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TRAINING COURSE

EVALUATING WATER SUPPLY AND SANITATION PROJECTS

COURSE MODULES

**INTERNATIONAL REFERENCE CENTRE FOR COMMUNITY WATER
SUPPLY AND SANITATION**

IRC is an internationally operating, non-profit organization dealing with information and technology support for water and sanitation improvement. With its partners in developing countries and with United Nations agencies, donor organizations, and non-governmental organizations, IRC assists in the generation, transfer and application of relevant knowledge. The focus of this co-operation is on the rural and urban fringe areas where the need for technical assistance is greatest.

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Preface

This training course has been prepared at the request of UNICEF by Marieke Boot of the International Reference Centre for Community Water Supply and Sanitation. Support was given by UNICEF and IRC staff. Particular help was received from Ms. Eimi Watanabe of UNICEF and Mr. Jan Teun Visscher of IRC.

The training course is intended primarily for government officials and staff who are responsible for the management and evaluation of water supply, sanitation and hygiene education projects. The aim of the course is to improve the skills of the participants in organizing and conducting evaluations of water supply and sanitation projects. The course emphasizes evaluation directed at improving performance on ongoing and new projects.

These modules have been prepared to serve as a basis and guide for the course programme. The "Minimum evaluation procedure for water supply and sanitation projects" developed by WHO (1983) has been the main background document. Valuable information was also provided by "Utilization focused evaluation" by M. Patton (1978). This was used extensively. The examples put forward in the modules are all based on actual evaluation studies. However, as the degree of confidentiality of reports is often unclear, no references are included.

The modules were field-tested in an evaluation course organized by the UNICEF country office in Nigeria. They have been modified and adapted on the basis of feedback received from course participants and key-participants. Particular acknowledgement is made of the contribution of Ms. Debby Blum (John Hopkins University), Mr. Sandy Cairncross (London School of Hygiene and Tropical Medicine), Mr. Joseph Christmas (UNICEF, New York), Mr. Carel de Rooy (UNICEF, Nigeria), Mr. Gunnar Schultzberg (WHO, CWSS), and Mr. Michael Seager (IRC).

Introduction

Course modules

This set of 15 modules provides basic information on the various aspects of the evaluation process. The modules are designed as reference material for use during and after the course on evaluating water supply and sanitation projects.

Course objectives

This course aims to improve knowledge and skills in organizing and conducting practical evaluations of water supply and sanitation projects. Emphasis is placed on how to conduct an evaluation as a management tool for project assessment and improvement.

Course structure

After introducing the major and most important features of an evaluation, the course follows the main phases of the evaluation process step by step. The course consists mainly of working sessions to develop evaluation skills through group activities. During the course, an evaluation exercise will be carried out which will include a one-day field visit. The last day of the course is earmarked to prepare an outline for an evaluation within your own work area. The distributed timetable gives the structure of the course in more detail.

Background material

The following documents are used as background material to the course:

- Evaluation of water supply and sanitation projects: your questions answered, WHO, 1985.
- Minimum evaluation procedure for water supply and sanitation projects (MEP), WHO, 1983.

Module 1

Two main purposes of evaluation

To assess project achievements

To aid project improvement

Reasons for evaluation

Purpose of evaluation

The booklet "Evaluation of water supply and sanitation: your questions answered" provides various examples to illustrate the reasons for evaluating a project. In general, the purpose of evaluation is to collect information in order:

- to assess the achievements of a project, and/or
- to identify ways to develop and improve a project or a future project.

