managers support the participatory process. Experience has demonstrated that when managers place a high value on the feedback they receive from users at all levels within the community, positive change occurs and human capacity building can flourish.

    Is there any inherent contradiction between promoting people's participation in all aspects of evaluation—including developing their own relevant indicators—and presenting this framework of predetermined indicators? The answer is "no," providing that the framework is used consistent with the principles and nature of participatory evaluation. One of the biggest challenges of the participatory approach, especially in large-scale programs, is to achieve a balance between too much structure or imposed blueprints and a total lack of structure. This is true both for planning and in evaluation. Field experience has shown that this framework of indicators strikes a reasonable balance between these two extremes.

Box 3-1. Indicators of Progress in Water and Sanitation Programs

SUSTAINABILITY

S.1   Reliability of systems
S.1.a   Quality of water at source
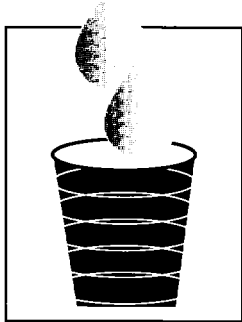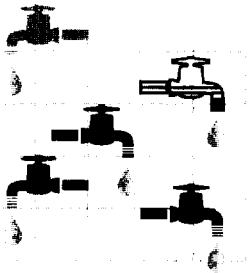S.1.b   Number of facilities in working order
S.1.c   Maintenance

S.2   Human capacity development
S.2.a   Management abilities
S.2.b   Knowledge and skills
S.2.c   Confidence/self-concept

S.3   Local institutional capacity
S.3.a   Autonomy
S.3.b   Supportive leadership
S.3.c   Systems for learning and problem-solving

S.4   Cost-sharing and unit costs
S.4.a   Community contribution
S.4.b   Agency contribution
S.4.c   Unit costs

S.5   Collaboration among organizations
S.5.a   Planning
S.5.b   Activities

EFFECTIVE USE

E.1   Optimal use
E.1.a   Number and characteristics of users
E.1.b   Quantity of water used (all purposes)
E.1.c   Time taken to use facilities
E.1.d   Management of water resources

E.2   Hygienic use
E.2.a   Water quality at home
E.2.b   Water transport and storage practices
E.2.c   Home practices to improve water quality
E.2.d   Site and home cleanliness
E.2.d   Personal hygienic practices

E.3   Consistent use
E.3.a   Pattern of daily use
E.3.b   Pattern of seasonal use

REPLICABILITY

R.1   Community ability to expand services
R.1.a   Additional water/latrine facilities built
R.1.b   Upgraded facilities
R.1.c   New development activities initiated

R.2   Transferability of agency strategies
R.2.a   Proportion and role of specialized personnel
R.2.b   Established institutional framework
R.2.c   Budget size and sheltering
R.2.d   Documented administrative/implementation procedures
R.2.e   Other special/unique conditions

4. Measuring Sustainability
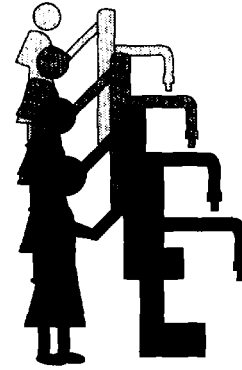
Sustainability is the capacity to maintain service and benefits, both at the community and agency levels, without detrimental effects on the environment, even after "special assistance" (managerial, financial and technical) has been phased out.

No community remains static; no project or program which depends on community initiatives can remain static. Rather, each effort needs to adapt to the community's changing needs.

Sustainability is achieved by building problem-solving capacities in communities and in partnership agencies to resolve problems as they arise. Because communities are continually changing, projects and programs need to adapt to each community's needs, while simultaneously anticipating future changes, both major and minor. Participatory processes in which people are centrally involved in decisionmaking ensure communities and agencies will develop the capacity to evolve with new circumstances, such as changes in demand, interest, capabilities, finance, natural resources or policies.

Human capacity development—increasing problem-solving ability, confidence, management and technical skills, knowledge generation— thus becomes the central process in the achievement of sustainability.

This process is facilitated by managers who serve as "managers of change" rather than as overseers of construction schedules. Their central task is to design a learning and problem-solving environment characterized by facilitative leadership, goals and a vision that are shared by users, systems for two-way knowledge generation, resource generation, conflict resolution, and generally accepted rules and regulations. Although strong institutions that can function relatively autonomously are needed, collaboration among agencies is also essential to achieve efficient use of resources and environmental protection.

Problem-solving capacity is measured in two ways. First, through relatively static measures of the extent to which facilities are functioning at a particular point in time (for example, are latrines or pumps currently functioning? Were labor and cash raised and managed effectively?).

The second measurement involves more dynamic indicators of the likelihood that sustainability will be maintained in a changing environment. Within a community, these indicators focus on problem-solving capacity, including the ability to organize and mobilize resources, take initiative, self-diagnose, resolve conflicts, and generate knowledge and administrative systems.

Dynamic indicators also measure increased confidence, compe-
tence, pride and future orientation.

The importance of dynamic measures will vary depending on
the type of program and the local political, economic, and institu-
tional context. For example, strong community organizations are
not as essential in privatized household water and san tation
programs; a community's ability to finance capital costs may not
be essential in a country with a policy of providing partial grants.

In sum, functioning systems are only one component of
sustainability. Without change in human and institutional
capacity, systems that function at one point will almost certainly
become dysfunctional later. The flow chart on page 32 provides a
simple guide to these linked capacity issues.

Participatory development, by definition, addresses the prior-
ity needs of the people involved. While skillful marketing and
participatory processes may, over time, create interest in the
product an external agency is offering, unless the "felt need" for
such a product is strong, people will not be motivated to organize
themselves to undertake action.

Community demand is the key determinant of whether an agency and a community can come and stay together long enough to create an improved water and sanitation situation. If alternate water and sanitation facilities are plentiful and perceived as adequate, if other needs (such as employment, roads, electricity) are more immediate, or if the level of service offered is less than what people want, written agreements between communities and agencies, training and mobilizing efforts will be of little use. Simply put, if there is a match between a community's felt needs and an agency project or program, then things will work; when there is a misfit, fundamental problems occur.

Agencies that apply a range of pre-determined selection criteria irrespective of community demand violate the principle of user or community self-selection, and undermine the process of user empowerment and sustainability. Hence, in assessing the success of capacity building efforts, it is important to first establish whether the project has addressed a priority need and how people expressed their commitment (for example, by collecting and depositing cash and other in kind contributions, or signing documents of understanding with the agency after negotiating mutual roles and responsibilities).

There are five key indicators of sustainability to evaluate, some of which need to be considered at both the community and agency levels:

S.1	Reliability of systems
S.2	Human capacity development
S.3	Local institutional capacity
S.4	Cost-sharing and unit costs
S.5	Collaboration among organizations

In turn, each of these key indicators has a set of more detailed and measurable sub-indicators that can be monitored and evaluated (see page 30).

The remainder of this chapter outlines each key indicator for the objective of sustainability, and how to monitor and evaluate the relevant sub-indicators for each.

For each sub-indicator, the following information is delineated:

- Target
- Data required
- What to monitor/evaluate
- Methods of data collection

Field Insight

It is often assumed that "objective outsiders" are required when monitoring progress in areas such as the extent to which construction targets are being met, or how facilities are functioning.

While the criteria for determining progress is usually supplied by project staff or external experts, when users themselves are asked to identify a good well or a bad well, and are then given a chance to discuss why they characterize a particular well in a particular way, the criteria they consider to be important emerge. In most cases, there is considerable overlap between the criteria used by local people and technical experts.

In Lesotho, Cameroon, and Kenya, formal external monitoring has been decentralized and simplified. The key factors in latrine construction and use are represented by simple drawings on monitoring forms which are then used by village volunteers or private entrepreneurs to monitor construction progress. In Cameroon, these types of drawings are being used to monitor health status within the family.
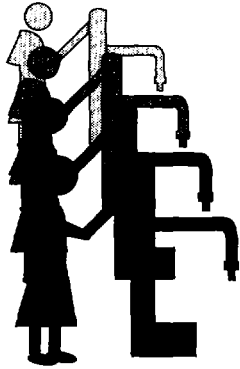
Box 4-1. Measuring Sustainability
—Key Indicators and Sub-Indicators—

S.1 Reliability of systems

S.1.a   Quality of water at source
S.1.b   Number of facilities in working order
S.1.c   Maintenance

S.2 Human capacity development

S.2.a   Management abilities
S.2.b   Knowledge and skills
S.2.c   Confidence/self-concept

S.3 Local institutional capacity

S.3.a   Autonomy
S.3.b   Supportive leadership
S.3.c   Systems for learning and problem-solving

S.4 Cost-sharing and unit costs
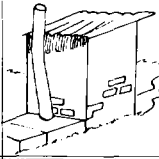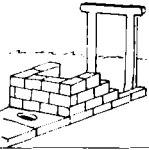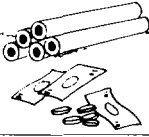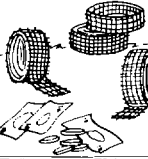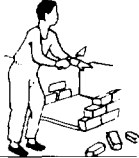
S.4.a   Community contribution
S.4.b   Agency contribution
S.4.c   Unit costs

S.5 Collaboration among organizations

S.5.a   Planning
S.5.b   Activities

Progress in Construction and Inventory of Materials

January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

Functioning of Latrines

	1	2	3	4	5	6	7	8	9	10

Figure 4-1. COMMUNITY AND AGENCY CAPACITY FOR SUSTAINABILITY

WAS THERE A DEMAND/FELT NEED FOR IMPROVED WATER AND SANITATION SYSTEMS?

— NO — → WHY WAS THE COMMUNITY SELECTED?

— YES — → ARE THE FACILITIES FUNCTIONING AS INTENDED?

THERE ARE ONE OR MORE FUNDAMENTAL PROBLEMS

← NO ——

WAS MUTUAL AGREEMENT NEGOTIATED BETWEEN COMMUNITY AND AGENCY ABOUT DISTRIBUTION OF RESPONSIBILITY?

→ NO

YES

YES

THE COMMUNITY DOES NOT HAVE THE CAPACITY TO UNDERTAKE ITS AGREED RESPONSIBILITIES

WHY NOT

THE AGENCY DOES NOT HAVE THE CAPACITY TO UNDERTAKE ITS AGREED RESPONSIBILITIES

WHY NOT

COMMUNITY INSTITUTION INADEQUATE
-Inadequate linkage
 with agency
-Inadequate autonomy
 to function effectively
-Weak or unrepresentative
 leadership
-Weak support from and
 interaction with
 the community

COMMUNITY SKILLS AND KNOWLEDGE INADEQUATE
-Management
-Administration
-Technical
-Confidence

COMMUNITY FINANCE
-Inadequate systems and
 procedures for generation
 and management of
 revenue
-Unaffordable service

AGENCY INSTITUTION INADEQUATE
-Inadequate linkage
 with community
-Inadequate autonomy
 to function effectively
-Weak leadership
-Low staff morale/interest

AGENCY STAFF RESOURCES INADEQUATE
-Management
-Administration
-Technical
-Confidence

AGENCY FINANCE
-Inadequate allocation
 and distribution of funds
-Inadequate accounting and
 control

KEY INDICATOR S.1

Reliability of Systems

Since all users have access to some form of water and sanitation facilities, the reliability of improved water and sanitation systems is key in determining their effective use. A service can be considered reliable when it has a high probability of being available in the quality, quantity and at the time required. Since attaining reliability has a financial cost, the standard acceptable to users will vary depending on the particular context. If users feel that water quality is not of acceptable quality, delivery through piped water systems is unpredictable or breakdowns are frequent, they are unlikely to pay for or consistently use such water facilities. The same is true for sanitation facilities. If public toilets and bathing areas are functioning unreliably and other alternatives are available, it is unlikely that such facilities will be paid for, used or managed by users.

The complexity and robustness of technology, as well as the standardization and availability of spare parts, also play a critical role in an individual's or group's ability to manage facilities and ensure systems remain functional. In most settings, this implies some private sector or government support in dealing with major breakdowns of water systems and maintenance and repair of sanitation facilities. For communal systems, the availability of community financial resources, local skills and the willingness to operate and maintain facilities are also significant.

There are three main sub-indicators related to measuring the reliability of systems:

S.1.a	Quality of water at source
S.1.b	Number of facilities in working order
S.1.c	Maintenance
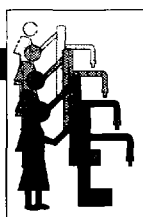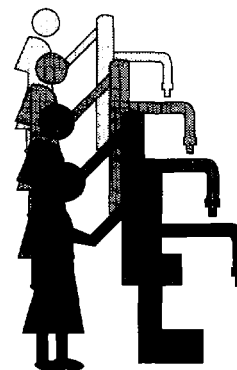
Sub-Indicator S.1.a

Quality of water at source

Target:
To increase the number of water systems producing water of acceptable quality throughout the year (taking into account seasonal variations).

Data required:
Total number and increase in facilities producing water of acceptable drinking quality. This will vary according to time of day and season; information is particularly needed on peak use time.

Comparison of source bacteriological purity to local standards
(not to ideal international standards).

Chemical quality and taste of water.

What to monitor/evaluate:
Is the quality of water at source acceptable and safe?

What is the increase in the total number of water sources
producing acceptable quality of water?

What percentage of the population has access to safe water?

Methods:
Site visits, visual inspection, water quality tests at source.
(Experiences in Kenya, Indonesia, Cameroon, Costa Rica show
that water quality tests for faecal coliform and PH can be
conducted by community people).

Interviews and discussions with users, especially those living
near sources and those not choosing to use the source. Percep-
tions about quality are as important as the technical tests for
bacteriological quality, salinity, iron, and so forth.

Photographs taken by community people of "good spring captures" and "bad/poor wells," or drawings of what the community considers to be the attributes of a good well. These are an effective means of identifying sources of well contamination leading to corrective action, including educational activities organized by the community.

Field Insight—Indonesia

Indicators for water quality inspection identified by village women and men in Indonesia:

Does the source look clean?
Are there any animals in it?
Are insects breeding in it?
Are there any leaves/sticks in it?
Is there other rubbish in it?
Is there human/animal waste nearby?
Does it have any color?
Does it smell bad?
Does it taste bad?
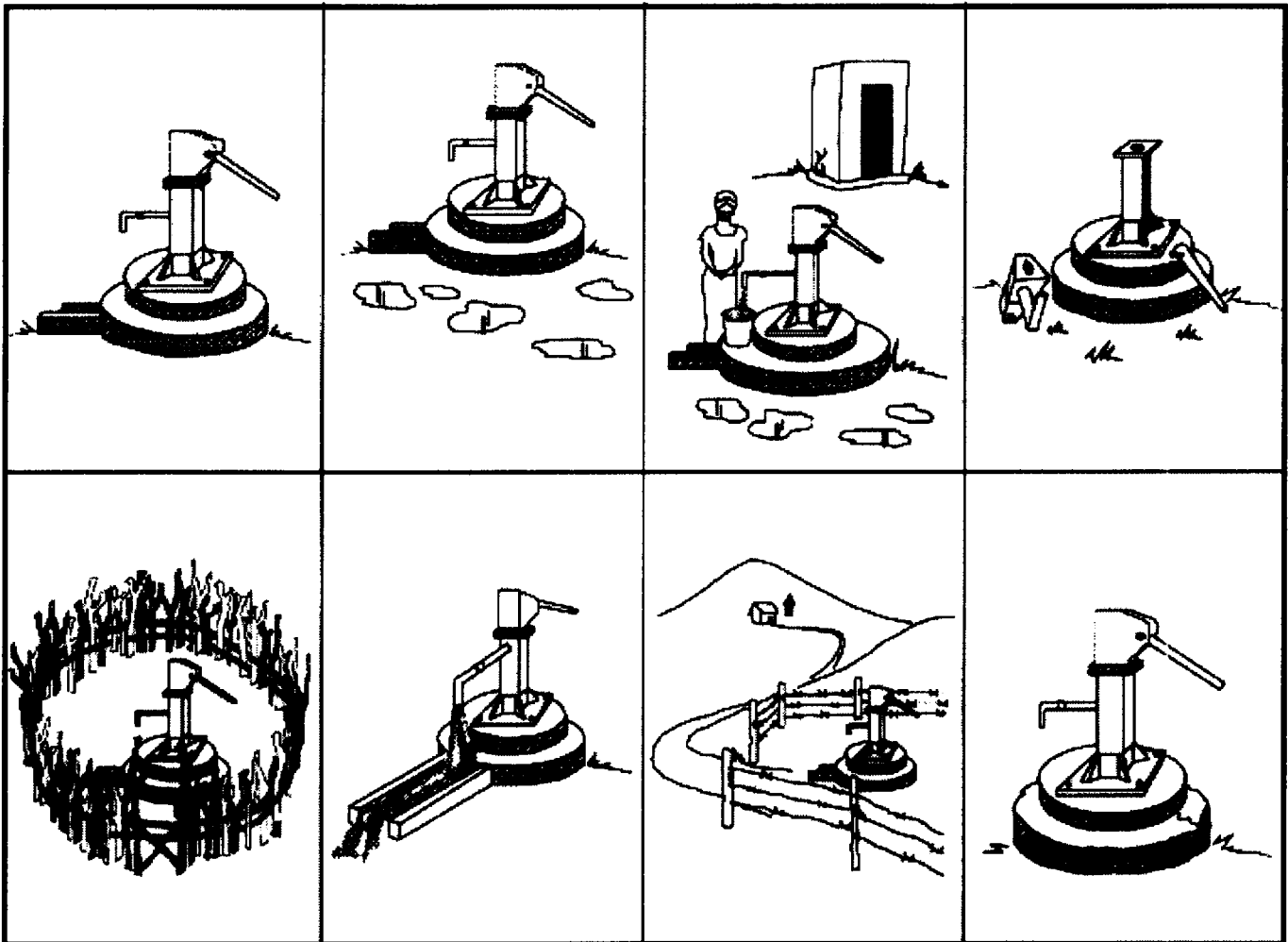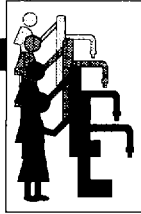
Number of facilities in working order

Target:

To increase the number of water systems reliably producing water in acceptable quantity throughout the year (taking into account daily and seasonal variations in source, capacity and demand).

To ensure toilets are sufficient in number to cover the total population and function per design criteria.