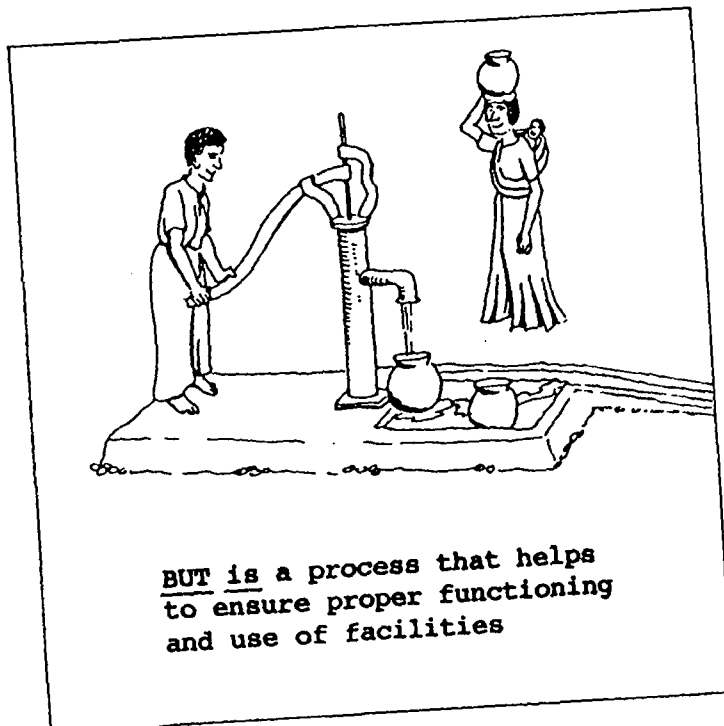
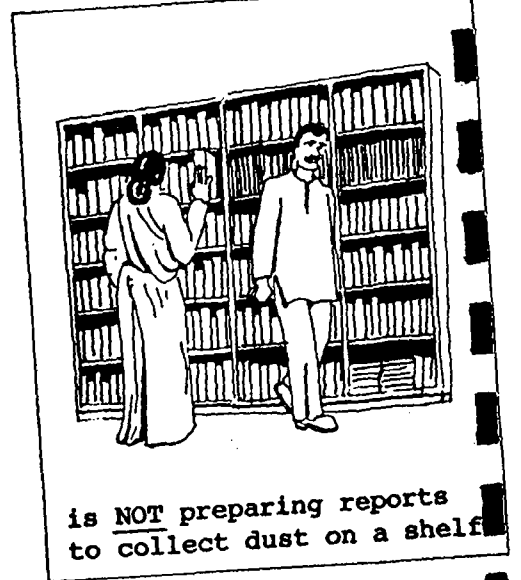
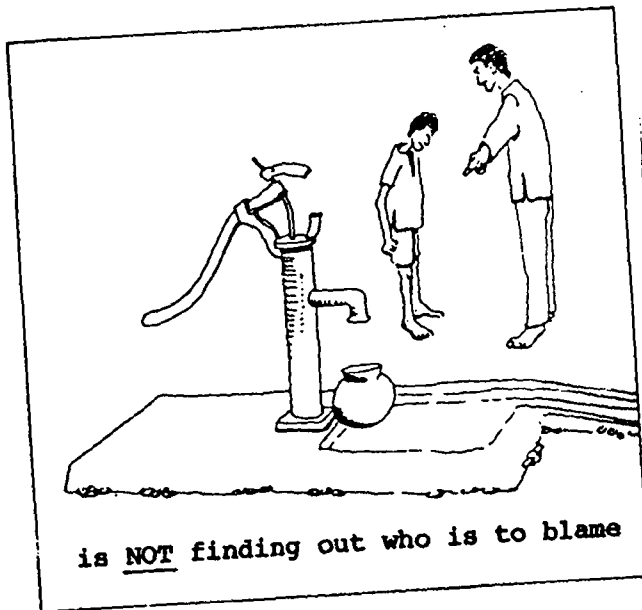
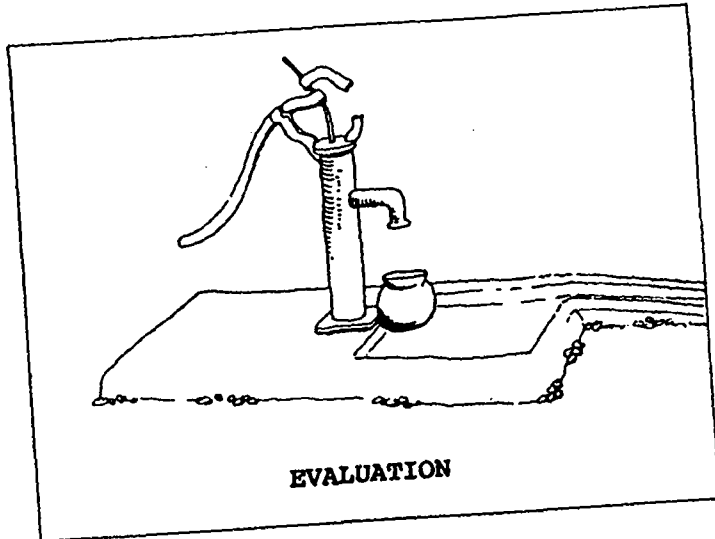
The achievements of a project may be evaluated for several reasons:

- * to assess the extent to which project objectives are being met;
- * to determine whether resources are being adequately and judiciously used, thus justifying project expenditure;
- * to demonstrate project achievements in order to reach agreement on an extension;
- * to determine whether a pilot project should and could be replicated on a wider scale;
- * to justify policy priorities.

Evaluation to assess achievements of a project mainly concerns the questions: "What has been done" and "Was it worth doing"? The answers are then used to demonstrate the benefits of a project or to determine whether or not to extend a project.

More often, evaluation is carried out to find ways to reformulate and improve a project. This type of evaluation is designed so that it is possible to learn from the experiences gained on the project, and to use these lessons to improve performance of ongoing projects and in planning future projects. For example, an evaluation may reveal ways:

- * to improve operation and maintenance of a water supply and sanitation system;
- * to improve a hygiene education programme;
- * to decrease project costs;
- * to increase project output;
- * to increase participation by women in project planning and implementation;
- * to simplify tender procedures;
- * to strengthen a training programme for sanitarians;
- * to improve monitoring procedures;
- * to overcome problems of communication in and between government agencies in water supply and sanitation;



* to convince higher authorities to develop and accept new approaches.

Thus the focus of this type of evaluation is "to do better" and "to do more" with the manpower, money and material available.

A management tool

In summary, evaluation is an important tool for management. It may help to find out what is working, and why and how this may be duplicated and developed further. It may also help to find out what does not work and why not, and how alternatives can be found.

Evaluation terminology

In evaluation terminology, the purpose of an evaluation is:

- to judge and justify investments and efforts in water supply and sanitation projects by showing their **relevance**;
- to increase the **efficiency** and **effectiveness** of water supply and sanitation projects.

Relevance

The relevance of a project refers to its value in relation to other priority needs and to other efforts in water supply and sanitation. For example, in a sparsely populated area, a hygiene education programme promoting handwashing after defecation and before food handling might be assessed as more relevant than a latrine construction campaign.

Efficiency

Efficiency refers to the productivity of a project. This may be in terms of inputs in manpower, money and/or time. Increasing efficiency is a matter of finding alternative ways to do more with the same inputs or to do the same with fewer inputs. For example, an evaluation may reveal cheaper options for latrine construction, or it may show ways to simplify tender procedures in order to save time and energy.

Effectiveness

Effectiveness refers to the extent to which a project is meeting its objectives. For example, if the project objective was to provide water supply to a community of 1500 but only 700 people actually benefit from the new supply, then an evaluation may be needed to find useful options to increase the coverage and thus the effectiveness of the project.

Definition

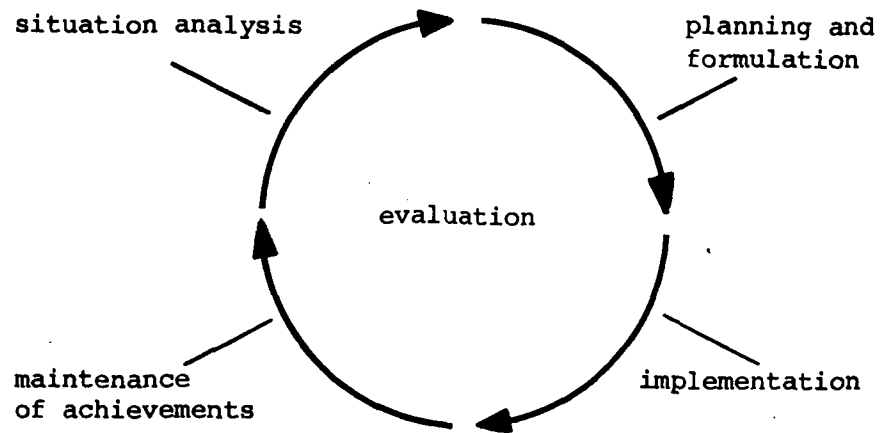
Using this terminology, evaluation may be defined as a systematic process of collecting and analysing information about activities and results of a project in order to determine the project's relevance and/or

to make decisions to improve the efficiency and effectiveness of this and similar projects.

When to do an evaluation

An evaluation can be undertaken at any stage or phase of a project.

Figure 1: Project phases



Some evaluations are scheduled in advance, for example, mid-term and end evaluations. Other evaluations are carried out in response to certain situations, for example, when problems are identified or when evaluations are requested by a donor.

End evaluations

Often an evaluation is planned for the final stage of a project. At that time, the need is felt to know what the achievements are and what needs to be taken into account in planning future projects. These end evaluations contribute to situation analysis, planning and the formulation of new projects. They may also be supportive in maintaining achievements.

Mid-term evaluations

Another time frequently selected for carrying out an evaluation is one or two years after the project has begun. These evaluations are usually directed to assessing and improving current activities and they support the project planning and implementation phases.

Problem directed evaluations

Alternatively, evaluations may be undertaken as the need arises. For example, the planning phase may reveal communication problems between the various agencies involved which will require further investigation. The implementation phase may show

manpower problems for which an evaluation is indicated. At the maintenance stage, a large number of non-functioning water supply facilities may indicate that an evaluation is necessary in order to find out why they are not working and what solutions are possible.

Remember

An evaluation is indicated whenever there is a need for systematic information for project assessment and/or improvement. However, evaluation does not in itself improve anything; recommendations have to be implemented, otherwise nothing will change.

Evaluation and monitoring

Monitoring

Monitoring can be defined as a continuous process of data collection and analysis to check whether a project is running according to plan, and to make immediate adjustments, if required. As such, monitoring is an evaluative activity directed to the short-term. An example is the monitoring of the number of metres of borehole drilled per day, to allow for timely action if progress is slower or faster than expected.

Frequency of monitoring

The frequency of monitoring (whether daily, weekly, monthly or even annually) will depend on the type of information required. For example, water quality control in large urban systems will require more frequent monitoring than small community water supplies. Monitoring hygiene education activities is required more frequently during the pilot phase of a hygiene education programme than afterwards.

Relationships between evaluation and monitoring

The difference between monitoring and evaluation is one of gradation. Monitoring is a more constant, continuing activity to enable immediate actions and corrections. Evaluations are carried out at special times and/or for special reasons and in greater depth. Sometimes, however, the difference between monitoring and evaluation is quite artificial. For example, it is a matter of choice whether the annual investigation of the performance and training requirements of village caretakers is called monitoring or evaluation. Similarly it is a matter of choice whether six-monthly data collection on the functioning and use of water points is called monitoring or evaluation.

Monitoring and evaluation are evaluative activities and both are important tools for management. These

activities may strongly reinforce each other. A well-functioning monitoring system can greatly reduce the need for in-depth evaluations, as problems may reveal in an early phase and timely action can be taken. Alternatively, monitoring may indicate the need for in-depth evaluation of problems and issues. On the other hand, in-depth evaluation may show the need for new and improved monitoring procedures.

The emphasis in this course is on evaluation. However, given the similarities between monitoring and evaluation, much of the course can be applied to the development and execution of monitoring activities. In particular the modules on formulation of evaluation objectives, the selection of questions and the selection and use of methods (Modules 4 and 8-13), may be useful in this respect.