Data required:

Increase in number of functioning water facilities; water quantity produced at various times in a day during different seasons; peak use time and crowding or waiting time (to assess easy availability of water to all households).

The quantity of water to be provided is usually indicated in terms of liters per capita per day (lpcd) in the project targets. Design criteria vary according to level of service, climate and water availability.

For toilets, data needs include increase in number of toilets (excreta disposal facilities that are culturally acceptable) constructed for different population groups, as well as at schools and other community institutions.

What to monitor/evaluate:

Have the number of functioning water points increased as planned?

Do the sources produce sufficient water all year to meet existing and projected demand?

What percentage of the population has access to these water points?

Have the number of toilets available to different population groups (men, women, children, marginal groups) increased?

Are the toilets culturally and technically acceptable?

Methods:

Mapping; focus group discussions; photographs; site visits; visual technical inspection; measurement of water quantity produced. For handpumps and springs, water quantity can be calculated by measuring the quantity of water produced per

second or per minute. For piped water systems, measurements are more complex; detailed information can be found in MEP, WHO, 1983.

Interviews and discussion should be conducted to find out if people have to wait for water during certain seasons or at certain times of day.

Data on peak time of water use can be obtained during observation of water collection and water use. Information about total number of new or improved water points and toilet facilities can be obtained through discussion or mapping by community members, including school children. Observe the technical quality of toilets affecting hygienic use, including material and slope of pans, water seals, size and lining of holes for dry toilets, presence of covers for holes, degree of darkness inside cubicle, presence of appropriate vent pipes and fly covers. Avoid the pitfall of gathering information by talking only to officials, caretakers, and mechanics. This may lead to under-reporting of problems related to adequacy of quantity and quality of water and toilet facilities.

Also, seasonal differences can be especially important, and should be probed in depth.
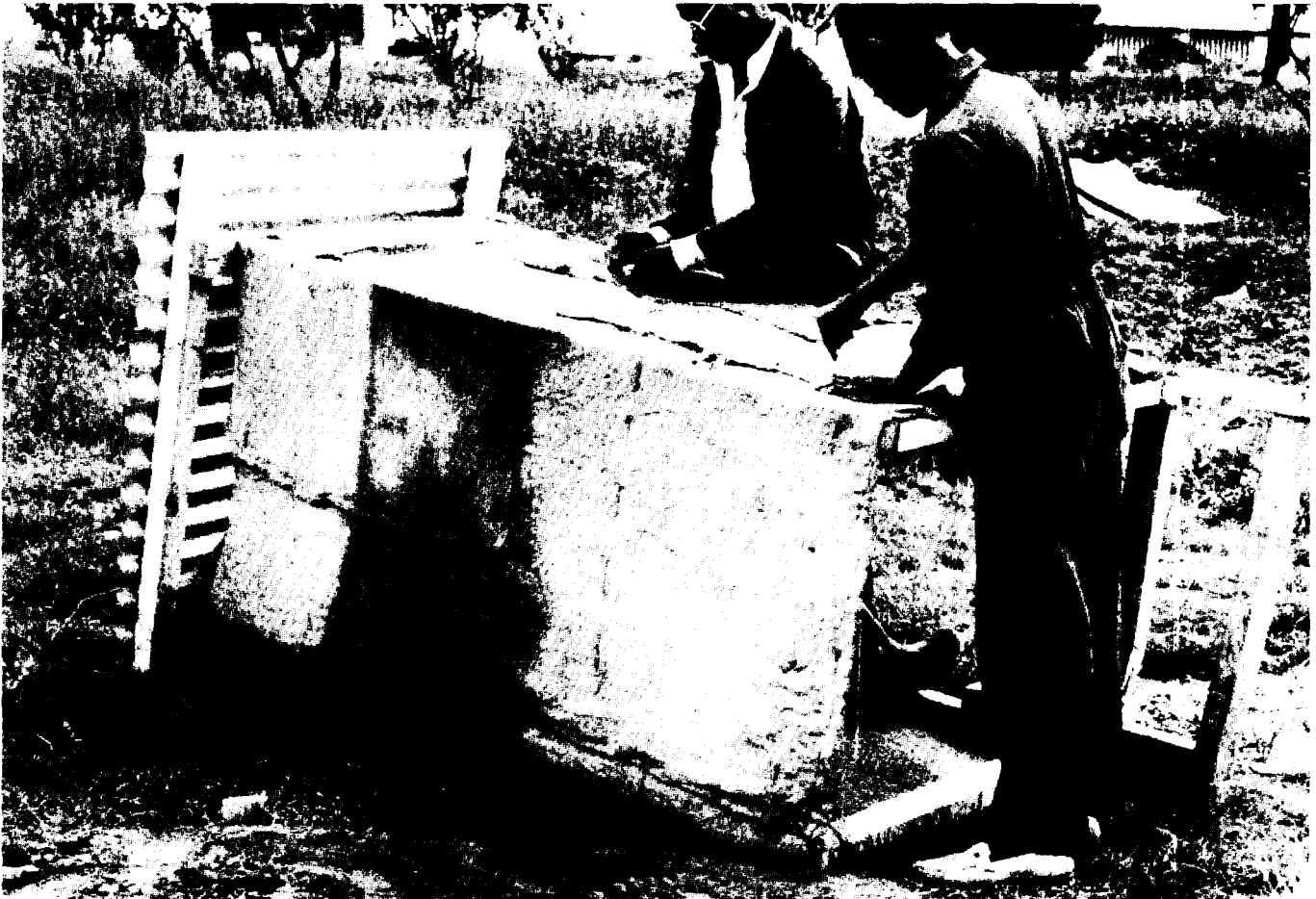
Field Insight—Honduras

PROPAR (Proyecto de Pozos y Acueductors Rurales) is a community water supply and sanitation program in northern Honduras, supported by the Honduran and Swiss governments. PROPAR has developed a simple monitoring system managed by field staff to track project effectiveness and impact on health. Through a series of staff workshops that focused on defining objectives and identifying indicators, the project developed the following chart to track progress on well construction.

OBJECTIVE	CRITERION	INDICATOR	MAGNITUDE	1988 RESULTS	1989 RESULTS
Program of wells equipped and pumps supported	Capacity to promote and direct well projects	% of promoters located in proper zones capable of promoting and directing well projects	90% of promoters promote and direct well projects	68.1%	50%
	Well construction quality	% of wells built properly	100% fulfill quality standards	91.6%	83.3%
	Pump installation quality	% of pumps installed well	100% fulfill quality standards	90%	76%
	Use of constructed wells	% of constructed wells in use	100% in use	100%	95%
Effective operation and maintenance achieved	Initial interest in operation of wells by water committees	Ability to attain funding	Minimum initial budget of $130 for buying tools	$57	$5
	Training of water committees	Water committees trained	A committee per W/ GFS & a committee coordinator	87.5%	26.8%
	Fluctuation of committee members	% of members fluctuated/yr	Max 10% of members fluctuated	4%	2%
	Quality of well maintenance	% of wells functioning	80% of pumps fulfill quality standards of functioning	63.3%	65%
	GFS maintenance quality	No. of taps in poor condition	Less than 20% of taps in poor condition	15.5%	17%
		Availability of water at tap level	Water reaches 100%	99%	92.5%
		Spring catchment and water tank maintenance level	90% fulfill quality standards	85.7%	84%

Maintenance

The maintenance of water and sanitation systems—how frequently water and toilet facilities break down and how quickly they are repaired—is determined by a variety of factors: technical; motivational; community capacity to operate and maintain (O & M) the systems; cost and availability of spare parts; private sector or NGO involvement; and government support systems.

Because the cost of setting up centralized O & M for hundreds of scattered water systems is prohibitive, increasing emphasis is being placed on standardizing technology and creating management systems that include communities, the private sector, NGO and local municipal government agencies.

Target:
To ensure that an improved management system for operation and maintenance is in place, resulting in low frequency of breakdowns, quick repairs, and low downtime of facilities.

Data required:
Data requirements vary depending on the technical complexity of the facility, and whether ownership of water and toilet facilities is private, group, communal or institutional. For example, community capacity to operate and maintain facilities does not arise if private individuals are the owners. In this case, the issues are the motivation, financial capacity and technical ability of individuals and groups to manage their systems. Also at issue is the availability of spare parts and skilled technicians in the private sector.

In most countries, governments retain the responsibility for training of mechanics and caretakers to correct major breakdowns. The training may be contracted to the private sector or to NGOs. Assess the functioning of this backup support system to see what specific procedures a community uses to contact an agency located elsewhere.

Data about the process and components needed to create an effective, sustainable management system is critically influenced by robustness of technology and standardization of a range of options. Thus data will be needed to answer the following questions:

• Is the technology robust? Is it standardized?

Field Insight—Bangladesh

In Bangladesh, illiterate village women learned to evaluate handpump performance.

First, a schedule was established so that at least one woman was present at the pump throughout the daylight hours. Sitting near the source, each woman observer recorded the gender and age of the water carrier and quantity of water drawn. For each pump stroke, the women transferred a stone from one tin can to another. As each tin can was filled, a mark was made on a piece of paper and the process begun again. The data revealed that siting pumps near public places reduced usage by women.

As a result of the women's findings, new handpumps were located in areas more acceptable to women.

- Did people in the community negotiate and do they accept their roles and responsibilities? Do they understand how these differ from those of outside agency staff (government, private sector, NGO)?

- Do individuals have the necessary knowledge, skills and incentives to undertake maintenance tasks and repairs; do they know who to contact in the event of major breakdowns; knowing this, do they do so?

- Have community people evolved rules and regulations regarding O & M, and are these accepted and enforced?

- Was training in technical, financial, organizational and leadership matters appropriately timed and adequate? (Special attention should be given to the trainee selection process).

- Are tool kits, spare parts and mechanics available and affordable?

What to monitor/evaluate:
Do households, communities, and agencies have the incentive, commitment, resources, knowledge, and skills to operate and maintain the system?

Is there a private sector or government back-up system to assist community/households in repairs beyond their ability?

Is there an increase in total number of functioning systems over time?

Is there a decrease in frequency of breakdowns?

Is there a decrease in "down time" of broken-down facilities?

Methods:

Open-ended interviews with community officials, women (living near and far from source), caretakers, mechanics, and agency staff. Interviews with school children can be very revealing.

Focus group discussions and self-evaluation with water users groups or committees, with or without pictures and models.

Site visits.

Field Insight—Kenya

In a village in Kenya, facilitators used three large drawings of a well committee meeting near a broken-down handpump to start a discussion about the responsibility of the committee to ensure "good wells" for the community.

Through the focus group discussion, the major source of malfunctioning handpumps in the village quickly became clear. The committee had the technical know-how to repair broken-down pumps, but lacked the incentive to invest in the well. This was because of the presence of alternative water sources. Investment was also impeded because the committee lacked clarity about who actually owned the well.

KEY INDICATOR S.2

Human Capacity Development

Self-reliance cannot be achieved without human development. Individuals must have the self-confidence and competence to undertake the tasks expected of them. Confidence and competence increase when people gain experience in organization and management and acquire new knowledge and skills, including the capacity to generate knowledge. The difficulty, of course, is how to evaluate changes in such abilities and capacities.

Since women in most cultural contexts have a greater role than men in managing domestic water supply and environmental sanitation, gathering gender specific data is essential. Assumptions about women's abilities should not be based on men's perceptions; women are the best sources of information on their own observations, abilities, needs and activities.

Facilitating sustainability at the community level requires agencies that are themselves sustainable. This means agencies that are staffed with competent and confident people who believe in and support self-reliant development based on local organizations, local skills and culture.

In many communities, people may be content to leave the decisionmaking to informal or formal leaders. Sustainability can be attained through involvement of a few key local leaders who represent community interests and serve as the focal point for interaction with external agencies. However, this approach may not lead to broad-based capacity building.

There are three main sub-indicators which should be assessed individually for women and men at the community and agency levels.

> S.2.a   Management abilities
> S.2.b   Knowledge and skills
> S.2.c   Confidence/self-concept
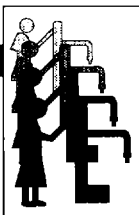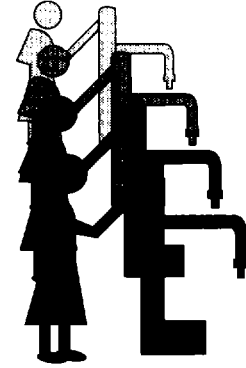
Sub-Indicator S.2.a

Management abilities

The specific goal for most projects will be to attain optimal levels of user decisionmaking in water and sanitation. Some decisions may be beyond the interest or ability of communities, such as source selection for large pipe systems serving the urban fringe or low income areas.

If the objective is to empower the poor and women, decisions about installing water and sanitation facilities should involve community people from different socioeconomic groups, especially women. The degree of involvement in the "what, how and where" decisions concerning installations is a good indicator of the level of community commitment to their continued functioning.

Target:

To optimize involvement in decisionmaking, especially of women and marginalized groups.

Data required:

The extent of community members' involvement in decisions leading to installation and continued functioning of water and sanitation facilities.

The degree to which there was shared decisionmaking by different interest groups, including marginalized ethnic, caste or class groups, the poor, and people living away from roads and population centers. (Any informal sampling methods should include women).

How decisions are made at certain key points may need to be assessed in order to identify corrective action. The decisions are those concerning:

- whether or not to accept or initiate the project
- technology choice, design, service level
- affordability and management of finances
- selection of leader and members of water and sanitation committees/groups
- location of water points
- organization for construction
- amount, frequency and form of fees
- selecting financial managers
- rules, regulations and conflict resolution
- system for operation, maintenance and repair
- involvement in monitoring and evaluation
- initiation of new activities.

Data required will also vary according to type of technology and the desired level of decisionmaking in the project cycle.

What to monitor/evaluate:
Who perceived the need to improve the water and sanitation situation?

To what extent do community leaders (male and female) and "ordinary" community women and men take part in decisions affecting the program?

What was the process of decisionmaking and who was involved in decisions regarding felt need, design and planning, implementation, and monitoring, and evaluation?

Methods:
Open-ended interviews with community leaders at different levels focusing on process; separate discussions with community groups of men and women; pocket chart voting on who made what decisions; interviews with agency field representatives both senior and junior.

Study of records of meetings and project monitoring documents.

One of the pitfalls in obtaining information based on recall is that human memory tends to be selective and hence people remember incompletely. For adequate recall, sample a variety of people, not only men or leaders, but women as well. If people do not have information on who made what decisions,

it is indicative of a lack of involvement in decisionmaking. Wood models, photographs and drawings of different decision points can facilitate discussion.

Remember that leaders and other important village officials can get upset if they are bypassed or evaluators first speak to ordinary people. Several methods have been found to be effective in overcoming these problems. Hold extensive meetings and discussions with leaders, explaining to them the need for privacy in talking with others and the topics that will be discussed. After obtaining permission, hold separate meetings for men and women, using the pocket chart or other such techniques. Another approach is to divide your team so that while one person speaks to village leaders and officials, other team members hold user group meetings, or interview a few households.

Field Insight—Indonesia

In a project in Indonesia, participation of women in decisionmaking was measured using a cloth pocket chart hung on a fence or a wall. Consisting of six columns and eight rows of cloth pockets, the chart had a picture attached above each of the six columns. The pictures depicted different potential decisionmakers, such as an "ordinary" woman and man, a female and a male leader, the water users group and a field worker from the external agency.

Each person in the group was given seven small paper discs to select the most important decisionmaker for six different issues. Group members turned their backs during the process so that each could vote in private. Everyone participated enthusiastically, even older women who, at the beginning, wanted to leave because they were illiterate. At the end of the process, the votes were counted and discussed. The results are given here.

Who Decides What?	Ordinary Woman	Ordinary Man	Female Leader	Male Leader	Water Group	Field Worker
1. Decisions within groups	7%	5%	19%	12%	28%	29%
2. Group Leaders	3%	11%	30%	20%	10%	26%
3. Group Activities	9%	13%	16%	23%	27%	12%
4. Size of Monthly Contributions	8%	13%	32%	10%	17%	20%
5. Need for Sanctions	5%	6%	22%	39%	13%	15%
6. Location of Pumps, Taps, Tanks, etc.	1%	13%	16%	16%	14%	40%
7. Repairs	4%	5%	9%	18%	21%	43%
OVERALL SCORES	6%	9%	21%	21%	19%	24%
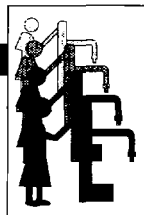
Knowledge and skills

Target:
Men and women become more knowledgeable and skilled in problem-solving and in undertaking organizational, management and technical tasks related to initiating and maintaining new water/sanitation and related development activities.

Data required:
Will vary with the context, but include data about individual ability to organize, understanding of existing situation, change in awareness, technical and management knowledge, and skills about water and sanitation and related development tasks. Since men and women often have different perspectives, data should be segregated by gender. Gather data about the knowledge and skills of women, men and children, (preferably separately) regarding the following issues:

- Understanding of the immediate water and sanitation situation

- Functioning of water and sanitation committees/groups

- Improved health and hygiene practices

- Information collection and analysis to solve problems

- Capacity to raise financial resources

- Organizational capacity to undertake new development activities

What to monitor/evaluate:
Have men and women organized themselves and initiated change?

Are men and women knowledgeable about the changed water and sanitation situation?

Do men and women understand how water/sanitation groups function? Do they understand the rules?

Do men and women have the needed technical skills?

Have men and women shown any capacity to take corrective action to solve problems?

Have individuals been able to organize themselves, raise financing and undertake new initiatives?

Methods:

Open-ended interviews about activities of groups; group discussion with committees/groups; indirect open-ended exploratory questions in house-to-house survey.

Observation of new facilities and newly initiated activities.
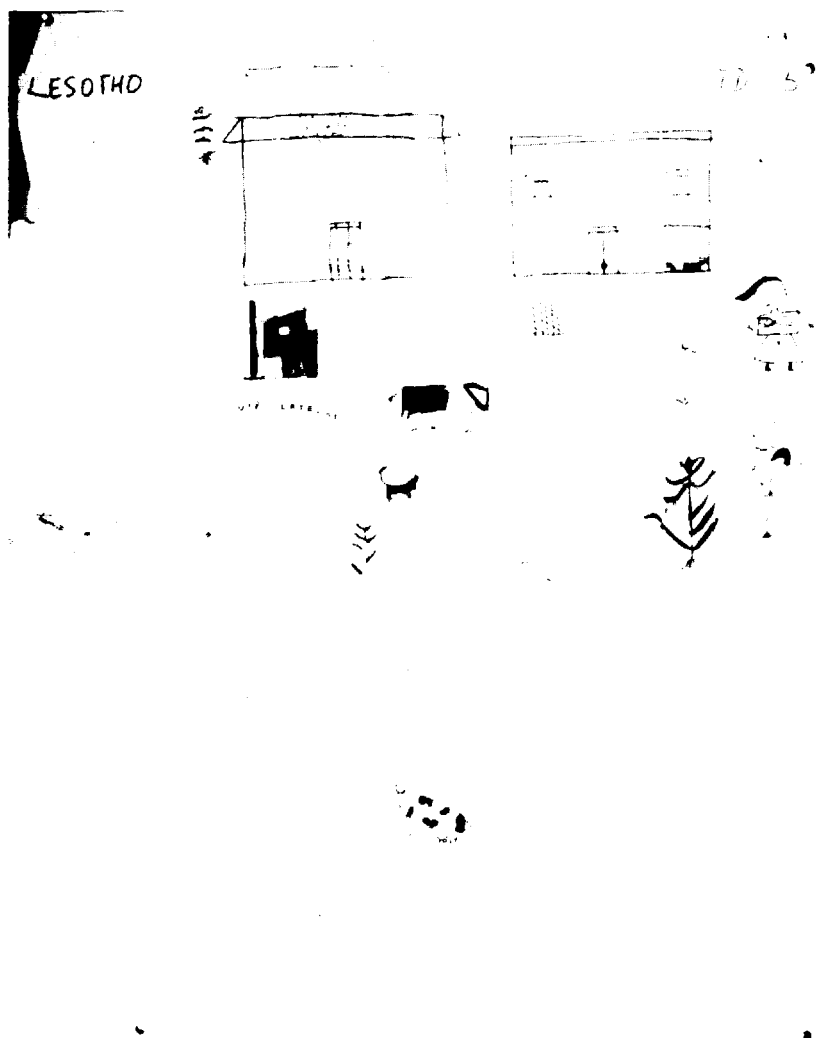
Field Insight—Lesotho

In Lesotho, a program of simple community mapping included school children from four villages in Laribe District. The program demonstrates the ease and the utility of involving young people in identifying community priorities.

Working in four groups, fifth grade children were asked to draw their communities, the main problems, resources, water sources, and places of defecation. The activity unleased such energy and enthusiasm that the children had to be moved outdoors.

All groups reported three major problems: drunkenness in the villages; bad roads resulting in inaccessibility; and low demand for latrines in the sanitation program. As resources, the children identified people, trees, VIP latrines, shops, water supply, poultry, and transport. Additionally, children drew VIP latrines, aloes and forests as defecation places, and made note of different aspects of community life, such as unprotected springs, wells, ponds, standposts for water systems, and garbage pits and dumps.
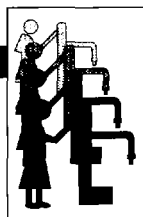
Confidence/self-concept

Target:
To improve self-concept and increase self-confidence among women and men in communities and partnership agencies involved in planning and implementation of water and sanitation programs.

Data required:
Personal confidence and self-concepts are psychological constructs, but they can be measured through people's behavior such as new initiatives undertaken and self-ratings of abilities. The exact behavioral indicators of confidence vary across cultures and hence need to be culture-specific. In addition they may be gender specific.

Some indicators and data measuring changes in self-worth and confidence are the following:

- Direct ratings of changes in abilities

- Expressions of pride, increased strength, competence and confidence

- Increased initiative

- Evidence of new leadership

- Sense of control or efficacy (sense of "I can change the situation")

- Confidence in the future and future orientation.

What to monitor/evaluate:
Do men and women perceive themselves as skilled and competent?

Are different people, including women, emerging as leaders?

Do men and women express pride and confidence in themselves?

Methods:
Since systematic measurement of confidence and self-worth are relatively new to the water and sanitation sector, this section explores four methods in detail.

Method #1: Rating scales
A variety of simple three-point rating scales (with or without pictures) can be developed and used with individuals or groups, and administered by community people or project staff

themselves. For example, confidence can be measured by simply asking people directly:

"Do you feel more, less or the same amount of confidence as you did two years ago?"

"Do you feel very confident, confident, not confident?"

These ratings of confidence can either be made as self-perceptions or observations about others. For example, the perceptions of men about women; senior staff's perceptions of junior staff; how community people are perceived by agency staff.

Instead of being asked directly, respondents may feel more comfortable completing a questionnaire or voting with a pocket chart. For example, in Indonesia, a simple three-point rating scale was developed to judge changes in women's self-confidence. Three pictures in the rating scale showed: (1) a woman too timid to enter a group meeting; (2) a woman joining a water group but too shy to participate; and (3) a woman bold enough to talk, challenge and ask questions.

A further elaboration of this scale was suggested by a PROWWESS/WHO regional group in Indonesia (1988) which recommended a seven-point scale to measure the confidence women have in participating in community decisionmaking. For community group self-evaluation, each point on the scale can be illustrated by a picture:

1. Women don't come to meetings.

2. Women come but stay outside and listen.

3. Women sit in the meetings but do not talk.

4. Women talk in meetings.

5. Women question, challenge vote.

6. Women lead and ensure action.

7. Women plan ahead and take long-term responsibility.

Since the lack of involvement in decisionmaking is often related to a lack of personal confidence, it is extremely important to measure changes in self-confidence, especially among women. Research indicates that women often vote themselves less capable than they are rated by men. It is unlikely that this is a cultural manifestation of humility.

Method #2: Changes in men's perception of women
Men's increased confidence in women's abilities is an extremely important indicator of women's effective involvement in management. The following measures can be sought through questions to gauge the changed attitudes among men; the form of the question will vary depending on the availability of baseline data.

- Increase in number of men who actively support women's involvement at all levels of decisionmaking.

- Increase in respect for women, their value and activities.

- Increase in favorable ratings of women's abilities, information and knowledge, intelligence, problem-solving capacity, and leadership abilities.

- Increase in ratings of the usefulness of women's groups.

• Increase in support of women's groups and activities (making it possible for women to attend meetings, deal with finances, take leadership, participate in training, and so on).

Method #3: Measuring leadership
Sustainability depends not only on strong leadership at the top, but also on decentralized leadership at lower levels.

People who lack self-confidence rarely emerge as leaders. Changes in leadership can be measured by asking men and women to identify leaders, especially female leaders, asking why they consider them leaders and interviewing the leaders themselves. If no baseline data exist, change can be measured by asking "Are there any people who have become active leaders in the last three years?" or by interviewing people who have been active in the program and those who have not been involved in the program.

In measuring changes in female leadership, it is important to avoid negative cultural stereotypes which may come into play when questions are asked in general terms such as "Who make better leaders, men or women?" "Why?" "Can women be good leaders?" Better questions are more specific: "Are there any women in this village who you would consider leaders?"

Method #4: Initiative and sense of efficacy
A sense of efficacy is a sense of being able to influence one's life or environment by taking action. Attributing responsibility for change to oneself, rather than to external agents or factors, can be an indicator of efficacy.

People who lack self-confidence are rarely able to initiate change or take the risks involved in new activities. Data should be collected on new activities and groups, as well as the reactivation or strengthening of old groups. Among agency staff, indicators of an increased sense of efficacy can include personal growth within jobs, new responsibilities and positions, and increased autonomy.

Personal initiative can be assessed through interviews and discussion groups with community people and agency staff. One indirect measure is asking people which factors or individuals were responsible for success or failure of a project or program. When people have been involved and feel in control, they are more likely to say "our involvement," or "we are responsible for success." When less involved, they tend to blame external factors in general terms without being able to give specific details.

Agency staff can be asked to put in writing their analysis of why a project succeeded, what they have learned from being involved, and how they have personally changed as a result.

Field Insight—Indonesia

A village water user's group in Indonesia evaluated itself through seven pictures, each representing a group function or activity, or a person involved with the group. The pictures represented: group cooperation, a village leader, sanctions, money collection, angry people, future plans and a field worker in a water group.

The pictures were shown and discussed. The group was given three stars of varying sizes, representing excellent, average, and poor. The group was asked to rate the person or activity's relationship and relevance to their group by placing each picture under a star. Once all the pictures had been rated and some consensus reached, the group had to explain its ratings, which led to further discussion and revealed issues not talked about during interviews.

At the conclusion of the process, the group was asked to give itself an overall rating. Some were modest in their ratings, while the stronger members with great gusto cried, "We are the best!"

Self-Rating of Community Group

Group Cooperation	Village Leader	Sanctions	Money Collection

Angry Group Members	Future Plans	Field Worker
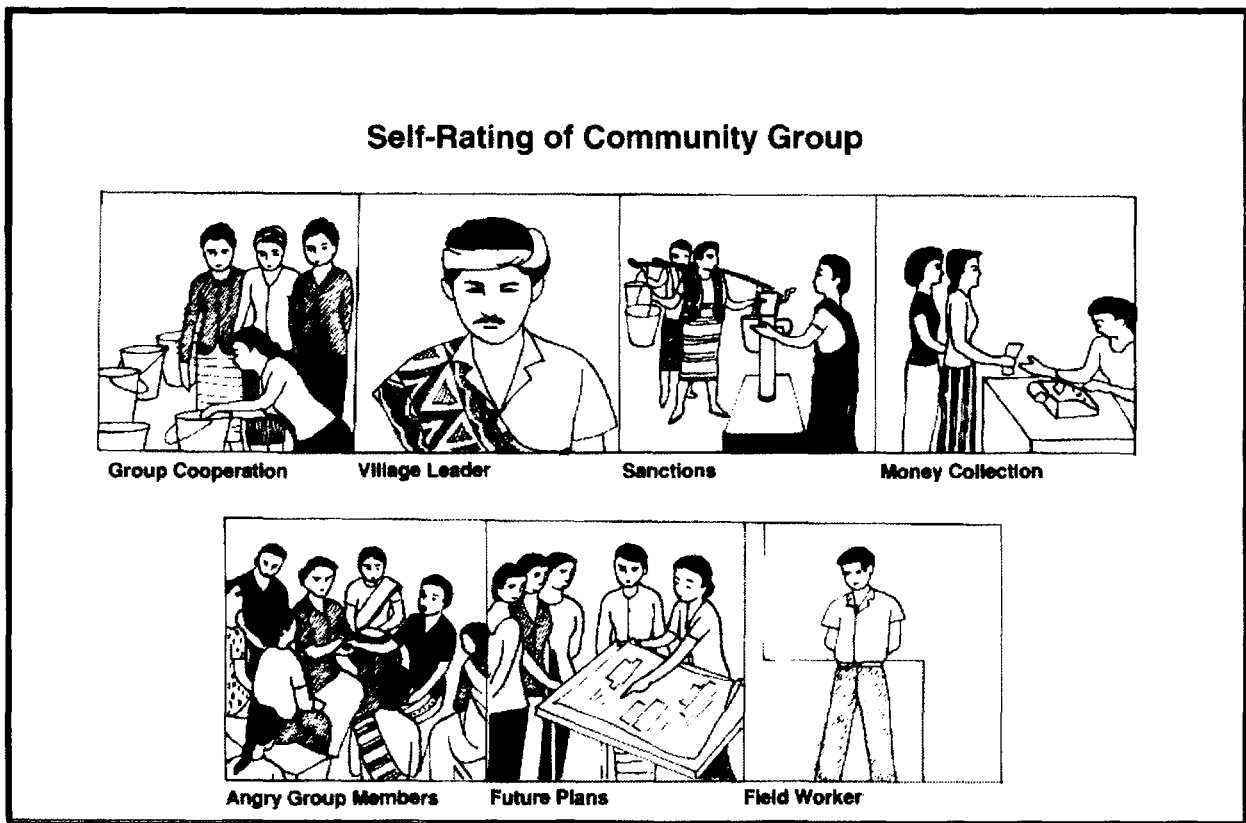
KEY INDICATOR S.3

Local Institutional Capacity

While individuals can introduce change, sustaining the efforts and results of participatory programs requires changes in the structure and function of strong, relatively autonomous community and agency organizations. These organizations can range in size from a small group of individuals to a large government bureaucracy.

Such organizations are characterized by a style of strong facilitative leadership that makes learning and problem-solving a central management task. The organizational culture and values of these groups and agencies support people's own initiatives.

Three main sub-indicators are used to measure progress in building local institutional capacity:

S.3.a   Autonomy
S.3.b   Supportive leadership
S.3.c   Systems of learning and problem-solving

These sub-indicators are further detailed in the box on page 56. Each item should be assessed both in community organizations and in supporting technical agencies.
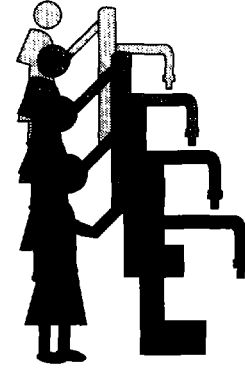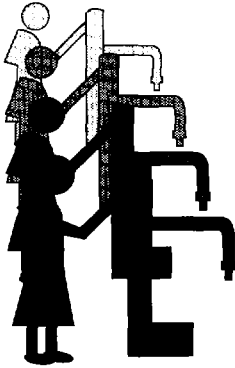
Box 4-2. Measuring Local Institutional Capacity Within Community and Agency Organizations

—Sub-Indicators—

S.3.a   Autonomy

- control over resources (budget)
- control over management decisions (goals, procedures, staff, training)

S.3.b   Supportive leadership

- open management (consider opinions, belief in human capacity)
- shared vision (goals, objectives, values, norms)
- team spirit (enthusiasm, accepted rules and regulations)
- decentralized control (role clarity)

S.3.c   Systems for learning and problem-solving

- ability to learn (two-way information flow)
- resource generation (including new activities)
- conflict resolution
- critical ability (self-diagnosis)
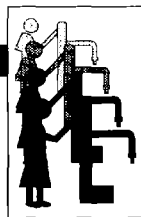
Sub-Indicator S.3.a

Autonomy

Support agencies, especially those in government, usually function within highly structured regulations and bureaucratic procedures. Yet, if technical agencies, especially the field branches of government departments are to function effectively with an ability to quickly respond to community demand, preferences and initiatives, they must have relative autonomy to make decisions and commit resources within a set of established guidelines.

At the community level, water and sanitation committees or village-level institutions should be allowed to function relatively autonomously, free from external interference.

Target:
To develop community groups and partnership agencies that function accountably and relatively autonomously with regard to policy and operational decisions involving control of resources and management.

Data required:
Data should be gathered to assess whether relative autonomy, with accountability, has been achieved by support agencies, their field offices and community organizations, including water groups, health committees and local councils.

To what extent can the following types of decisions be made accountably and without external interference?

- Control and use of financial and other resources

- Raising additional resources

- Personnel policy; hiring and training of staff; recruitment of volunteers, managers, leaders; personnel evaluation criteria

- Formulating rules and regulations

- Defining goals

What to monitor/evaluate:
Is the management of agencies and community groups accountable and free from external interference?

Do agencies, their field offices, and groups control their own finances and can they raise additional funds as needed?

To what extent do the groups and agencies define and follow their own rules, regulations and goals?

Methods:
Open-ended interviews and workshops with agency staff, both junior and senior, and with community people from different levels.

Some of the information can be collected in conjunction with other sub-indicators such as: functioning of installations and competence of individuals; a mini-case study of one typical community group or agency staff or department; and critical incident analysis.

Field Insight—Nigeria

In Nigeria, a workshop was held to evaluate the budgetary process for a large externally-financed rural water and sanitation project. In attendance were the project coordinator, technicians, and local government management and extension staff. In the informal atmosphere, the participants were each asked to list who made decisions about resources for different project activities and how those decisions were reached.

The subsequent discussion revealed that while the project was trying to support greater autonomy on the part of local governments in the planning and implementation of rural water and sanitation system programs, in effect the main decisions regarding the disbursement of funds for capital costs were determined by the project coordinator. This was done to ensure accountability and to avoid mismanagement of project funds, but it also had the unintended effect of reducing the sense of ownership and control over the project by the local government administration.

Similarly, while the project strove to encourage community participation and self-determination, the schedule of project activities was also beyond the control of community committees. Although this situation was a disincentive for more committed involvement in the project by both government and communities, the need to account for externally provided public funds and the pressure placed by donors to achieve construction targets in a timely fashion made it difficult for the project management to contemplate an alternative approach.
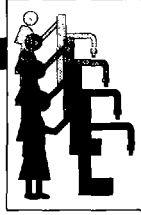
Supportive leadership

Institutional development requires strong leadership at the top. To promote human capacity development and self-reliance, a leadership style that is facilitative, with a strong belief in people's abilities, should permeate the organizational culture and be shared by its members.

This strong but supportive leadership style is characterized by open management, shared vision, team spirit, decentralized control and role clarity. When groups experience strong leadership that is inspiring without being dominating, members will share the vision of the leader (goals, objectives, indicators of success, values, norms, future orientation) and enthusiasm will be high.

Target:

To develop senior leadership within agencies and communities that is strong, visionary, facilitative and supports human capacity development and self-reliance.

Data required:

Data will be required to assess the extent to which leaders practice open management. This includes a belief in human capacity; open development of procedures in consultation with staff or members of groups; decisionmaking through consensus; shared vision of the function and purpose of the group or agency; staff morale and team spirit; known and accepted rules and regulations; decentralized control over resources and action.

What to monitor/evaluate:

Open Management: leaders believe in human capac ty, have respect for opinions of others, make decisions through consensus, and are available to others.

Shared Vision: shared goals, objectives, indicators of success, values, norms, and future orientation.

Team Spirit: enthusiasm, high morale, accepted rules and regulations.

Decentralized control: each member/staff functions relatively autonomously; interlinking job descriptions; clarity on individual roles.

Methods:

Open-ended interviews; discussion groups; self-rating of group functioning, including leadership.

Before discussing leadership issues with groups, the support and involvement of their leaders should be obtained, otherwise leaders will be alienated and the impact of the evaluation on overall performance will be negative.

Diagrams can be useful to trace the degree of decentralization of decisionmaking in an agency, especially the decision to invest resources in communities in response to community demand.

Sub-Indicator S.3.c

Systems for learning and problem-solving

Target:

To institutionalize administrative systems for learning and problem-solving within community groups and partnership agencies, including procedures for two-way information flow, generating resources (including new activities), conflict resolution and self-diagnosis (monitoring and evaluation).