Module 2

Main phases of an evaluation

Phases of evaluation

Evaluation as process

In any evaluation a number of phases or steps can be identified:

1. initiation of an evaluation
2. formulation of evaluation objectives
3. preliminary investigation
4. selection of evaluation methods
5. preparation of checklists/questionnaires
6. data collection
7. data analysis and interpretation
8. formulation of conclusions and recommendations
9. report writing and formal decision making
10. implementing evaluation results
11. dissemination of lessons learned
12. monitoring of "follow up".

To demonstrate the various phases of an evaluation, extracts from an actual evaluation are presented below. On the basis of this example the various phases in the evaluation process are briefly discussed.

Introduction

Example of an evaluation

The following is a description of the evaluation of the UNICEF assisted integrated water and sanitation programme in Azad Jammu and Kashmir, Pakistan, carried out in September 1983. Read the example and try to identify the decisions which guide an evaluation process. You may wish to write down the respective phases in the margin.

The project

The State of Azad Jammu and Kashmir is divided into four districts. In 1981, a joint survey by the Local Government and Rural Development Department and UNICEF revealed a lack of awareness of sanitation problems in the rural population which accounted for some 92% of the total population. Water-related diseases and unhygienic conditions were found to contribute to high infant mortality and morbidity rates. Consequently, a five-year (1981-1986) integrated water and sanitation programme was prepared by the government and UNICEF with the long-term objective of improving environmental health conditions.

The short-term objectives of the programme were to install water supply facilities in villages and water-seal latrines in health and educational institutions and to encourage construction and the use of latrines in at least 30% of village households. Educational materials were also to be developed for

The evaluation

community motivation and the human resources necessary to prepare local masons, technical staff, mechanics, water and sanitation promoters for these tasks.

The programme depended heavily on the work of sanitation promoters to influence and organize the rural population to change and improve their sanitation habits. Programme strategies involved training and community organization.

After the programme had been operating for two years, the programme agencies agreed on an evaluation to assist further project implementation. The evaluation team consisted of an economist and a civil engineer from the Rural Development Department, and a health education specialist from UNICEF Headquarters. The team was assisted by staff from the government and UNICEF country office.

The overall objective of the evaluation was to assess the progress of the water and sanitation programme in Azad Jammu and Kashmir and to recommend necessary corrective actions. Specific evaluation objectives were:

- to establish the levels of functioning and use of water supply systems (piped water schemes, protection of dug wells, hand pumps) and recommend corrective actions;
- to establish the levels of functioning and use of sanitation facilities (excreta, solid waste and waste water disposal) and recommend corrective actions;
- to assess levels of community participation;
- to assess the effects of hygiene education;
- to assess efforts made in human resource development.

Implicit in the specific objectives was the need to examine the institutional impact of the programme and factors that facilitate or constrain implementation.

Before the actual evaluation, a preliminary investigation was carried out by UNICEF and staff members to discover what major issues required further attention and what were the best methods of data collection. Eight villages in three districts were visited, facilities were inspected and extensive discussions were held with promoters, villagers and community leaders.

As a result it was decided that the evaluation would not need to focus any further on physical and technical aspects as it was found that both water-supply facilities and latrines were functioning reasonably well. It was the social aspects which needed closer study. The evaluation would have two

major components: visits to villages; and a latrine use survey. It was thought that this would give both an in-depth and a broad picture of the water supply and sanitation programmes.

Originally the evaluation team planned to visit 22 villages in the four districts covered by the programme over a four-day period. Given time constraints and travel distances involved, and guided by the results of the preliminary investigation, the team decided to concentrate on villages in two districts and to give more attention to the social components of the programme.

Bearing in mind the objective of recommending corrective actions where necessary, the team was provided with a list of villages where new facilities had been completed. Four of the listed villages in the first district had to be visited because formal arrangements had already been made. An additional three villages were selected at random and visited without prior notice. Because of problems in reaching villages in the second district, the team decided to limit the evaluation to two or three villages along the road and to one remoter village. However, heavy rains and landslides prevented access to all but two villages in this district.

The evaluation methods included a desk study of programme documents, interviews and meetings. Project staff and villagers were questioned about:

- water supply: who and how many people used the new water supply; the adequacy, quality and regularity of supplies; enthusiasm, etc.;
- sanitation: conditions before and after the programme; how were latrine users motivated; how have latrines altered life styles; levels of use, delivery of materials, community participation, etc.;
- community organization: committee functioning and effectiveness, their methods, and helpfulness, and the programme's impact generally.

The number of people in the evaluation team was such that it was possible to hold numerous discussions with a large number of people.

Although the nine villages visited did not constitute a representative sample, (140 villages participating in the programme in the two districts) the evaluation team felt that these villages had typical socio-economic data profiles from which information could be extrapolated to wider trends. No attempt was made to quantify the findings. The analysis depended on a qualitative approach.

The second component of the evaluation, the latrine survey, was quantitative. It included a household

questionnaire and latrine observations. This survey, which was conducted by sanitary engineers, covered 137 latrines in six villages in one district. The survey ascertained latrine use numerically by population group. A number of indicators were selected for this, such as accessibility, the presence of a water bottle in the latrine, latrine cleanliness, and also the level of satisfaction of the latrine users.