Data required:

Data should focus on agency/community group procedures and systems for generating and exchanging information and resources, resolving conflicts, and monitoring and evaluating. Data will be needed about:

- Who is involved and what are the procedures and frequency of two-way information flow and its use (from community to agency and from agency to community)?

- What is the group/institutional capacity and what are the procedures to generate additional resources and activities? Is there any evidence of this ability existing?

- What are the systems to resolve conflicts between members and with outsiders? Is there any evidence of effective resolution of conflicts? Have approved sanctions been developed?

- What are the feedback mechanisms for monitoring and self-diagnosis? Can a group/agency evaluate itself and take corrective action? Has it changed its activities or process, or added new components?

Field Insight—Pakistan

In the early 1980s, Akhter Hameed Khan, a world-renowned community organizer, began working in the slums of Karachi. When he first asked what problem he could help solve, he was told that the streets of the city were filled with excreta and wastewater, making movement difficult and creating enormous health hazards. "What did the people want, and how did they intend to get it?," he asked. What they wanted was clear: "people aspired to a conventional sewer system... It would be difficu t to get them to finance anything else."

At first, Dr. Khan petitioned the local government to provide the services After months with no success, Dr. Khan turned to the local people to find alternatives. Through this process, he was able to free people from the immobilizing myths of government promises, and help them address the problem themselves.

With small amounts of core external funding, the Orangi Pilot Project (OPP) was started. To enable people to get the services they wanted, the first task was to reduce the costs to affordable levels and to develop organizations that could provide and operate the systems. Thanks partly to the elimination of corruption and the provision of labor by community members, the costs for an in-house sanitary latrine and house sewer on the plot, and underground sewers in the lanes and streets, fell to less than $50 per household.

The project eventually led to the provision of sewerage services to more than 600,000 poor people in Karachi and to recent initiatives by several municipalities in Pakistan to use the same methods employed by Akhter Hameed Khan.

Source: *World Development Report, 1992.*

What to monitor/evaluate:

Is there a two-way information flow and is this information used?

Are new resources being generated?

Are conflicts resolved satisfactorily?

Is the group or agency self-critical?

Methods:

Study of group and agency documents.

Open-ended interviews; observations of agency/group meetings; discussion groups.

When members express knowledge about procedures, this is solid evidence that procedures are in place. However, there still may be a difference between knowledge of how a conflict should be resolved and how it is actually resolved.
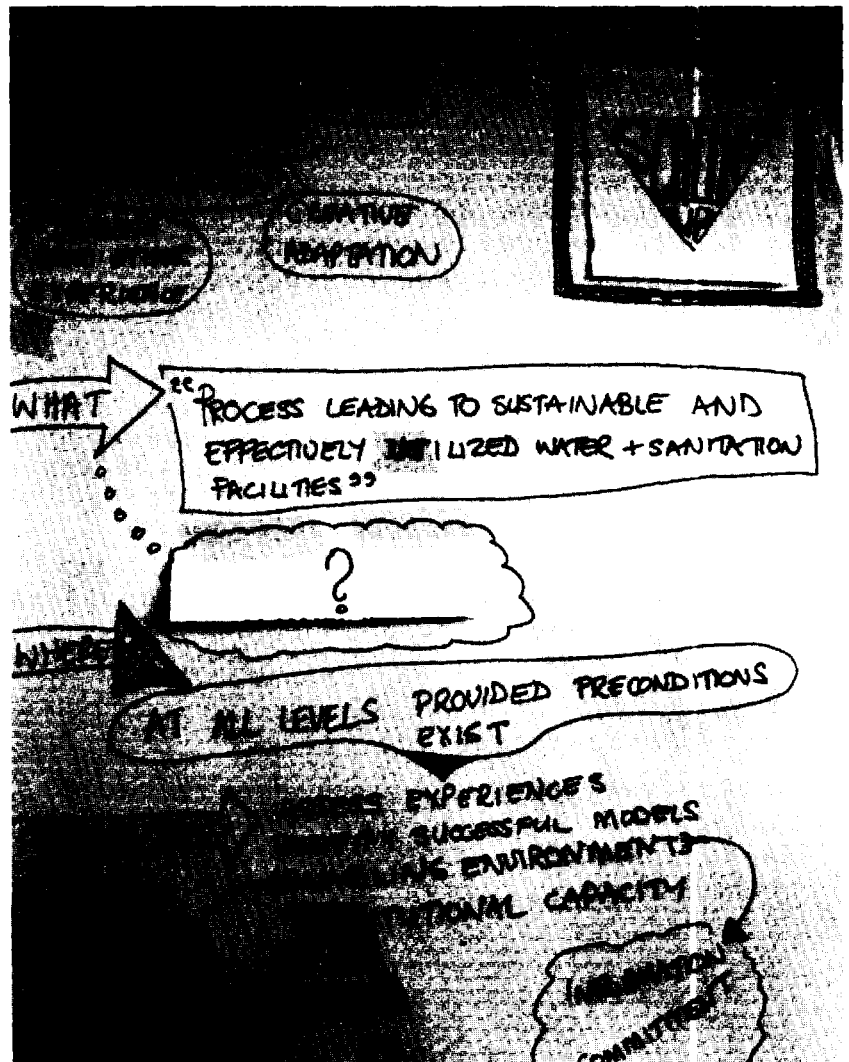
Field Insight—Ghana

A learning process involving users, service providers and policymakers can be successfully applied to planning city sanitation services.

In Kumasi, Ghana's second largest city, four sanitation master plans had been produced since 1951, but after forty years of planning for a single, high-cost system, none of the plans had progressed beyond the first stage of implementation. As a result, the city still had no comprehensive sewerage system and most of the city remained unserved. Three-quarters of Kumasi's population of 700,000 people had no access to adequate sanitation facilities.

Deciding upon a new approach, local officials conducted a "willingness-to-pay" survey among more than 2,000 representative residents to determine their preferences for various sanitation technologies and their financial resources to support new systems. Four findings were most revealing: (a) families on average were willing to pay about the same amount for sanitation as they paid for rent, electricity or water; (b) the poorest people who used public latrines were spending more for sanitation than those with household systems; (c) people were willing to pay approximately the same for a household latrine and for a sewer connection; and (d) the poor were willing to pay for latrines, but not for sewerage because of low reliability in the past.

As a result of these findings, a home latrine program was developed to test whether people in different neighborhoods would be willing to invest their own money in new or improved facilities. The response has been encouraging: in the three pilot areas, a total of 155 new or improved units have been constructed through revolving loan schemes serving almost 4,000 users with better, safer household facilities. Monthly fees to pay off the investment are collected from participating families.

Through this learning process, the role of government has also changed from provider to promoter of services. In the past, the city council was directly responsible for running and maintaining public latrines. Today, the operation and maintenance has been turned over to the private sector. This new arrangement has brought about a vast improvement in public sanitation services at no extra cost to the city council. On the contrary, what used to be a drain on the city's resources has now become an income earning enterprise.

Field Insight—Indonesia

Lack of information, confidence, trust, and clarity about who owns facilities can prevent corrective action from being taken. In a rural water project in Indonesia, a pump remained broken for six months because the government officials in the provincial capital assumed that the well had run dry. When a participatory evaluation team came to the village, Pak Kake, an elderly man living close to the well, whose love of tinkering was well known, was asked why the well was dry. He said, "I have measured with a rope and the water level has fallen to 52-meters, whereas the cylinder hangs at 45-meters. We have not repaired the pump because we are waiting for the chief administrator to give us permission."

When this information was conveyed to the senior government officials in the provincial capital, a technical team visited the site, verified Pak Kake's observations, clarified ownership rights and worked with the water group to fix the pump. Within hours, water was again flowing.

KEY INDICATOR S.4

Cost-Sharing and Unit Costs
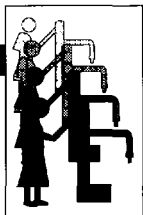
Community/agency contributions
and unit costs
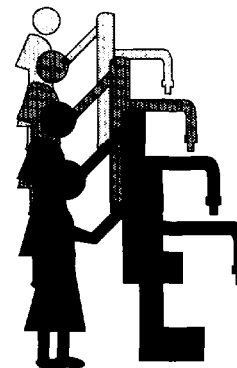
If demand-driven approaches are to be adopted, users need to not only express what they want but also demonstrate their commitment to taking action. The key indicator of this commitment is the voluntary contribution of personal or communal resources (cash or in kind).

Target:
To ensure that communities and households can afford and are willing to pay some of the capital costs and all of the operation and maintenance costs of water and sanitation systems, and to have cost-sharing arrangements with support agencies for the extension or replacement of existing facilities.

Data required:
Data will differ for communal, institutional and individually-owned systems. In each case, data gathering should focus on two broad areas: (a) obtaining evidence that people understand why they must pay and that they are doing so willingly; and (b) ensuring that the system for collecting and managing funds is accountable, transparent, adaptable, and cost-effective. More specifically, data will be needed to answer the following questions:

- Have people contributed per the agreement and is this managed with minimal agency costs?

- Are the per capita unit costs appropriate to the level and quality of service?

- Are people making payments and are these sufficient to cover operation and maintenance and replacement costs?

- Are there systematic and transparent accounting and financial management systems with which people are satisfied?

- Are there effective community and agency rules and regulations regarding fee collection, management and responsible use?

- Is handling of community resources by the agency completely avoided or kept to a minimum?

Field Insight—Tanzania

It makes no economic sense to recover costs if the cost of recovering the costs is greater than the cost recovered.

In a project in Tanzania, community members were asked to make nominal monthly contributions toward a community water fund. Government extension workers did not handle the money at any stage, but rather urged people to open bank accounts. However, the process involved for monthly collection and deposit of such small amounts proved to be so laborious that the system was abandoned. A new system was developed in which money was collected by the group treasurer only when there was a breakdown in the water system. This proved to be a simpler, more cost-effective method of ensuring community financing.

What to monitor/evaluate:

Does the community have increased capacity to generate and manage financial resources for (a) routine operation and maintenance; (b) major repairs and overhauls; and (c) new facilities and replacement costs?

Are government subsidies made available in a smooth and timely manner?

Are the per capita unit costs affordable, reasonable, increasing or decreasing?

Methods:

Open-ended interviews and discussions with those who pay and those who do not, and with committee members, fee collection officials and community people; attending a water users meeting; indirect questions about affordability secondary data on income and seasonal availability of household cash.

A quick participatory evaluation should not even attempt to assess number of cattle or land owned in trying to measure income. However, community members themselves may want to rank the wealth of families and identify meaningful indicators of wealth. It is also useful to have community people estimate how much cash they spend on various services, such as education, health care, electricity, transportation, and water.

Field Insight—Lesotho

Community people know well the relative wealth and poverty of other community members. In Lesotho, a way was found to put their knowledge to use without resorting to socioeconomic surveys.

Based on information from earlier studies, a set of thirty small picture cards was drawn, signifying indicators of local wealth and poverty, such as maize porridge, rice, cattle, chickens and a nice house. A few blank cards were provided so that any missing indicators could be added.

Village women sorted the pictures into three categories of items owned by rich, average and poor people. They then picked three indicators for each category of wealth. Feeling no need for secrecy, the women took only a few minutes to rate themselves and neighboring families in the appropriate categories. In total agreement, they then recategorized the cards based on gender of the head of household, thus identifying wealth differences based on gender.
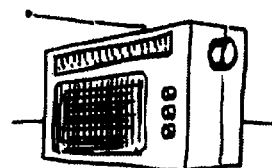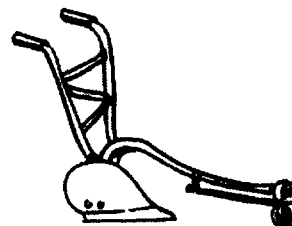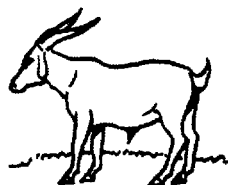
KEY INDICATOR S.5

Collaboration Among Organizations

Sustainable water and sanitation systems can only be planned and implemented through interagency collaboration involving some combination of the community, government, NGOs, the private sector, research institutes, and other organizations. Particularly important in most countries is collaboration between communities and the different ministries responsible for water, sanitation, and health education. Interorganizational collaboration is needed both in planning and implementation of activities.
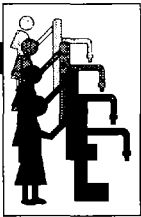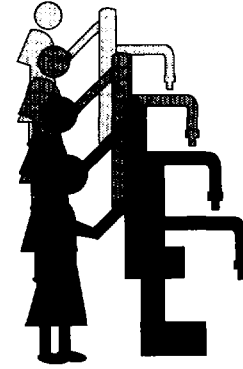
Sub-Indicators S.5.a-b

Planning and activities

Target:
To achieve systems for mutually supportive interagency collaboration in workplans and field implementation.

Data required:
Evidence of past collaboration; informal and institutionalized procedures to achieve collaboration, both at the community and agency levels; workplans based on, or assuming, effective interagency collaboration.

What to monitor/evaluate:
Are relevant staff of different agencies familiar with each others work?

Do interagency staff value collaboration with other agencies and seek it out?

How is the collaboration evident in planning and implementation?

Methods:
Interviews and discussion groups with community people, workers, agency staff.

Study of project documents.

5. Measuring Effective Use
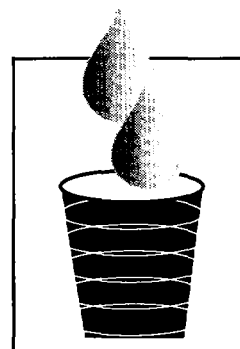
Effective use is the optimal, hygienic and consistent use of water and sanitation facilities to maximize benefits and minimize negative consequences over an extended period of time.

Once implemented and functioning, water and sanitation systems must be utilized if the community is to experience positive health, economic, social, and environmental impacts.

Yet experience indicates that focusing on utilization alone is not enough.

Available safe water may not be used in sufficient quantity; water may be pure at source but become contaminated in the journey to the home; dirty toilets can become health hazards rather than health aids; safe water and toilet facilities may not be consistently used, or may be used by fewer people than intended; overuse may cause environmental degradation, including contamination and lowering of water tables.

Unless water and sanitation facilities are "effectively used" there will be little positive health impact. Indicators measuring effective use place central attention on people, especially on the involvement of women and children, who are the primary users of domestic water and sanitation systems in most cultural contexts. Focusing on effective use as an indicator of success ensures that hygiene education, based on behavioral changes, is fully integrated into programs, rather than being carried out later as an ineffective "add-on".

As with all other aspects of participatory development, effective use of facilities depends on local capacity-building through involvement in planning and implementation.

In measuring the objective of effective use, there are three key indicators to evaluate:

E.1 Optimal use
E.2 Hygienic use
E.3 Consistent use

The remainder of this chapter outlines each key indicator for the objective of effective use and how to monitor and evaluate the relevant sub-indicators for each.

Box 5-1. Measuring Effective Use

—Key Indicators and Sub-Indicators—
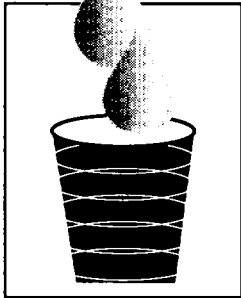
E.1 Optimal use

E.1.a   Number and characteristics of users
E.1.b   Quantity of water used (all purposes)
E.1.c   Time taken to use facilities
E.1.d   Management of water resources

E.2 Hygienic use

E.2.a   Water quality at home
E.2.b   Water transport and storage practices
E.2.c   Home practices to improve water quality
E.2.d   Site and home cleanliness
E.2.e   Personal hygiene practices

E.3 Consistent use

E.3.a   Pattern of daily use
E.3.b   Pattern of seasonal use

KEY INDICATOR E.1

Optimal Use

Optimal use refers to the use of facilities to maximize economic benefits without short or long-term detrimental effects on the environment.

There are four primary sub-indicators of optimal use:

E.1.a	Number and characteristics of users
E.1.b	Quantity of water used (all purposes)
E.1.c	Time taken to use facilities
E.1.d	Management of water resources
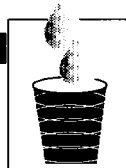
Sub-Indicator E.1.a

Number and characteristics of users

If a water point is designed to meet the needs of thirty households but is utilized by only five; if a private toilet is meant for all household members but is only being utilized by adult females; if a communal toilet or water point is utilized by certain ethnic or wealth groups but not others, then the facility is not being economically used. That is, optimal benefits are not being realized for the financial investments made.

Figure 5-1. EFFECTIVE USE OF WATER SUPPLY FACILITIES

```
┌──────────────────────────┐      ┌──────────────────┐      ┌──────────────────────────┐
│ ARE WATER SUPPLY         │      │                  │      │ ARE OPTIMAL HEALTH,      │
│ FACILITIES EFFECTIVELY   │─────▶│ BASICALLY YES    │─────▶│ SOCIAL, ECONOMIC AND     │
│ UTILIZED?                │      │                  │      │ ENVIRONMENTAL BENEFITS   │
└──────────────────────────┘      └──────────────────┘      │ BEING ACHIEVED?          │
                                                             └──────────────────────────┘
```

NO, THERE ARE ONE OR MORE
FUNDAMENTAL PROBLEMS

FACILITIES NOT OPTIMALLY USED

- too many users
- too few users
- some potential users excluded
- use restricted to some specific purposes
- quantity of water not increased since project installed
- time taken to use facilities too long
- environmental degradation

FACILITIES NOT HYGIENI-CALLY USED

- water contaminated during transport
- water contaminated at home
- home improvements of quality not practiced
- poor environmental conditions at site and/or at home
- poor personal hygiene practices

FACILITIES NOT CONSIS-TENTLY USED

- big seasonal variations
- inconsistent daily use

WHY?

- poor functioning of the facilities
- poor management
- perceived costs exceed perceived benefits
- access limited to one gender, certain class, caste, ethnic groups
- waste water not drained away or utilized

WHY?

- ineffective hygiene education
- people do not see the value in changing behavior
- unsuitable containers used
- inadequate hand cleansing after defecation and before eating
- animals not restricted
- poor design

WHY?

- ineffective health education
- other source more convenient during the wet season and during the day

Target:
To encourage everyone within a defined distance—including people from different wealth, ethnic and caste groups —to use a communal water or sanitation facility.

Target distance will vary in different regions of a country and between countries.