Before presenting their recommendations, the evaluation team discussed the draft recommendations in terms of feasibility, impact and cost with the project staff.

As the need for co-operation between the water-supply and sanitation project and other village level development programmes became evident in discussions with villagers and project staff, a high level inter-sectoral meeting was called as part of the evaluation process. Participants representing the health and education departments put forward suggestions on how their departments could assist the programme. On the whole, participants agreed that co-ordination with other agencies at the operational level was desirable, and the officials concerned expressed their support for such efforts. In this context the evaluation team prepared a number of recommendations for such co-ordination.

Evaluation phases in the example

This example of an evaluation clearly shows that evaluation is a process which involves a number of phases.

Initiation for an evaluation

The first phase started with the decision to carry out an evaluation. This decision was taken after two years of project performance, when the project was almost half completed. The need for evaluation was expressed by the programme agencies, the government and UNICEF, to assist project implementation. However, the available information did not provide further details as to who actually requested the evaluation and whether more specific reasons for evaluation existed.

It was decided that the evaluation would be carried out by a team consisting of three members with different professional backgrounds, from both agencies. Although not part of the evaluation team, the project staff were closely involved throughout the evaluation process.

Formulation of evaluation objectives

The second phase was to focus the broad purpose of the evaluation through the formulation of clear

objectives. It was decided to have one overall objective, five more specific objectives and an additional point of emphasis. Formulation of evaluation objectives is a very important phase because the objectives formulated guide the entire evaluation process.

Preliminary investigation

To meet the evaluation objectives, a decision had to be made as to what information was needed and how to collect it. It was decided firstly to carry out a short investigation to check what data are readily available and to determine the issues requiring further attention. The example showed that this was worthwhile because it revealed that non-technical aspects needed more attention than technical ones.

Selection of evaluation methods

The preliminary investigation also indicated that for this evaluation a combination of quantitative and qualitative data collection methods was required. For the collection of information on the use and impact of latrines the quantitative method was selected, that is a survey. The other issues were covered by qualitative methods, observations, interviews, meetings, and a desk study of project documents. As stated in the example, these methods were selected to gain both a broad and an in-depth picture of the project.

Selection of evaluation methods also included decisions on which and how many project sites were to be visited and who and how many people were to be contacted. In the example, it was originally decided that 22 villages in all four districts covered by the project be visited. Later this was reduced to nine villages in two districts.

Preparation of checklists/questionnaires

The selection of appropriate evaluation methods goes hand-in-hand with the preparation of checklists. This phase includes a breakdown of the evaluation objectives into indicators or detailed questions. In our example, two of the detailed questions selected were: who and how many people actually use the new water supply? Answers to these and other detailed questions will indicate the level of use of the water-supply facilities, and thus help to meet one of the objectives of the evaluation.

Where quantitative methods are used, the detailed questions are put into a questionnaire or observation scheme. For qualitative methods checklists are often used without further detailing.

Data collection

In this phase, the methods and questions selected are used to collect the required information. In the Azad

Jammu and Kashmir evaluation, water collection points were visited, household members and agency staff interviewed, and project documentation examined.

Data analysis and interpretation

The data collected have to be enumerated, if possible, and grouped and weighted to meet evaluation objectives. This phase of data analysis and interpretation is a very important step in the evaluation process, because it leads to the formulation of evaluation conclusions and recommendations.

Formulation of conclusions and recommendations

Based on data analysis and interpretation, conclusions and recommendations can be formulated to meet the evaluation objectives. The practical value of recommendations will be increased when they indicate what actions need to be taken, who in the project structure should be responsible for implementing them and with what resources. In the Azad Jammu and Kashmir evaluation, the draft recommendations were discussed first with project staff. An inter-sectoral meeting was also called to discuss recommendations for inter-sectoral co-operation. Experience has shown that in this phase, involving the main implementors of the evaluation recommendations is very important.

Report writing and formal decision making

Evaluation findings and recommendations are usually presented in an evaluation report. Such a report can be an important document in supporting the formal decision making on and implementation of recommendations, particularly if distribution occurs shortly after the evaluation. However, as already discussed, an evaluation report only has value if it is used and not left to collect dust on an office shelf. Depending on the purpose of the evaluation, different types of evaluation reports might be needed for specific audiences.

Implementation of evaluation results and dissemination of lessons learned

The example does not discuss the last phases of the evaluation in which recommendations are put into practice and disseminated. These last phases are often seen as separate from the evaluation itself. However, as we are concerned with evaluation as a management tool, the implementation and dissemination of evaluation findings and recommendations will receive attention throughout the course. In the following modules it is argued that the more these last phases are taken into account at the beginning of an evaluation, the better are the chances that the improvements suggested will be implemented.

Monitoring of
follow-up

The last phase of the evaluation is monitoring the implementation of evaluation recommendations. This will not only provide a check on whether the recommendations are being implemented as planned, but will also provide feedback on the evaluation itself.

Module 3

Initial steps of an evaluation

At the start of an evaluation a number of closely related questions have to be considered:

- who has asked for the evaluation?
- who will be responsible for the evaluation?
- who will be the evaluators?
- who else should be involved in the evaluation process?
- how much time, money and manpower will be available to carry out the evaluation?