For household facilities, the goal must be to encourage all household members—men, women, the elderly and very young children—to use the facilities. Special design features should be considered to encourage the use of toilets by toddlers, preschool children and women during pregnancy, menstruation and at night.

Data required:
Total number of users per facility; characteristics and background of users and non-users; reasons for use or non-use.

What to monitor/evaluate:
What percentage of total target population is using improved facilities per design criteria?

Who are the non-users? Why are they not using the facilities?

Methods:
Observation at water points and communal toilet facilities. Special attention should be paid to "non-reactive" measures of use, such as presence of stored water in toilets, trampled grass, greenery (or lack thereof) near water points, and the presence of excreta near households or in public places.

To identify non-users, it may be necessary to conduct observations very early in the morning at traditional water points and defecation sites such as forests, railway lines, beaches, and the bush.

In addition, there should be individual and group discussions. For example:

- a few private individual interviews with both sexes, focusing on advantages and disadvantages of different water and sanitation options;
- interviews on-site at unimproved water and sanitation facilities;
- observations in a few homes where there are very young children;
- mapping of facility location and use;
- use of miniature models to focus group discussion and understanding of needed design changes;
- card game with pictures of practices related to good health and sickness, including pictures of improved and unimproved sources; pocket chart for voting on factors and options involved; community mapping of facilities used by different groups.

Accurately assessing use is often difficult through direct questions. If household surveys are considered necessary, avoid a direct focus on use of improved facilities. For example, do not start an interview with a specific question such as "Do you use the handpump?" or "Do you like the handpump?" It is better to start with general questions: "What are the water sources in this community and what are their advantages and disadvantages?"; "What facilities do people like to use?"; "What about people in your household?"; "What about you?"

The gender of the interviewer is important. Use female interviewers for women and males for men. Do not depend only on village officials or men for all information. If there is time to talk to only four people, speak with two men and two women of differing ages and wealth.

Quantity of water used (all purposes)

The overall purpose of improved water facilities is to increase the total volume of water used for household purposes, which in turn influences the pattern of water used within households.

Most water supply facilities are designed to cater to all domestic needs such as cooking, drinking, and washing. Design criteria, specified in liters per capita per day (lpcd), may include use of water for domestic animals as well as for watering vegetable gardens. These design criteria will vary with the level of service, ranging from public standposts, to communal or shared handpumps, to private yard connections.

Target:
To increase the quantity of safe water economically used for domestic purposes.

Data required:
For water systems: total quantity of water used for all household purposes and micro-enterprises such as vegetable and fruit production, fish ponds and raising domestic animals. Usually reported in lpcd.

For water-seal toilets: the quantity of water needed for flushing. If slopes in pans are poor or water seals defective, large quantities of water which may have to be carried from elsewhere will be needed for flushing. This may increase the time needed to use facilities, thereby negatively effecting use of toilets. For flush toilets, the amount of water needed for effective flushing should not exceed the specified design criteria. Data will be required on liters of water needed for effective flushing by adults and children.

What to monitor/evaluate:

What is the total quantity of water used? (lpcd)

Has the lpcd increased, decreased, remained constant? Why?

What quantities of water are used for different purposes? Has this changed? Why?

Methods:

The two main methods are (a) observing and interviewing others or (b) self-observation and recording. Both methods can be used to obtain information about total daily water collection and use of water for different purposes.

If precise data are not needed, then some idea about use can be obtained through observation and interviews at water points and latrines in households. Village women and school girls often make very effective observers and interviewers. (These methods should be used only with the agreement of community people).

In observing water collection, containers need not be measured each time if a few standard sizes are used.

Water use is usually more difficult to observe and measure within homes as there are few standard-size containers. Prior to making their observations, observers will have to measure and learn to estimate the amount of water in different size containers. Measuring cups can be useful for this purpose.

If handpumps are observed, the number of pumpstrokes needed to fill a container can be recorded by village men, women or children by transferring pebbles from to a container for each completed down stroke and making a mark on a sheet each time the container is emptied.

Women can monitor the number of times water is brought to the house in a day. Each journey is recorded by a tick mark on a formatted page with pictures on it to identify different times or categories of use. This procedure ensures that early morning and midnight visits are not missed. More elaborate methodologies are available for measuring water collection and use when more precise data are required (Cairncross et al, 1983).

When only three or four sources are reported to be heavily used among scattered sources, observers can be placed at each of the main sources. Observers should work in pairs from early morning to nightfall to ensure that one person is observing at all times and to minimize mistakes at times of heavy use. If non-point sources such as streams and springs with ponds are being observed, types of use at sources should be noted.

The advantage of observing at source is that data from several families may be obtained by one observer. However, if families are using other sources as well, then these are missed, unless all sources are monitored simultaneously. One disadvantage of observation at source is that travel time taken for water collection can only be estimated.

If there are numerous water sources, accurate data on water collection can be obtained by placing observers near clusters of a half dozen homes. Each time someone from the household leaves to obtain water, a note is made; on return the time and quantity of water carried are noted again. Data on activities at source are obtained by interviewing the person briefly.

A water use evaluation can be conducted in households selected from those which are already being observed for water collection. Water use can be measured by using a three-liter bucket and a measuring cup. Observers should make three visits—in the morning, later afternoon and very early the following morning. Per capita consumption is calculated by dividing the total quantity of water collected by the total number of people present in the household that day. Estimates can be derived in a variety of ways. For example, divide the total number of hours that a pump is being used by the total

number of residents (estimated by multiplying the total number of households by average family size). To determine the amount of water needed for flushing, ask children, women and men, or try a few toilets yourself.

Even when the decision to observe has been made by community people themselves, patterns of behavior may change in reaction to the presence of the observers. This is especially likely to happen if the observer is of a different gender than the people being observed, and if children are being observed. If this happens, then the first few hours or days of observation should not be included in the evaluation.

Observations should be conducted on typical days, for a few days in a row. Data will not be typical if observations are conducted on festival days, or when there is a wedding or funeral.

Observers should also interview households to ensure that early morning or late night journeys are not missed.

Time taken to use facilities

One of the primary reasons for adopting improved water and sanitation facilities is convenience. The time it takes to use a facility is a significant measure of convenience; time savings is an important indicator of economic impact. Aspects to be measured include the amount of time needed to make the round-trip journey from home and queuing and use time (for water, this includes filling time; for toilets, using and cleaning time).

Water and sanitation facilities should be located where they are closer or more convenient for the majority of the households than traditional alternatives. Convenience and total time taken is influenced by terrain, crowding and location in public places such as markets, type and size of containers and available transport. For water borne toilets, ease of flushing and distance to water for flushing may be additional factors.

Target:

To reduce the total time for the maximum number of people to make a round-trip water collection journey or to visit and use an excreta disposal facility.

Data required:

Since women and children are often the primary carriers of water, the sample must include them. Data required includes time taken for a round-trip journey, waiting and use time, and time savings, if any, as a result of using improved facilities. Average time savings per day will be a function of time saved per journey and total number of trips made per day. Time savings should be recorded with the age and gender of each carrier.

What to monitor/evaluate:

What is the average time taken per trip (for water collection or use of excreta facilities) by women, men and children?

How many water collection trips are made by women, men and children per household per day?

Is time saved by using improved water or toilet facilities? If not, why not?

Methods:

Methods are the same as those noted under sub-indicator E.1.b. Additionally, people can be asked to estimate time, although rural people are usually less clock-conscious than their urban counterparts.

Time saved can also be estimated by simple mapping of houses in relation to old and new facilities and actually timing the round-trip journey to a few households at different distances. (There may not be any net time savings, since more short trips may be taken in order to obtain increased water supplies.)

Note should be made of any transport availability and the extent of its use by women and different ethnic and social groups.

Time allocation studies are sometimes recommended. However, these are extremely time consuming and should not be conducted unless extra resources, time and money are available.

Field Insight—India

In a low-cost sanitation project in a small town in Haryana, residents were uninterested in a project which provided pour-flush latrines on a loan basis. A team of community development specialists formed learning groups of men and women to redesign the project by first understanding and then responding to community needs. In one activity, women's groups conducted self-surveys in preparation for redesigning the project. One of the tools they developed helped the women to explore how they used their time, and what problems they had related to water and sanitation.

A set of small cards, drawn by a local artist, depicted chores and activities that filled a woman's day. Blank cards were also provided. The women began by discussing their daily tasks using the cards. They then sequenced the activities that normally flowed through their day. Using small matchsticks as counters, the women also estimated how much time they spent on each activity. As part of this exercise, they discussed how activities involving cleanliness and sanitation related to themselves and their children. By seeing how many of their tasks involved water and sanitation, these surveys and other exercises led to a dramatic increase in applications for loans for the latrines.

Source: *Jake Pfohl, Haryana, 1984.*

The duration of a round-trip journey will vary with the time of day and the terrain covered. For example, crowding at peak collection times may add to a water journey. A trip to a communal water or sanitation facility may take longer at night or on laundry days. Observation days should be chosen with care to ensure they are typical.

Management of water resources

Because water is a finite and vulnerable resource, drinking water sources must be considered within the broader context of water resource management and environmental conservation.

For example, overuse of water for irrigation results in falling water tables and increased salinity. Opening permanent water points in semi-arid zones may result in concentration of nomadic populations, followed by over-grazing by cattle and an eventual drop in the groundwater table. Improperly designed toilets can pollute groundwater, especially when water tables are high and soil structures porous.

At the community level, water resource management and environmental conservation measures must make sense to local people and build upon their own knowledge systems, or they will not be practiced voluntarily or on a sustained basis. Thus the emphasis should be on both water source protection and micro-watershed management.

Target:
    To establish adequate measures to protect water resources (specific water points and the micro-watershed).

Data required:
    Information will be needed to evaluate measures being consistently taken by communities, government or any other group to protect water points and micro watersheds. This includes any rules and regulations practiced by communities to protect sources, and their efforts to "re-green" their area. In some settings, it is important to know whether domestic water requirements have been integrated within total water requirements for agriculture and industry and whether water is being reused.

What to monitor/evaluate:
    Has the community developed any rules about water source protection? Are these put into practice?

Has the community, government or any agency undertaken any measures to protect the micro-watershed?

Methods:
Observation; discussion with community members, members of water committees, women's groups, community officials and district officials; "before and after" photographs.

KEY INDICATOR E.2

Hygienic Use

Hygienic use of water systems refers to the maintenance or improvement of drinking water quality after it has been withdrawn from the source.

Hygienic use of toilets implies use which results in proper disposal of human excreta, solid and liquid cleansing materials (including water) and in personal cleanliness after completing use of the facility.

Even though pure at its source, water may be contaminated through withdrawing, carrying, transferring and household storage.

The potential for contamination is also influenced by the sanitary conditions at home, at the facility and by personal hygiene. For example, if storage containers are left uncovered, flies, dogs, cows, or dirty hands can pollute the water. Toilets that are not hygienically used result in an improper disposal of faeces, attract flies and become health hazards rather than health aids. Improperly disposed cleansing materials also endanger health.
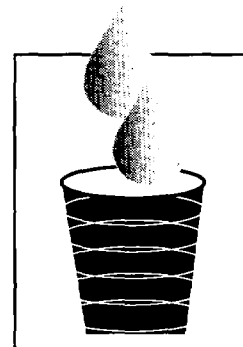
Since health impact studies are not recommended on a routine basis, analyzing factors that pose a risk of contamination is crucial. Through this intermediate step, corrective actions can be determined, thus increasing the probability of maximal positive health impact. Identifying changes in risk factors affecting hygienic use of water and toilets is also a means of evaluating the effectiveness of hygiene education programs. If these programs do not yet exist, identifying risk factors can guide the development of an appropriate hygiene education program.

The effectiveness of health education is determined by the extent to which people have adopted and are effectively using water, sanitation and other facilities.

Traditionally, health education programs have been evaluated through KAP (knowledge, attitude, practice) surveys. However, the effectiveness of health education can be more efficiently evaluated through participatory methods using the materials developed for the program.

When community people are involved in identifying whether these materials have been understood, they gain the self-confidence to suggest changes in the materials and messages and even in the process of materials development itself.

Whether traditional KAP studies or participatory evaluation methods are used, the key questions remain the same:

Personal Habits in Relationship to Using Water

Always ▲											
Sometimes ●											
Never ■											

- Is the language of the message understood?
- Is the content understood?
- Is the content relevant to the cultural context?
- Did the target group receive the messages through media or personal contact?
- Was there a change in behavior?

In Bangladesh, for example, observational studies established that wiping the bottoms of infants with the ends of saris was a major contamination route associated with increased diarrhea episodes. A study in Indonesia, found that samples of drinking water kept on raised platforms were less contaminated than those within easy reach of young children. As these examples indicate, it is more useful to focus on sequences of specific behavioral practices and their observed consequences (increased cleanliness, presence of soap in kitchens, and so forth) than simply conducting knowledge and attitude surveys.

There are five main sub-indicators of hygienic use:

E.2.a	Water quality at home
E.2.b	Water transport and storage practices
E.2.c	Home practices to improve water quality
E.2.d	Site and home cleanliness
E.2.e	Personal hygienic practices

All five of these sub-indicators are relevant to the hygienic use of water; the two measures for use of toilets are site and home cleanliness and personal hygiene practices (E.2.d and E.2.e). The sub-indicators of hygienic use are elaborated upon in the following chart.
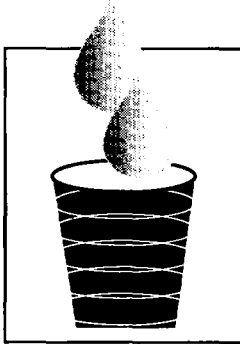
Box 5-2. Measuring Hygienic Use

— Sub-Indicators —

E.2.a Water quality at home*
Maintaining water quality at home from source to mouth during the stages of:

- drawing
- carrying
- storage
- drinking

E.2.b Water transport and storage practices

- Condition of containers and ladles
- Presence of covers and degree of exposure
- Place of storage, including child/ animal access
- Contact with hands and other objects

E.2.c Home practices to improve water quality

- Sedimentation/filtration
- Chemical treatment
- Heating/boiling

E.2.d Site and home cleanliness

- Proper excreta disposal
- Household waste disposal (waste water solid waste)
- Presence of animals and fences
- Presence of vectors and rodents (flies, ascaris eggs, and so on)

E.2.e Personal hygiene practices

- Hand cleansing practices
- Handling of infant faeces
- Body cleansing practices

* As measured by faecal coliform count, smell, taste, turbidity and chemical quality

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Water quality at home

Target:
To maintain the quality of drinking water in its journey from source to mouth.

Safe water quality implies low bacteriological pollution anc. acceptable properties in terms of chemicals, color, odor, and taste.

Data required:
To minimize data needs, information should be focused on the major identified water quality problems in the situation being studied. Depending on the nature of the problem, evaluations should be made of bacteriological quality, faecal coliform count (E coli or faecal streptococci), smell, taste, turbidity, and chemical quality at each stage of the water journey. Water samples must be tested from water in containers used in drawing, carrying, storage and drinking.

What to monitor/evaluate:
What are the major water quality problems (faecal coliform, smell, taste, turbidity, chemical)?

At what points has the water quality improved or declined?

- drawing
- carrying
- storage
- drinking

Methods:
Faecal coliform tests can be conducted using portable millipore kits. Samples should be collected from drawing, carrying, storage and drinking containers. Observation at source should pin the exact point where the water is being collected. This is especially important for improved springs or standposts which may have open reservoirs in addition to pipes or taps

Factors such as taste, turbidity and odor usually are n ore important in determining use than bacteriological quality. Two chemicals that affect use negatively are iron and fluorides. Perceptions of "good water," which are important in designing effective health education programs, can be obtained through open-ended interviews.

The dipslide methods used in millipore kits have advantages over test-tube methods which need well-equipped laboratories. University students and carefully selected community people

Field Insight—Kenya

In Kibwezi, Kenya, a community well committee that had been building and managing wells since 1984 decided to evaluate its performance with the assistance of the African Medical Research and Educational Foundation (AMREF).

One part of the evaluation focused on water quality. After being trained, committee members tested water wells using the coliform dipslide method. A sanitary survey was conducted at nine wells, and photographs were taken to visually identify possible sources of pollution. High levels of pollution were found in samples taken from households.

Observing coliform colonies through magnifying glasses, the committee correlated these samples with photographs and visual inspection of well sites and water containers. Alarmed by the sight of faecal colonies, the committee developed a practical plan of corrective action. This included repairing well linings, education of community members, increased chlorination and further examination of condition, color and translucency of jerry cans.

Source: *M. Woodhouse, AMREF, Nairobi.*

can be trained to conduct the tests, however great caution is needed to ensure that tests results are reliable. Reliability of results depends more on motivation than on years of laboratory experience.

Water transport and storage practices

Water that is pure at the source often becomes contaminated after it is withdrawn. Merely knowing that pollution occurs is insufficient to formulate corrective action; we need to know how it is becoming contaminated. Water is likely to become contaminated if containers and ladles are dirty, uncovered, kept in dirty places or are in contact with dirty hands and objects such as dirty funnels; or if dirty broken bottles are being used to transfer water; or leaves are being used to stabilize water. Each of these sources of contamination leads to specific interventions.

There are four primary routes of contamination at each point in the water journey. They are:

- Condition of containers and ladles
- Presence of covers and the degree of exposure
- Place of storage, including child access
- Contact with hands and objects

Target:
To eliminate the major water contamination risk factors through hygiene education activities.

Data required:
Precise, descriptive data are required of local practices and how commonplace they are.

Descriptions should include the types of containers and ladles used: buckets, bamboo, ceramic or clay pots, jerry cans, and so forth; whether they appear clean; cleaning practices before filling; how containers are filled and carried; whether any stabilizing elements (such as leaves) are used to cover buckets while being carried home; contact with fingers and other objects during any stage of the journey.

Place of storage of the water container and dippers can contribute to improving quality or increasing contamination. For example, leaving buckets of water in the sun for several hours may decrease the bacteria. However, while the buckets are exposed, dogs, cats and other animals may take a drink. Similarly, water stored at a height on a platform may be purer than water stored within the reach of young children.

Personal beliefs about whether water can become pol uted and the sources of pollution are important. Knowledge of beliefs and practices allows carefully focused hygiene education strategies to be developed. If people do not believe that water can become contaminated, then health education strategies have not been effective.

What to monitor/evaluate:

What are the most common water contamination risks in this context?

Has the risk of water contamination been reduced or eliminated?