Request for evaluation

Sometimes, the decision to carry out an evaluation is included in the planning of a project (see also Module 1). In other cases, an evaluation is initiated in response to a request from an organization and/or persons facing a particular problem or need for information. For example:

- * policy makers, who need information for medium or long-term planning;
- * project staff looking for suitable options to overcome organizational constraints;
- * communities facing problems with the operation and maintenance of their new water supply;
- * a training institute wishing to adapt the curriculum to the needs of the project;
- * a hospital facing the problem of increased incidence of hookworm infection some time after the implementation of a sanitation programme;
- * an engineering department requiring information on the use of a new type of pump.

When a request for an evaluation is made a decision has to be taken as to who will be responsible for the evaluation.

Responsibility for evaluation

The question of who will be responsible for the evaluation may be subdivided into:

- who will commission the evaluation?
- who will finance the evaluation?
- who will be responsible for carrying out the evaluation?

Which organization commissions and finances the evaluation

Often, the ministry, donor, or project headquarters decides to commission and finance an evaluation (see Module 2 for an example). In other cases, when, for example, policy makers or community representatives request an evaluation of a project, which organization

Which organization carries out the evaluation

will take responsibility has to be negotiated. This is a matter for serious consideration, also for the project itself, because the organization selected not only has the authority to formulate the evaluation objectives, and thus decide what will be evaluated, but it is also in the position to accept or withhold the outcome of the evaluation and thus determine the uses which can be made of the results.

The organization commissioning and financing the evaluation is usually also responsible for carrying it out. Sometimes this responsibility is delegated to an external organization such as a research institute, a university, a government department, a non-governmental organization, or a consultancy bureau. The advantage of an organization carrying out its own evaluation is that it will be easier to get recommendations accepted and put into practice. Internal evaluations are also often less costly.

Selection of evaluators

The next step is the selection of evaluators and involve the following issues:

- are internal or external evaluators needed?
- what organizational levels should they represent?
- what should be their professional background?
- what should be their personal profile?
- how many evaluators are needed?

Internal versus external evaluators

It is important to consider the question of whether an internal or an external evaluator should be chosen. Internal evaluators are those who have close working relationships with the project. Because of their intimate knowledge they may find it easier to formulate recommendations of immediate practical value. Also, having been involved in the evaluation process, they may feel more committed to implementing the recommendations. External evaluators, on the other hand, have expert knowledge and are likely to be less biased in formulating recommendations because they are not involved in project politics and bureaucratic structures. However, external evaluators are not familiar with the project and will not be responsible for implementing recommendations. A well balanced combination of internal and external evaluators may be preferable. If the need is felt to have an external evaluator included in the evaluation team, to get expert feedback on a particular subject for example, it is suggested that this person acts primarily as an advisor both to the evaluation team and the organization responsible.

Organizational level

It is also important to consider the organizational level represented by the evaluators. From the above it may be clear that project staff should take part in the evaluation as it concerns their work and they will have an important role in implementing the recommendations. Inclusion of higher level officials is particularly useful when the evaluation has to deal with rules and regulations, manpower requirements and budget allocations requiring their formal approval and support. Selection of lower level officials, including community representatives, is particularly advantageous if the evaluation concerns local planning, implementation, operation and maintenance of facilities.

Area of expertise

The professional background of the evaluators should be considered in close relationship to the purpose of the evaluation. Careful selection of the members of the evaluation team to represent the relevant disciplines will greatly help in the collection of information in order to formulate practical recommendations.

Personal profile

Care should be taken that members of the evaluation team, and particularly the team leader, are generally well respected and trusted. If evaluators are not trusted, people may be afraid that if they are honest in providing information it may be used manipulatively or to criticize their work. If evaluators are not respected, co-operation will be difficult.

Consideration needs also to be given to having both men and women on the team. The women in a community may find it easier to discuss issues with a female evaluator. Also female evaluators may be able to investigate more easily the degree to which women are actively involved in project planning, implementation and maintenance, and whether greater involvement is needed.

Number of evaluators

How many evaluators are needed depends on the purpose of the evaluation and the decisions taken with respect to the above questions. For example, an evaluation on the use of a new type of pump may only require one evaluator. On the other hand, an evaluation aimed at overcoming organizational constraints may require additional evaluators in order to represent the various departments/sections and organizational levels involved. The guiding principle in evaluation as a management tool is: whom to select as evaluators to increase the chance that the evaluation will reveal practical options to improve project performance which can and will be used. As a rule of thumb, the optimum number for an evaluation team should not be more than

three or four. When more people or representatives have to be closely involved in the evaluation process, other ways have to be found to involve them. Some of these ways are outlined below.

Others to be involved in the evaluation process

There are always many more people for whom the evaluation should or would be useful than can be included in the evaluation team:

- higher level officials;
- fellow project staff;
- representatives of related organizations;
- key persons working in water supply and sanitation;
- community representatives;
- project staff of sister organizations.

These people may be involved in a different way.

Evaluation reference group

Those whose approval is essential for having evaluation recommendations accepted and implemented may be invited to be members of an evaluation reference group/steering committee. The task of this committee is then to discuss the work of the evaluation team in regular meetings and to be involved in the main evaluation decisions, from the formulation of evaluation objectives to the formulation and implementation of findings and recommendations. This procedure has the advantage that committee members will be drawn towards certain recommendations and develop a commitment to their implementation.

Briefings

Other people may be involved more peripherally, for example by occasional letters and/or briefings to inform them of the proceedings and results.