Methods:

Observation; group discussion; self-survey using photographs or drawings of different methods used in transporting and storing water.

Hygiene education materials can be used in an open-ended manner to assess the impact of health education strategies. This procedure also simultaneously results in testing the understanding, relevance and extent of dissemination of health education materials.

The impact of hygiene education can also be assessed through role playing and dramas which are open-ended but revolve around the main themes of health education activities. Audience participation, reaction and discussion following such a presentation are effective short-cuts for assessing the degree to which health education messages have reached people and are understood and practiced. If more precise information is needed on numbers reached, an adaptation of the pocket chart may be more useful.

Field Insight—Kenya

Flexiflans consist of paper cut-outs of human figures with flexible arms, legs and torsos which can be placed on a flannel-covered board to illustrate a point of view or to relate an incident or a story. Flexiflans are an excellent tool for increasing the creative involvement of stakeholders in the participatory evaluation process.

In Kibwezi, Kenya, women used flexiflans to depict contamination risks of water in the journey from the community well to the home, and then to a drinking container.

By choosing pictures that represented the women's perceptions of the contamination risks, a discussion and debate was generated, leading users to think about ways of decreasing contamination from source to mouth.

Games using health education materials and messages from the project area should not only seek "yes/no" answers but also address "why" questions. These games should not be administered or construed as a test.
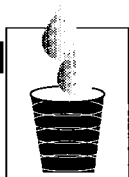
Sub-Indicator E.2.c

Home practices to improve water quality

The local definition of what is "good" drinking water influences community water handling practices and interest in improving water quality. The most common practices are sedimentation/filtration, chemical treatment and boiling.

Target:
To improve water quality to acceptable levels of bacteria, chemicals, turbidity, taste and odor after withdrawal from source.

Data required:
Data will be needed on the extent of home water quality improvement. Examples include heating of water, including boiling, filtration, sedimentation and use of special containers.

Procedures used to improve water quality should be evaluated and linked to any change or lack of change in measured water quality. For example, samples of boiled water may be found to be as contaminated as unboiled water. Inclusion of boiling as an indicator does not imply that boiling should be promoted as a desired practice.

Beliefs about why and how water quality should be improved are important. The prevalence of practices promoting water quality and changes in beliefs is a test of efficacy of health education strategies.

What to monitor/evaluate:
What is the prevalence of practices to improve water quality after it has been withdrawn from source?

Are these practices effectively conducted?

Do they measurably improve water quality?

Methods:
Self-surveys followed by discussion may be the quickest and most effective ways of getting reliable information.

Household observations and interviews using open-ended questions.

Field Insight—Lesotho

Many variations of the common children's board game of snakes and ladders are available for use in health education. The board has pictures of health practices at the bottom of the ladder — for example, an infant being immunized or using a latrine — which enables a person who lands there at the throw of the dice to climb up the ladder. Conversely, negative practices are at the snake head; a person landing there goes down the snake and is more likely to lose the game.

The same board game can be made more open-ended and used for evaluation purposes by drawing the board without any pictures. Images of positive and negative health/hygiene practices are drawn on small cards which are then mixed up and placed face up. Landing at the bottom of the ladder, the player has to pick a picture that promotes health in order to move up the ladder. This changes the game from one of chance to one of choice. If played in teams, the game can generate much discussion of which practices promote health and which can cause sickness.

In Lesotho, this game was played with fourth graders. When it became clear to the district sanitation officers that children's awareness of hygiene and sanitation was very low, sanitation officers immediately followed up with the principal and set up a schedule for a school health education program.
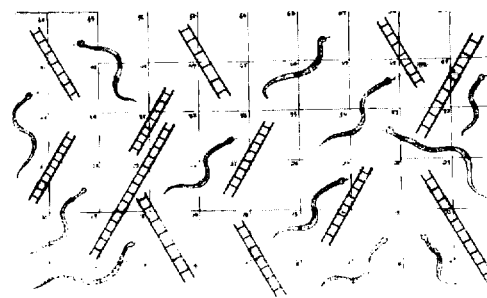
A few detailed descriptions of filtration, sedimentation, boiling, and other procedures should be obtained and if possible observed to establish clearly what people mean when they speak about these procedures. For example, boiling of water may only mean "heating" the water; the procedure of transferring boiled water to storage containers may be contaminating. In areas with guinea worm infestation, observe the condition of filters and how they are used.

When health education messages have been extensive, it becomes extremely important to use questions that do not elicit what are perceived to be the desired answers. In such a context, participatory methods and open-ended questions become even more crucial.

Site and home cleanliness

Whether a water or sanitation facility promotes health depends not only on its technical functioning, but also on the environmental/sanitary conditions surrounding the facility and in the home.

Uncovered water containers are dangerous if there are animals, flies and insects, or contaminated water in the surroundings. Stagnant water, garbage and human excreta that are indiscriminately disposed of attract flies, breed mosquitoes and introduce health hazards.

Clean toilets and bathing facilities promote health through proper disposal of human excreta and cleansing materials, water, stones, paper, sticks, leaves, grass, corncob, and cloth.

The four main items to be measured are:

- Proper excreta disposal
- Household waste disposal (solid waste, gray water)
- Presence of animals and fences
- Presence of rodents, flies, mosquitoes, ascaris eggs, and other vectors

Target:
To ensure that hygiene conditions at the home, facility and surrounding vicinity are clean and promote health.

Homes and facility sites should be free of human excreta, waste water, household and solid waste, unrestricted animals, rodents, and other vectors.

Data required:
Data required can include: presence of urine, faeces (animal and human), odors, ascaris eggs, flies, garbage, waste water, mosquitoes, animals (dogs, cattle, pigs and hens), rats, and other rodents. Special note should be made of fences and other means of restricting the movement of animals.

If problems exist, community perceptions should be ascertained. Do people see the situation as a problem? To evaluate change, obtain comparative data from unimproved sites, traditional water sources, defecation sites and houses using such sites. If baseline data exist, then the sanitary conditions at homes and sites at the time of evaluation should have improved.

What to monitor/evaluate:
Is the immediate vicinity of water points, toilets and households free of excreta?

Is solid waste carted away, properly buried or burned?

Is waste water properly disposed?

Are homes and water points protected from cattle and other animals by fences or other devices?

Are flies, mosquitoes, ascaris eggs and rodents decreasing in homes, at water points and in toilet facilities?

Methods:
The most reliable method is observation of facilities and homes. Observation formats can be developed and used by groups of village women, children, men, and outsiders. Observation of sanitary conditions at site should be combined with observations on the number of users of different facilities. Discussions focused on "before and after" photographs or drawings can be effective in eliciting community perceptions about "unimproved" and "improved" situations and responsibility for ensuring proper cleanliness of facilities.

In discussing issues dealing with health education, people tend to give socially desirable responses. If outside investigators are conducting the evaluation, they should be aware that facilities may have been specially cleaned in anticipation of their visit. If time is short, it is more useful to spend more time with a few households or communities than to hurry from house to house or community to community.

Field Insight—Mali

In Mali, a focus group discussion on environmental sanitation was held among families living in a compound in Bamako. They identified the local blocked and overflowing sewers as their most critical sanitation problem. In discussing the problem, it became clear that education and awareness alone were not sufficient.

The journey of garbage from within the household to the garbage dump was traced. Constrained by resources, the city authorities had only two garbage collection trucks; these were able to collect community garbage infrequently. Realizing this, local women stopped carrying the garbage to the designated sites and dumped it, instead, into the open sewers, which subsequently became blocked. Follow-up discussions with city authorities led to privatization of garbage collection in some areas of Bamako. This included a collection contract with a women's cooperative.
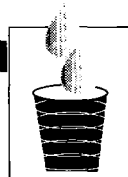
Personal hygienic practices

Water quality is affected by personal hygienic practices, especially those of mothers and older children who are responsible for water collection and the care of infants and toddlers. (Belief that faeces of infants—a common pollutant—are harmless is prevalent).

To obtain full health benefits from the use of improved facilities, toilets must be clean and individuals should use proper body and hand-cleansing procedures after defecation so that they remain free of bacteriological contamination.

Thus the focus should be on:

- hand-cleansing practices (when, where, and how; materials used)
- handling of infant faeces (when and how; materials used; where disposed)
- body-cleansing practices.

Target:

To promote effective and more frequent body and hand-cleansing procedures, especially after defecation, cleaning baby bottoms, safely disposing of infant faeces, and before contact with food.

Data required:

Data need to be collected on traditional hand and body-cleansing procedures divided by gender and age; descriptions and rationale for use or non-use of right or left hands and specific cleansing agents such as water, soap, sand, mud, clay, ash, cloth, paper or leaves; where and how often hands and bodies are cleaned, with special focus on cleansing after defecation and before contact with food; presence of water, mud or clay in the kitchens, bathing areas and toilets.

Descriptions of cleansing procedures should include materials used to wipe hands (such as clothes, which may be dirty). Pay special attention to contact with contaminated bodies of water, such as step wells infested with guinea worm. Changes in any of these practices are important indicators of the effectiveness of educational strategies.

Data on handling of infant and child faeces are extremely important. In most parts of the world, toddlers are kept close to the mother and may defecate or urinate in the kitchen. How this is handled by the mother who may also be cooking at the same time is important. For example, faeces may not be attended to immediately, or wiped by the same cloth used for wiping hands after washing.

Similarly, female children often care for their younger siblings. Their handling of faeces is important, since young children themselves are most often the victims of diarrhea.

Personal hygiene procedures cannot be isolated from the cultural context in which they are deeply embedded. Indigenous knowledge systems regarding such concepts as cleanliness, dirtiness, pollution and purity often determine which hand and what materials are used for cleaning after defecation. This information is as important to obtain as information about functioning and design features affecting ease or of proper use of water and sanitation facilities.

Since personal hygienic practices are difficult to study by direct questions, community self-assessment reported to non-threatening outsiders is a more reliable method for obtaining data. However, this it not likely to yield reliable information to health authorities known to take punitive or non-empathic measures.

Hence special consideration should be given to indirect indicators which vary across cultures, depending on the particular context. Examples include:
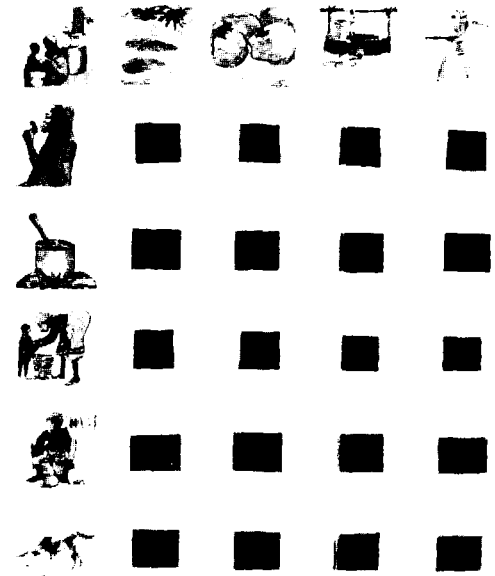
- increased presence of water containers, soap and ash in kitchens, bathrooms and toilets
- increased mention of water for toilets
- bathing or washing reported in water use measurement study
- perceived decline (self-reports) in skin diseases
- increased self-reported pride in being clean
- increased sale or home production of soaps
- increased presence of bathing cubicles and washing slabs.

What to monitor/evaluate:

Have cleansing procedures after defecation been adapted, resulting in reduced risk of contamination?

Are effective hand-cleansing procedures observed after defecation and before eating?

Are infant faeces handled and disposed of in a safe manner?

Have body-cleansing procedures improved in effectiveness and frequency?

Methods:

Observation; open-ended interviews; asking people to give detailed descriptions; self-surveys; drama which can be very funny yet important in increasing understanding and eliciting information; semi-protective techniques using picture sorting and classification; story completion.

If time is limited, observing five different families will be more useful than superficially surveying 100 households.

Hygiene education materials can be used in an open-ended way as an evaluation tool.

Depending on the cultural context, direct questions ("How many times a day do you bathe?"; "Do you wash your hands after defecation?") can give offense, especially across genders. Beware of the high probability of eliciting socially desirable answers and frequency counts made without understanding why people engage in certain practices and have not changed others. Such data are usually meaningless.

Box 5-3. Personal Hygienic Practices and Checklist Items

Behavior	Indicators	Typical Checklist Item
Removes and/or cleans fecal matter from the home.	Presence or absence of faeces on the floor or counters.	Is any fecal matter of any type present? Yes = 1 No = 0
Appropriate food storage.	Protection of cooked food stuffs.	Is all cooked leftover food stored in a covered container? Yes = 1 No = 0
Appropriate water storage.	Protection of water stored in the home.	Are water vessels covered? Yes = 1 No = 0
Removes and/or cleans garbage from the home.	Presence of garbage on interior floors.	Is there garbage on the floor? Yes = 1 No = 0
Removes and/or cleans garbage from the patio.	Patio has been swept/raked recently.	Has the patio been swept or raked recently? Yes = 1 No = 0
Builds and uses a latrine.	Purchase of a latrine; installation of latrine; continued use of a latrine.	Does inspection of the latrine show signs of continued use? Yes = 1 No = 0
Builds and uses a domestic animal barrier.	Presence of a barrier across the threshold.	Is the barrier maintained in position? Yes = 1 No = 0

Source: Eric Nordberg and Uno Windblad, SIDA, 1990.
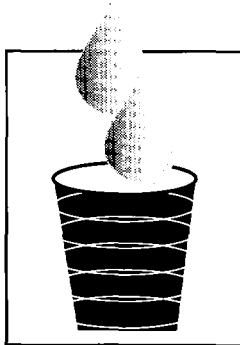
KEY INDICATOR E.3

Consistent Use
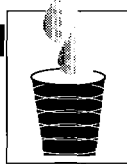
Patterns of daily and seasonal use

Consistent use refers to use of facilities throughout their life, taking into account patterns of use during daily and seasonal cycles. Family members may be in different locations during the day or may migrate seasonally; water use patterns may change as new and closer sources open during the rainy season, or as primary sources are flooded out.

Target:
To bring about consistent use of improved water supplies and defecation facilities by both genders during the daily and seasonal cycles (for children, this includes use of safe water and toilets while at school).

Data required:
Daily and seasonal migration movements of men, women and children of all ages; access to and use of improved facilities in the environments where family members spend substantial time away from primary homes (for example, while at work and at school).

What to monitor/evaluate:
Is safe water used consistently for drinking, cooking, bathing, and washing?
- daily
- seasonally

Are improved toilets or other excreta disposal facilities consistently used by men, women, and children?
- daily
- seasonally

Methods:
Open-ended interviews and discussion focusing on daily work and rest cycles, conducted separately with men, women, and children.

Some observation of different facilities (for example, at schools, and in or near agricultural fields).

Information about changes in water sources should be cross-checked carefully if it is based on personal recall. Rather than ask, "Do you use rainwater in the rainy season?," ask instead a more specific question, such as, "How many times is water collected during the rainy season?"

Field Insight—Thailand

In a project in Thailand, the following set of indicators was used.

OBJECTIVES	PRIORITY INDICATORS
Optimal Use	Number of users compared to anticipated users. % increase in daily per capita consumption. Time saved per water trip or trip to defecation site. Distance to facility. Known rules about water use.
Hygienic Use	Improved water quality in household. Protection or treatment of water in household. Decreased risk of contamination of water during transport. Improved cleanliness at site and home. Increased hand cleansing after defecation and before food preparation.
Consistent Use	Improved facilities used at most locations.

6. Measuring Replicability

Replicability is the capacity to duplicate the processes and benefits of a set of development activities in new locations after their effectiveness has been demonstrated in limited geographic areas.

The goal of replicability is not creating products, models or blueprints that can be transferred "as is" to other locations. Rather, the objective is to develop processes that make optimal use of local resources and can be adapted in other locations.

In adapting these processes to additional sites, the new projects and programs are based on local people, skills and knowledge systems, and build upon existing procedures, organizations, and institutions. The processes used in such projects and programs are easier to replicate than projects heavily dependent on external resources and personnel.

Replicability has different meanings at the community and agency levels; therefore two key indicators have been developed for its measurement:

    R.1   Community ability to expand services
    R.2   Transferability of agency strategies

KEY INDICATOR R.1

Community Ability to Expand Services

At the local level, replicability allows people to spread the learning and positive effects of projects or programs through the community, or to new communities.

These "spread effects" are of three main types; each is a sub-indicator of replicability, and therefore of increased capacity and self-reliance at the community level:

    R.1.a   Additional water/latrine facilities built
    R.1.b   Upgraded facilities
    R.1.c   New development activities initiated
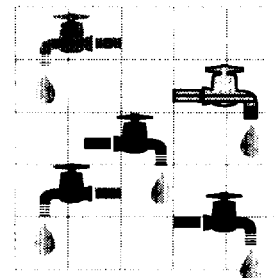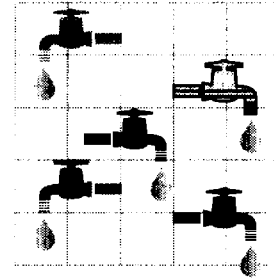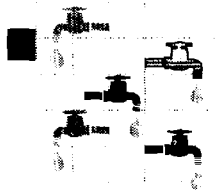
Additional, upgraded and new facilities and activities

Target:

To use processes that can be managed and duplicated by communities in initiating or demanding additional or upgraded water/sanitation facilities and other development activities.

Data required:

Evidence of new activities in the same or new vicinities; community plans for new initiatives; increased demand for facilities or services provided; tapping new agency resources; community innovations in design or organization (for example, adding a spigot to an existing water jar; building bathing areas near communal taps); increased income generation activities individually or in informal groups.

What to monitor/evaluate:

Have any additional water facilities and latrines been built?

Have any existing facilities been upgraded?

Have any other development activities been initiated?

Methods:

Workshops; discussions with community groups of men, women and leaders who have been involved in water and sanitation activities; visits to areas where activities have been replicated at the community level.

Field Insight—Philippines

The Tulungan Sa Tubigan Foundation, based in Manila, provided support to a local NGO in Bulacan Province in Luzon to organize women-based groups, called "sitios," that were formed around neighborhood water taps.