Available time, money and manpower

When preparing for an evaluation a decision has to be made as to how much time, money and manpower the evaluation may take. On the one hand, the purpose of the evaluation will determine the inputs required. On the other hand, the available time, funds and manpower will often only permit a short evaluation.

In Module 6, the cost of an evaluation will be discussed and outlined in a checklist. In Module 12, more attention is given to time and manpower requirements.

Module 4

Selection and formulation of evaluation objectives

Evaluation objectives

Once the decision has been made to carry out an evaluation, the evaluation objectives can be formulated. Evaluation objectives are clear statements of what the evaluation aims to achieve. As such, the selection of evaluation objectives is a crucial phase in the evaluation process as it will help to ensure that the evaluation produces results which can and will be used. Therefore, enough time needs to be taken to formulate these objectives carefully, otherwise not everyone may be satisfied with the evaluation results. The following example provides an illustration of this problem:

Example

A pilot project was started with the aim of developing an integrated approach to water supply, sanitation and hygiene education. The project was funded by the government and an external donor agency, and staffed by a team from the Ministry of Public Works and the Ministry of Health. After a year, they agreed jointly to carry out an evaluation to obtain a deeper understanding of the progress taking place.

The evaluation revealed that progress had been made in integrating water supply, sanitation and hygiene education, although at a slower rate than had been expected. The government and donor agency were satisfied with the outcome of the evaluation and decided to allocate further funds to continue the project. The project staff, however, were disappointed. They had hoped that the evaluation would reveal useful options on how to speed up and improve the process of integration. Instead, they now had the feeling that the evaluation only confirmed what they already knew too well

Thus, although the government and donor agency on the one hand, and the project staff on the other hand, both wanted the evaluation to study the progress of the project, they had different reasons for wanting the evaluation. The government and donor agency wanted to know whether present and future expenditure was justified, whereas the project staff were looking for suggestions to improve the ongoing programme. As this was not recognized in formulating the evaluation objectives, the outcome of the evaluation was of little value to the project staff and led to their disappointment.

Deciding what to evaluate, for whom and what for

The example illustrates that to formulate evaluation objectives, time needs to be taken to decide what has to be evaluated, for whom and what for. The following questions may guide this process:

- Who should be involved in the selection of evaluation objectives?
- What should the evaluation achieve? What evaluation objectives should be selected?
- Are the selected evaluation objectives realistic?

Why consult future evaluation users?

Who should be involved in the selection of evaluation objectives

The organization commissioning the evaluation always has the end responsibility for the selection and formulation of evaluation objectives. However, as stated in Module 3, the evaluation may need the active support of others from a number of organizations to maximize the chance of the evaluation resulting in practical solutions and improvements which can be implemented at various levels. Therefore, it was suggested that these people be involved in the evaluation process in some way.

This involvement may be particularly important where the selection of evaluation objectives are concerned. Those expected to work with the outcome of the evaluation will also have their own, often implicit, ideas about what the evaluation should achieve. If their views are not taken into account, the evaluation results maybe neglected or not appreciated.

How to involve future evaluation users

To increase the chance that those expected to work with the evaluation outcome feel committed to doing so, they could be invited to participate in setting the evaluation objectives. This may be done by calling a meeting for them to express their views and wishes. This can be done verbally to the group as a whole, or written down by completing the sentence: "I would like to know about the water supply and sanitation project". These views and wishes may then be discussed and transformed to generally agreed evaluation objectives. Alternatively, these people may be approached individually to learn their views, after which draft evaluation objectives can be formulated and be circulated for approval and adaptation if need be.

Selection of evaluation objectives

Decide on the primary purpose of the evaluation

In deciding on the evaluation objectives, first the primary purpose of the evaluation has to be determined:

- to assess the achievements of a project;

Select realistic evaluation objectives

- to identify ways to develop and improve the project;
- both to assess project achievements and to identify ways to develop and improve the project.

Next, one or more evaluation objectives can be identified and agreed. This may be difficult, because deciding what the evaluation has to achieve also means deciding what the evaluation will not cover. If narrow evaluation objectives are selected, then the results may not have enough value for appropriate action. Too broad or too general evaluation objectives may also create difficulties. Either they may not give enough guidance to the evaluation process, creating the risk that the evaluation outcome does not provide the information required, or they may cause manpower, time and money constraints, resulting in serious delays or unfinished evaluations.

Ways to formulate evaluation objectives

Examples of evaluation objectives derived from actual evaluation studies are presented at the end of this module. The examples show a variety of selected evaluation objectives, formulated in a number of ways. How evaluation objectives are formulated is a matter of choice. However, it is important that the evaluation objectives are clear, practical and realistic.

General and specific objectives

Some evaluations distinguish between general and specific objectives, as for example, the Azad Jammu and Kashmir evaluation (see Module 2). Another example is given below.

Example

In example no. 5 at the end of this module, one general objective is:

"to examine how women presently function as caretakers of hand pumps with a view to suggesting ways for the further involvement of women in the national programme."

This objective was focused further by the following specific objectives:

- * to determine the effectiveness of female caretakers through an evaluation of the maintenance of hand pumps cared for by women and an evaluation of the selection and training of female caretakers;
- * to determine the acceptability of female caretakers in the community (among both men and women);
- * to determine the acceptability among present caretakers of involving the whole family in the operation and maintenance of the hand pumps;
- * to determine major problems of large scale involvement of women in the national programme, for example, training together with men.