With the assistance of field organizers, the women first successfully joined together to collect fees and manage pump repairs. The field workers then helped the women to organize and plan actions to address other group needs. Deciding to build walkways in their neighborhood, the women began by successfully petitioning for cement to complete the job. Following this, they organized regular solid waste management for the neighborhood. Then they set up a separate fund for income-generation activities and organized their own day care project. Currently, they have plans to provide lighting in their neighborhood, and expand income-generating activities.
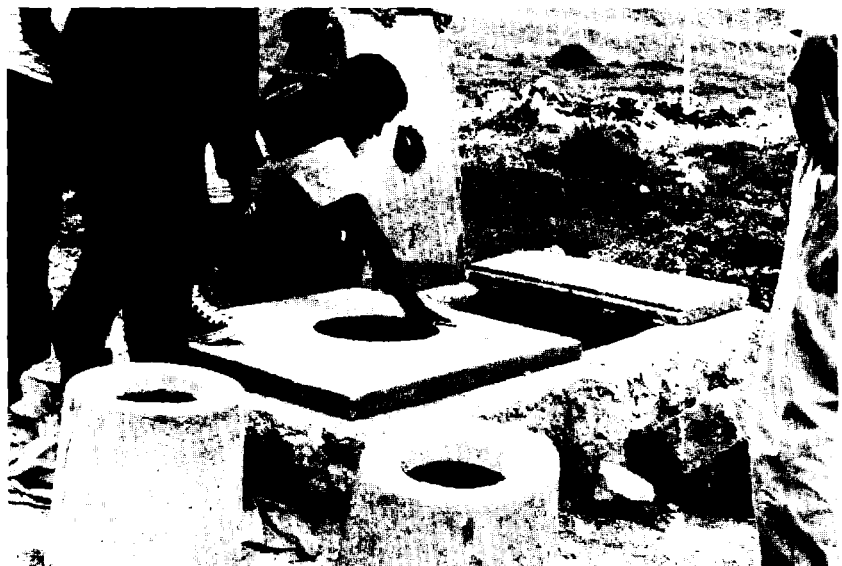
KEY INDICATOR R.2

Transferability of Agency Strategies

Agencies are concerned with replicability because of the tendency of community projects to collapse once outside inputs are withdrawn.

Inputs vary with the stages of program growth; these must be identified before rating replicability. There are three broad stages of growth of a program or project: (a) pilot; (b) demonstration; and (c) replication at the district, regional or national level. (The major characteristics of each stage are defined in the table on page 101).

In the early stages of a program or project, special inputs are needed in order to explore and develop a range of effective strategies. These inputs are primarily focused on research and development to better understand community and agency options for organization, financing, technology, delivery, and promotional mechanisms. At this early stage, unit costs are often high because of the developmental nature of activities.
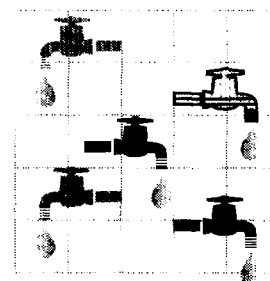
As projects move from pilot to demonstration to national phases, these special inputs should decline. After local strategies have been proven to be effective and affordable, the challenge moves to replicating them on a large scale. Success at this level depends primarily on increasing efficiency of effort and on the administrative capacity to disseminate and deliver programs.

Pilot projects are usually marked by a high concentration of specialized, highly qualified national and international staff, including researchers. These staff are necessary to cope with the new workload, and to experiment with and develop effective tools and strategies. By the stage of demonstration projects, the concentration of specialists should decline with the increasing use of regular staff as well as community people who have been trained in the new approaches and methods. In the replication phase, trained national staff should be available to implement programs on a large scale.

Pilot projects are often low in efficiency and need the freedom to change, explore and develop sound strategies. Often they are marked by generous budgets to allow the emergence of technology and management systems that are affordable and workable in

the long run. Typically they have relative autonomy and can bypass local institutions, institutional hierarchies and administrative systems.

By the demonstration stage, preferred methods are refined and tested for replicability and acceptability. Budgets are less generous and sheltered than in pilot projects. At the same time, there is greater absorption of projects within existing institutions and decreased bypassing of existing administrative systems. By the time a demonstration project concludes, efficiency of outputs should increase. Clear guidelines should emerge for program administration within existing institutions, including mechanisms for interministerial and interagency cooperation.

Programs that reach the replication stage should be covered by regular budgets, use standard financial procedures and be implemented by existing institutions.

Since the purpose of pilot projects is to establish the feasibility of a range of options in specific contexts, much learning takes place about the effectiveness of strategies during the process of implementation. By the end of the pilot project, experience has been gained which results in more detailed guides being made available to demonstration projects.

As the demonstration project completes, patterns of interaction emerge, including monitoring and evaluation systems of special importance in participatory projects. These procedures must be documented, reflected in national sectoral strategies, and made accessible and understandable to national staff who will be responsible for replication of the program. Thus replication projects must have simple guides or manuals for different program components and staff at different levels.

There are five main sub-indicators of replicability at the agency level:

R.2.a   Proportion and role of specialized personnel
R.2.b   Established institutional framework
R.2.c   Budget size and sheltering
R.2.d   Documented administrative/implementation procedures
R.2.e   Other special/unique conditions
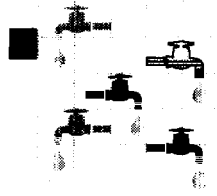
Increasing agency-level replicable processes

Target:

To use increasingly replicable processes consistent with the stage of the program or project (pilot, demonstration or replication).

Data required:

Information collected should be used to assess the following: role, proportion of and dependence on specialized personnel; institutional framework; budget size and degree to which normal channels are followed for disbursement; degree to which administrative/implementation procedures are clear and simply documented.

What to monitor/evaluate:

Are specialized, temporary personnel present?

Have special organizations been created?

Do specially provided and protected budgets exist?

Are there administration and implementation procedures not commonly known or documented?

Are there any other unique conditions that may not be replicable?

Methods:

Workshops with agency staff.

Study of program documents.

Box 6-1. Defining Evolutionary Stages of Projects and Programs			
Category	Pilot	Demonstration	Replication
Purpose	To test acceptability and feasibility of existing knowledge in specific contexts	To demonstrate that new technologies, methods and programs are better than ones presently used	To expand productivity and administrative capacity to disseminate and deliver
Major uncertainties about:	• Methods of analysis or implementation • appropriate technology • adaptability • transferability • acceptability • dissemination or delivery systems	• replicability • acceptability • dissemination or delivery systems on a large scale	• dissemination or delivery systems
Source: *Adapted from D.A. Rondinelli, 1983.*			
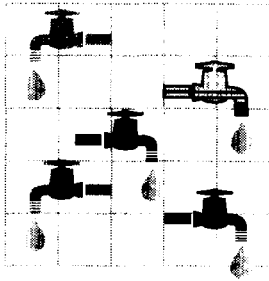
Box 6-2. Measuring Replicability of Agency Strategies

— Sub-Indicators by Stage —

R.2.a Proportion and role of specialized personnel

• High input of specialized personnel	Pilot
• Mostly regular staff; decline in specialists	Demonstration
• Existing staff; further decline in specialists	Replication

R.2.b Established institutional framework

• Semi-autonomous organization	Pilot
• Decreased bypassing of existing organization	Demonstration
• No bypassing of existing organization and increased interagency collaboration	Replication

R.2.c Budget size and sheltering

• Generous and sheltered	Pilot
• Medium and partially sheltered	Demonstration
• Average and regular budget item	Replication

R.2.d Simple documented administrative/implementation procedures

• General guidelines for activities and strategies; emphasis on interactive planning and implementation	Pilot
• Emergence of standardized procedures for interactive project/program management including monitoring/evaluation criteria and procedures	Demonstration
• Documented simplified procedures	Replication

R.2.e Other special/unique conditions

Field Insight—Bolivia

A government of Bolivia project among dispersed rural communities in the Altiplano (highlands) is yielding important lessons about scaling up the delivery of water and sanitation services to the poor.

Supported by UNDP and the Social Emergency Fund, a pilot project aimed at assisting sixty rural communities to construct improved water and sanitation facilities was launched in 1988. The team members of the pilot project spent considerable time developing a participatory methodology and appropriate training materials to be used at the community level. Special efforts were made to reach women. The strategy was to stimulate demand in the communities for improved water and sanitation facilities, and to promote participation throughout the whole project process, from project identification to participatory monitoring and evaluation.

Based on the lessons learned during the pilot phase, a four-year demonstration project, "Rural Water and Sanitation for the Dispersed Populations in the Department of Potosi," was inaugurated in 1991. The main objective of the project is to develop and demonstrate a sustainable and replicable service delivery mechanism that makes use of existing institutions, including government, NGOs, the private sector, and community organizations, working at the departmental, provincial and community level. A second objective is to serve 50,000 people with water and sanitation services, as well as health education.

The strategy considers the community the essential element in the participatory process, and therefore the community is involved in all aspects of the project: project promotion, self-evaluation and definition of priorities, organization, technology selection, health education, management of facilities, and monitoring and evaluation. Much of the first year was spent training and encouraging project staff to adopt participatory methodologies. Another challenge was structuring the most adequate institutional framework to ensure project sustainability and replicability.

The project is now working in more than 150 communities. A well-developed training program aimed at specific community target groups (teachers, health workers, community members) has been field-tested. Communities apply to the project to become participants, and contribute more than 50 percent of the cost of the civil works. A monitoring, evaluation and documentation system at the community, provincial and departmental level has been established. Midway through the four-year program, construction has either been completed or is in progress on 1,100 latrines, 2,205 wells with handpumps, and twenty-three gravity-fed water systems.

The service delivery mechanism, once proven in the field, will serve for the scaling up of the project into a larger program. The project is also providing institutional strengthening to the agency responsible for the sector at the departmental level. The World Bank has tentatively scheduled a Rural Water Supply Credit in its lending program for Bolivia in FY94. The results of the Potosi project will contribute to the design of this operation.

7. Assessing Change

Assessing the changes brought about by water and sanitation programs is of great importance, but conventional impact studies are usually too methodologically complex and require too many scarce resources (time, money and specialized personnel) to be within the scope of most projects.

In most settings, however, the process of "change analysis" can be used to assess the changes set in motion by the process of implementing water and sanitation projects. Change analysis focuses on the changes brought about by attempts to achieve the working goals and by the processes used in attaining effective use, sustainability and replicability.

Best conducted by staff and community people most affected by a project, change analysis can be based on self-evaluation and statements made about factors related to change.

Since the impact of participatory water and sanitation projects goes far beyond changes in health, water and sanitation, change assessments include study of social, economic, and environmental issues. Often these social and economic changes are perceived to be more beneficial by community members than health benefits.

Some of the changes which can be considered spin-off effects, such as increased personal confidence, are also essential parts of the overall goal of sustainability.

The factors that can be considered in a change analysis are summarized in the box on page 106. The direction of change has deliberately not been specified in all cases, so as to allow consideration of unforeseen negative changes such as increased quarrels over water, further marginalization of women through their exclusion, or further increase in their workload.

Methods

While simple household questionnaires, observation, and interviews can be used to assess change, alternative methods should also be considered and invented. In particular, local people should be encouraged to identify for themselves the most important changes in their lives and communities.

Community maps depicting "before and after" situations lend themselves well to assessing change, including changes in the number of physical facilities, users of facilities and changes in community leadership.

Box 7-1. Change Analysis

—with gender analysis and a poverty focus—

Social changes at the individual, household, group, community, and agency levels

- autonomy
- self-concept, self-confidence
- creativity
- leadership
- respect, status, social networks
- group strength, identity, resources
- leisure
- conflict
- roles, responsibilities, activities
- access and control of resources and benefits

Economic change at the individual, household, group, community, and agency levels

- time allocation (time savings)
- cash production and substitution
- improved quality of assets (vegetables, animals, crops, other production)
- increased quantity of assets
- distribution and expenditure of assets
- increased participation in other non-production activities (human capital formation); education, literacy, preventive health, rest and leisure

Changes in the health situation

- increase in involvement in preventive health care activities
- self-reports on decrease in skin diseases, guinea worm, diarrhea, etc.
- increased availability of nutrition foods
- increased cleanliness
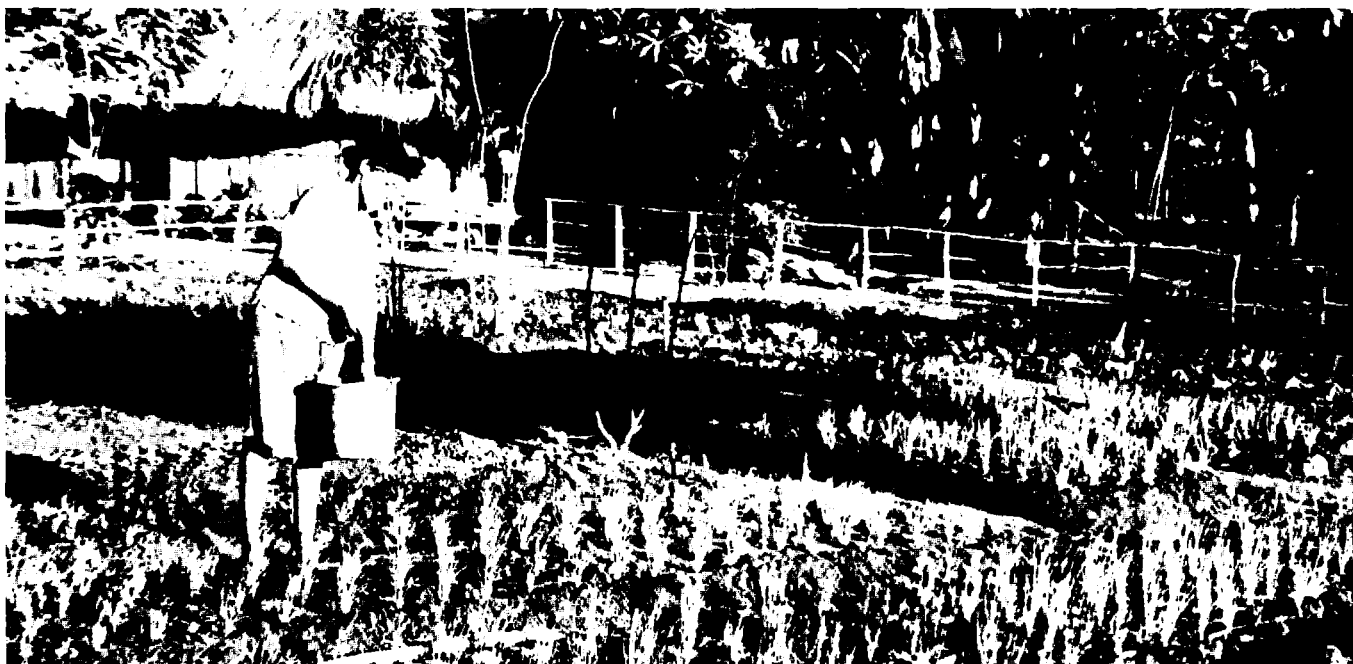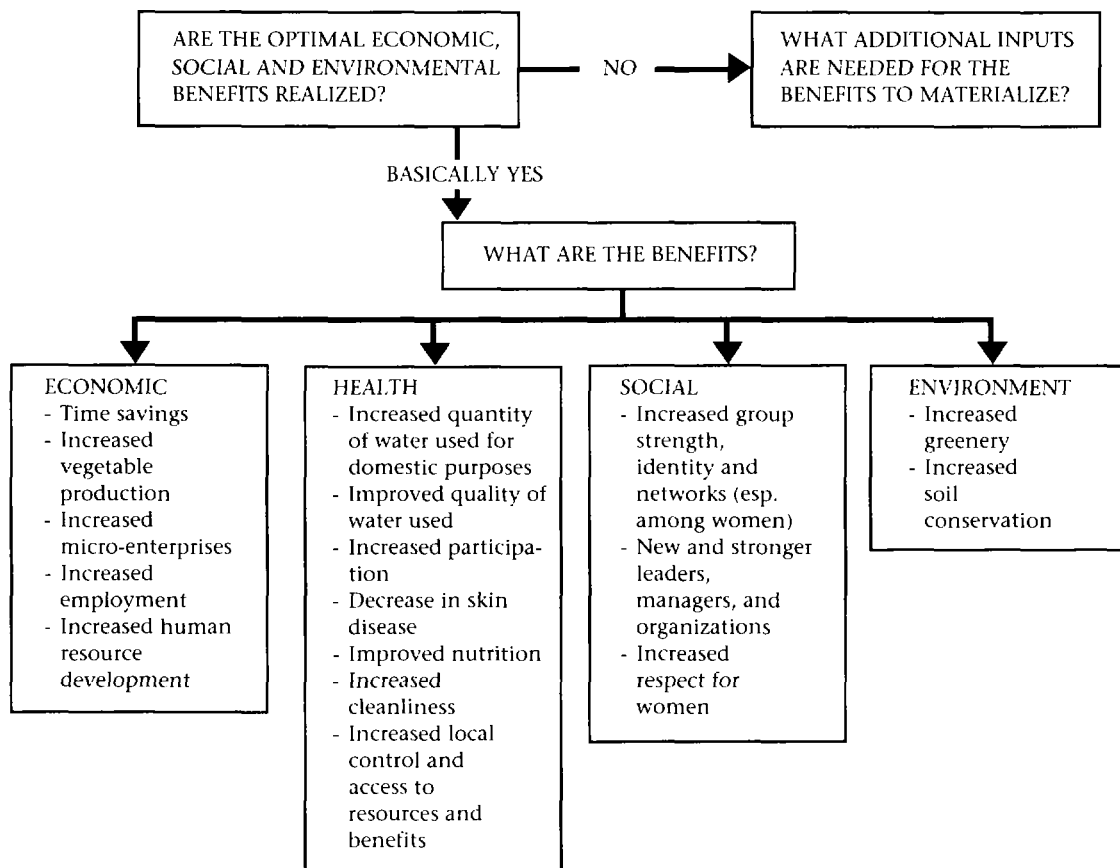
Changes in the environment

- increased greenery and decreased depletion
- increase in other conservation measures

Gender Analysis

The use of gender analysis is important in judging progress made toward all three objectives of sustainability, effective use and replicability (see also, Appendix 2). Gender analysis within the context of the overall planning and evaluation framework is a powerful means of increasing the commitment to women's participation among all project staff and not just the specialists in promoting women's involvement.

Figure 7-1. ESTIMATED AND PERCEIVED PROGRAM BENEFITS

ARE THE OPTIMAL ECONOMIC, SOCIAL AND ENVIRONMENTAL BENEFITS REALIZED? — NO → WHAT ADDITIONAL INPUTS ARE NEEDED FOR THE BENEFITS TO MATERIALIZE?

BASICALLY YES

WHAT ARE THE BENEFITS?

ECONOMIC
- Time savings
- Increased vegetable production
- Increased micro-enterprises
- Increased employment
- Increased human resource development

HEALTH
- Increased quantity of water used for domestic purposes
- Improved quality of water used
- Increased participation
- Decrease in skin disease
- Improved nutrition
- Increased cleanliness
- Increased local control and access to resources and benefits

SOCIAL
- Increased group strength, identity and networks (esp. among women)
- New and stronger leaders, managers, and organizations
- Increased respect for women

ENVIRONMENT
- Increased greenery
- Increased soil conservation

Field Insight—Lesotho

The following methodology was developed to assess change in a village in which project-supported latrine building had been ongoing for three years. The activity took two hours and was conducted in the open under the trees with three groups of men and women.

Men and women first wrote or drew on pieces of paper the most important changes they had seen in their own lives and in the community. These were then shared and discussed within the group and a composite picture was drawn. The discussions were lively, and changes were not limited to water and sanitation. One group of men reported the building of roads, VIP latrines and increased erosion as the most important changes.

In a variation on the same theme, people reflected on changes in their lives through discussion and drawing. The discussions were long and involved, especially when the groups were asked to prioritize the most important changes. Teams were then asked to photograph the change that had taken place, or act out the change and photograph it using a Polaroid camera. Each group was entitled to take three pictures.

The excitement and creativity generated were tremendous. One team that wanted to depict increased unemployment assembled a group of men, quickly made a cardboard game of tic-tac-toe, collected pebbles and acted out the game while other members of the group took their photograph.

Field Insights—Assessing Trends and Changes in Women's Roles and Access to Resources

One of the greatest challenges in assessing change is developing tools to identify trends and changes in the role of women, their access to resources, and their involvement in community programs. Two examples of such tools are reported below.

Most projects and programs have a collection of photographs that have been taken by a project staff member. Any evaluation activity can put these photographs to good use.

In one PROWWESS workshop, thirty photographs from the work project were selected and village people were asked to arrange them in chronological order, from the beginning of the project to the present.

Women and men were asked to identify the tasks or activities that women were involved in or undertook. This led to a discussion about why women had been involved in so few activities; this in turn led to further discussion about why the project policy was to train only men. Community people themselves made the distinction between women's present ability and women's potential to be trained to undertake new responsibilities. This discussion led to a reconsideration of the exclusion of women as technicians in the agency training program.

In another PROWWESS workshop, an activity was developed to evaluate women's access to resources. Simple line drawings of different resources ranging from land to cooking utensils were depicted on small cards. Three large cards of a man, a woman and a couple were then drawn. Men and women were asked to sort through the resource cards and place them under the large pictures based on whether the resource was controlled by the man, the woman or the couple together. For example, the picture of the cow was placed underneath the man to indicate his control over the cattle. One group of women even placed the picture of the woman underneath the man, signifying his control over her.

This activity can also lead to a discussion of how women's access to resources has changed during the lifetimes of the participants.

Box 7-2. Gender aspects to consider in assessing change at the community and agency levels

1. Do women feel they have access to and control over traditional and new resources? Do they feel they have benefitted?

2. Have women been given access to and benefitted from HRD strategies and training activities of the program?

3. Do women have mastery over new technology?

4. Do women have access to and control over new income producing activities? (For example latrine building; road construction; contractors; vegetable or fish production.)

5. Are women in positions of authority in the program as managers, treasurers, supervisors? Are they involved in decisionmaking?

6. Do women have increased capacity for organization and networking?

7. Have women emerged, and are they perceived, as competent leaders, technicians, managers, and organizers? Is this more common and accepted at all levels?

8. Is there a reduction in workload for men, women, and children?

9. Is there a felt decrease in water-related diseases (skin, guinea worm, diarrhea) among women?

10. Have the involvement and quality of life of women become an institutional concern of men, decisionmakers, and managers at all levels?

   • As voiced by men, chiefs, leaders, managers
   • As reflected in planning objectives, targets, implementation procedures, and monitoring and evaluation procedures.
   • As reflected in budgets allocated to support women's involvement.

Source: *Adapted from C. Hannan-Anderson, 1990.*

Appendix 1

Enriching Participatory Rural Appraisal Methods: A Monitoring & Evaluation Workshop in Siaya, Kenya

Introduction

Since 1990, when the PROWWESS staff was integrated into the Regional Water and Sanitation Group in East Africa (RWSG-EA), a number of Kenyan organizations have requested help in the area of participatory training and materials production. To facilitate sharing of participatory approaches, the PROWWESS training specialists, Ron Sawyer and Rose Mulama, helped to form a participatory learning network. Early in 1992, the network responded to a request from CARE/Kenya to evaluate the initial eight-month Participatory Rural Appraisal (PRA) phase of its Siaya Health Education, Water and Sanitation (SHEWAS) Project in Western Kenya. A workshop was planned to assess the impact of the PRA approach within host communities; and to enrich the project approach based on the PROWWESS participatory methodology.

The facilitators team consisted of trainers from KWAHO (an NGO), NETWAS (the regional center of the International Training Network), the Western Kenya-Finland Western Water Supply Program and PROWWESS RWSG-EA. The CARE/SHEWAS project hosted the program. A two day pre-planning/design workshop was held at NETWAS in Nairobi. The main training-of-trainers Participatory Monitoring and Evaluation Workshop was held at Siaya in mid-February 1992.

The workshop drew a multiagency and multilevel group together: staff of the SHEWAS project; local community members of the PRA team; representatives of the participatory learning network; NGOs; and local officers of the Ministries of Water Development, Health, and Social Services.

The workshop was designed as a participatory evaluation to determine the primary achievements and the difficulties encountered in the PRA phase of the project. By identifying and selecting indicators, and designing and field testing tools for measuring project achievement, the workshop process helped to build staff skills and understanding of participatory monitoring and evaluation methods.

Problems in the existing agency approach

The initial workshop exercises reviewed the PRA experience. For example, using sets of posters, workshop teams analyzed the quality of the communities' participation during implementation of the PRA. The general consensus was that the PRA team played a much more active role over and above the regular community members to whom they occasionally presented data on a weekly basis. It was acknowledged that rather than involve all community members in the process, the community had been asked to elect representatives for the PRA team.

Through further analysis, the workshop identified several other difficulties with the existing approach. For example, even within the PRA team itself, the community representatives were overshadowed by the other members in terms of active involvement in the process. The three weeks spent on PRA activities in each location seemed long to many community members. Because of this extended time frame and the narrow range of dialogue and analysis in the community at large, the PRA exercise generated unrealistic expectations in some villages. As a result, community members expected many more water and sanitation systems than CARE could provide. Finally, in some instances, the PRA process did not promote cost-sharing because some community members still expected CARE to provide resources.

The PROWWESS alternative: new process tools[1]

Before dwelling on an analysis of the causes of these problems, the PROWWESS team exposed the workshop participants to key principles and a wide range of tools which could more actively engage community members in self-investigation activities. Participants tested these innovative approaches within the field-based framework of the workshop and then returned to analyze the PRA approach to make adjustments as needed later. Some examples of these simple and practical participatory techniques included:

> 1. *Pocket Chart:* A participatory survey instrument consisting of pockets on a large cardboard or textile. In this particular case, the participants identify different water sources (open wells, springs, handpumps, rivers) and their different uses (drinking, cooking, washing, watering animals, bathing). Participants then vote by putting a marker in each pocket corresponding to the water sources used for each function. The voting is secret to discourage people from influencing each other. The workshop participants also identified other uses for

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[1] The descriptions provided here were adapted from L. Srinivasan, *Tools for Community Participation: A Manual in Training Trainers in Participatory Techniques.*

subsequent testing in their field work: (i) gender analysis of common activities that men or women are involved in; (ii) selection of preferred water technologies by gender; (iii) assessment of community training needs; and (iv) study of local decisionmaking practices.

2. *Three-Pile Sorting:*   This technique has been adapted to a variety of situations. A common use is to ask a group to sort pictures of various common tasks, or activities, into three categories or piles according to whether they are "responsibilities of the group, "shared with an external agency" or "primarily those of the agency itself". For example, is maintaining a water reservoir a shared responsibility, that of the external agency, or that of the local community? The three-pile sorting technique can also be used to classify and further understand roles by gender or age during various stages of a project.

3. *Flexiflans:*   Paper cutouts of human figures with flexible arms and legs that are placed on a flannel-covered board. A number of props are included in the set (houses, trees, animals, tools, etc.) to depict either a rural or urban scene. Human figures should be representative of all types of people found in a society and of different ages, both male and female. They also should be facing in different directions (for example, front view and left/right profile) so they can be arrange to represent two or more people engaged in a conversation or discussion. Using flexiflans, a facilitator can promote a discussion among community members about an incident or story about real situations, how they are handled, and how they affect life in the community.

PRA workshop findings and conclusions

After field visits, workshop participants discussed and then analyzed the merits and demerits of the existing PRA approach. A key discussion focused on how such a process could contribute to participatory planning, while providing the external agency with a greater appreciation of the problems and opportunities in a community. Participants identified many advantages to the approach, especially if PRA could become a much more participatory process.

An agency using PRA work can much more intensively with the community and understands it much better. Community members are enabled to identify and prioritize needs, to create awareness of project issues, and to build skills and knowledge for more systematically planning future projects. PRA also can encourage intensive interaction and collaboration among external agencies and between external agencies and the community.

There was agreement that the pre-workshop PRA approach did not get to the lowest level in a village. The PRA team tended to overshadow the community; participation was limited to a few

who represented influential sections of the community. The process raised community expectations, a source of frustration among those villages that participated in the PRA but did not subsequently receive facilities. In addition, during official events scheduled to share PRA results, influential leaders sometimes led the community astray. Such problems pointed to a common challenge: to be effective, PRA must be fully participatory and engage the community widely, paying particular attention to those most often neglected, especially women.

Alternative approaches

The workshop's final step was planning several alternative approaches to PRA in order to more fully integrate participatory techniques. In one version designed to reduce expectations, the PRA process at project sub-locations would be shortened. A second alternative modified the sub-location process and shortened it, and included the use of pocket charts and problem-and-opportunity ranking materials to help develop a "village health development management plan". The PRA would then be followed by village planning activities to develop the project. The third alternative retained most of the original PRA process, but incorporated the new techniques and shortened its implementation.

While modifying and strengthening the ways that the external agency learned about the community, participants also found ways to extend the learning process to include the community. "Ownership" of information about change in the community should not be limited to external agents. By becoming more active in the PRA process, project beneficiaries are enabled to control the planning, implementation, and monitoring of projects as well.

This workshop was an important milestone for the PROWWESS-assisted participatory learning network. By opening the project to a process of joint review and assessment by the staff, the workshop demonstrated the benefits of shared learning, primarily among NGOs. The participants realized that they have a great deal to offer and a lot to learn from each other about participatory community-based approaches.

Appendix 2

Gender Specific Analysis for Objectives of Sustainability, Effective Use, and Replicability

INDICATORS OF SUSTAINABILITY
Human capacity development: ·Do women have access to the relevant skills or training to acquire them? Do women and men have the same management abilities, decisionmaking authority, relevant knowledge and skills, self confidence? Do women and men have equal access to HRD inputs, especially in relation to analytical skills and problem-solving capacity? What roles and responsibilities do men and women have in water committees, and in training for those roles? **Local institutional capacity:** Is there supportive leadership in the area of women's involvement? Are systems for learning and problem-solving equally accessible to men and women? Are women involved in leadership roles? **Financing and cost-sharing:** In what ways do women and men contribute to ensuring cost recovery? **Interorganizational collaboration:** Is gender on the agenda?

INDICATORS OF EFFECTIVE USE

Optimum use:

Who are the users in different contexts?

What do men and women use water for?

What time is used by men and women for water collection and use?

Who manages water as a resource?

What roles do men and women play in environmental conservation?

Hygienic use:

Who is responsible for carrying, storing, and utilizing water in the home?

Who takes care of children, including waste disposal?

Who makes decisions about hygiene management?

Who has control over income and its utilization (and thus over which type of utensils and equipment is available in the home)?

Who is responsible for the management of animals and control of rodents and vectors?

What are the common personal hygiene practices of men and women?

Consistent use:

How much time is budgetted for collection, management, and use of water by men and women, on a daily and seasonal basis?

What is the relationship of this work to other workloads of men and women?

INDICATORS OF REPLICABILITIY

Proportion and role of specialized personnel:

Are there personnel specialized in participation or gender?

Are there women among the specialized personnel; in which categories?

Established institutional framework:

Are steps taken to ensure that gender is incorporated as an important issue?

Budget size and sheltering:

Are inputs to promote involvement of women included in the regular budget?

Simple documented administrative/implementation procedures:

Is gender incorporated into normal planning cycles?

Other special/unique conditions:

Do women have the potential to sustain the benefits achieved and to carry them over into other areas of their lives?

Does the inclusion of women alongside men have implications for other areas of community life?

Appendix 3

Participatory Evaluation Workshop for District Authorities

The purpose of this workshop is to involve the district in the evaluation of its own water and sanitation project in order that the evaluation provides useful information to improve project management.

Objectives:

1.1 Identify the most important successes in the water and sanitation program.

1.2 List the most important things that made the success possible.

2.1 Identify major problems or constraints experienced in the water and sanitation program.

2.2 Identify major reasons for the problems and constraints.

3 Classify problems in terms of:

- those for which there is now sufficient information to act;

- those about which more information is needed; and

- those which we cannot solve.

4 Formulate evaluation objectives for problems where additional information is needed.

Participants:

A maximum of 20 to 25 persons including at least two from each of the participating ministries:

1. *Members of District Team*

    Admin Officer

    MoH - Environmental Health Officer

    DDF - Field Officer

    MCCD - District Community Development Officer

    Agritex - District Agritex Officer

    MLGRUD - Local Government Promotion Officer

Extracted from "Handbook of Rural Water Supply and Sanitation Projects in Zimbabwe," Training Center, University of Zimbabwe, (undated).

2. *District Council*

> Executive Officer
>
> 5 or 6 Councilors from wards where implementation has taken place

3. *Implementation Staff*

> 2 from each Ministry, for example:
>
> MoH - Environmental Health Technicians
>
> DDF - Operatives
>
> MCCD - Ward Community Coordinators
>
> AGRITEX - Extension Officer

Duration: One day.

Groups:

Three groups will be formed representing the participants (District Team; District Council; Implementation Staff). There should be a facilitator for each group. Each group will choose a chairman, who will also be responsible for group activity sheets for the workshop coordinator. The group will also choose a secretary who will summarize the decisions of the group on the activity sheets.

Workshop Processes:

ACTIVITY SHEET 1:

Purpose To identify major successes of the program.
To identify what made the successes possible.

Each participant will list what he/she sees as the major successes of the program and write the reasons why he/she thinks it was successful. The group will then discuss the successes, agree on a list of the four or five main successes, and identify the reasons for success.

ACTIVITY SHEET 2:

Purpose To identify major problems of the program.
To identify the reasons for the problems.

Each participant will list what he/she sees as the major problems of the program and why they are problems. The group will then discuss together the problems and agree on a list of about ten problems, with reasons for each. The secretary will record all of this information and display it on a group notice board.

ACTIVITY SHEET 3:

Purpose To sort problems into groups.

Each group will sort the problems they identified in Activity 2 according to:

- those problems where there is enough information to act now;

- those problems for which more information is needed; and

- those problems which they cannot solve.

The secretary of each group should enter this information onto Activity Sheet 3, which will be put up for display.

ACTIVITY SHEET 4:

Purpose   To list problems in order of priority.
              To make recommendations for action.

Each group should revise the problems on Activity Sheet 3 to rank them in the order which they think are of most importance. They should be divided into two categories: those problems where there is enough information to act now, and those problems for which more information is needed. For those problems where there is enough information to act now make recommendations on what should be done and by whom. The secretary should display the completed sheet on the group notice board.

ACTIVITY SHEET 5:

Purpose   To determine further information needs.

Those problems which require more information should be the basis of an evaluation. The groups should now identify the information needed to resolve these problems. From Activity Sheet 4, select the problems for which more information is needed and suggest what further information is needed. The secretary should enter this on Activity Sheet 5 and then put it on display.

PROGRAMME AGENDA

INTRODUCTION	0830 - 0900
ACTIVITY 1. SUCCESSES Tea break and group notices	0900 - 1000
ACTIVITY 2. PROBLEMS Group notices	1030 - 1145
ACTIVITY 3. GROUPING PROBLEMS Lunch	1200 - 1230
ACTIVITY 4. IMPORTANCE & ACTION	1330 - 1430
ACTIVITY 5. INFORMATION NEEDS Tea and group notices	1430 - 1530
SUMMARY	1600 - 1630

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PROWWESS

People's participation in the development process is essential for human development and for achieving sustainability, particularly in the provision of basic services like water and sanitation.

PROWWESS (Promotion of the Role of Women in Water and Environmental Sanitation Services) is a worldwide initiative aimed at developing replicable approaches for involving communities—particularly women—in sustainable, effectively used, and environmentally sound drinking water supply and sanitation programs. Since 1983, the PROWWESS group has been devising and field testing new methods for participatory training, research, and evaluation, and has been developing innovative grassroots training materials. It has benefited from the generous support of the United Nations Development Programme (UNDP), and the governments of Norway, Canada, Finland, and the United States.

Originally located in UNDP's New York headquarters, the PROWWESS group today is part of the UNDP-World Bank Water and Sanitation Program located in the World Bank in Washington, D.C. The Program is a collaborative initiative involving UNDP, the World Bank and ten bilateral donors that aims to improve the access of poor people in developing countries to safe, affordable water and sanitation services.

Tools for Participatory Management

This volume is the second of four related publications focused on participatory methods in water supply and sanitation projects. They are designed as tools to assist in carrying out training, planning, evaluation, research, and materials production to support local decisionmaking.

The publications in this series are:

Purpose	Title
Training	*Tools for Community Participation: A Manual for Training Trainers in Participatory Techniques*, Lyra Srinivasan. (English and French)
Evaluation	*Participatory Evaluation: Tools for Managing Change in Water and Sanitation*, Deepa Narayan.
Research	*Toward Participatory and Simple Research: Data Collection with People*, Deepa Narayan. (Summer 1993)
Materials	*Participatory Materials Tool Kit: Activities for Training Trainers and for Community Empowerment*, Deepa Narayan and Lyra Srinivasan. (Summer 1993)

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