Be specific

Whether or not a distinction is made between general and specific evaluation objectives is often a matter of choice. However, it is recommended that specific evaluation objectives are included in the following two cases:

- When the evaluation objectives formulated in the first instance are too broad to be manageable, then more specific objectives need to be added, as was the case in the Azad Jammu and Kashmir example in Module 2.
- When special attention needs to be given to certain aspects in the evaluation as in the above example.

Specific objectives may be formulated either as statements or as questions.

Ensure that evaluation objectives are realistic

Check the evaluation objectives

Before finalization, the evaluation objectives can be checked against the following questions to ensure that they are realistic:

- Is it possible to collect information to meet the evaluation objectives?
For example, if the evaluation objective is to assess the performance of village health workers over the past five years, but systematic information on the first three years is lacking, then the suitability of this evaluation objective may be questioned.
- Are the evaluation outcomes required and appreciated?
For example, the objective to examine the district level operation and maintenance system may be less relevant if the decision has already been taken to embark on village level operation and maintenance.
- Can it be indicated how the evaluation outcomes would be used?
For example, if the objective is to find ways of integrating hygiene education in an ongoing water supply and sanitation programme, but funds and manpower will not be made available, it is questionable whether recommendations can be put into practice.
- Is it possible to meet the evaluation objectives within the available time, money and manpower?
For example, for short evaluations, the study of water consumption patterns may be unrealistic in terms of manpower and time. A large number of evaluation objectives may also create problems of time, money and manpower.

Short note on health impact studies

In this course, we concentrate on practical evaluations as a management tool for project assessment and/or improvement. The selection and formulation of evaluation objectives, as discussed above, fit in this approach. However, other evaluations go one step further and have as objective to evaluate the health impact of water supply and sanitation projects. These evaluations aim at assessing improvement in public health status by measuring the decrease in the number of cases of water and sanitation related diseases, especially diarrhoeal diseases. These health impact studies are time-consuming, costly, complicated and complex, and therefore, this type of evaluation is only recommended under specific conditions.

If you are considering a health impact study, it is recommended that you read Briscoe, J., Feachem, R.G., and Rahaman, M.M. (1986), *Evaluating health impact, water supply, sanitation and hygiene education*. This booklet is obtainable from International Development Research Centre, P.O. Box 8500, Ottawa, Canada K1G3H9. It is also advisable to contact one or two experts before deciding on a health impact study.

EXAMPLES: EVALUATION OBJECTIVES

Example 1

The general objective of this study is to evaluate the operation of India Mark II deep-well hand pumps in rural areas with particular emphasis on performance, maintenance and costs. The specific objectives are:

- a. to estimate the number of hand pumps in working order and to identify reasons for breakdown;
- b. to study the existing preventive maintenance system, if any, and its impact on the performance of hand pumps;
- c. to examine the time required for repair, agencies involved in such a repair and problems encountered, if any, in providing adequate repair facilities;
- d. to ascertain the actual cost of maintenance and repair against the allocations;
- e. to suggest corrective measures to improve the present performance of India Mark II hand pumps.

Example 2

The objectives of the evaluation are:

- a. to assess the priorities for sanitation improvement as expressed by the rural and urban communities and the government;
- b. to review the selection, planning and implementation procedures of sanitation improvements for rural and urban communities;
- c. to assess the types of low-cost sanitation improvements currently constructed and to compare their acceptance and affordability;
- d. to explore to what extent improved sanitation facilities are properly used, cleaned and maintained;
- e. to advise on the extension of low-cost sanitation improvements, indicating possible obstacles or constraints and preventive measures or solutions to overcome these problems.

Example 3

The objectives of the evaluation are:

- a. To measure and compare:
 - the form and degree of participation in the implementation and maintenance of the piped water supply project by different socio-economic groups within the village;
 - the quantities and patterns of water consumption from the supply by different socio-economic groups within the village.

- b. To establish the need for:
- improved distribution network to increase accessibility;
 - improved tariff structure for the quantity of water use.

Example 4

The objectives of the evaluation are:

- a. to document community attitudes towards public and private toilets constructed in selected locations by the Government and individuals, with assistance from UNICEF and UNCDF;
- b. to develop guidelines, criteria and procedures for implementation of public and private toilet programmes.

The aim is to enable decision makers within the government to:

- understand fully the attitudes of villagers towards the use of public and private toilets;
- consider a range of alternatives for the implementation of public and private toilet programmes;
- make decisions regarding future toilet programmes based upon guidelines provided in the report.

Example 5

The four general objectives of the evaluation are:

- a. to collect and analyse data on the present status of the operation and maintenance of hand pumps mounted on the shallow and deep tubewells installed by the Public Health Engineering Department under the national rural water supply programme with a view of improving the caretaker system;
- b. to examine how women function as caretakers of hand pumps with a view to suggesting ways for the further involvement of women in the national programme;
- c. to examine whether health education can be improved through better training of caretakers and whether the caretakers can work as health promoters;
- d. to prepare recommendations for a possible improvement of the present caretaker system.

Example 6

The objectives of the evaluation are:

to study objectives and progress of the project and comment on its effectiveness and efficiency in order to submit recommendations on possible follow-up activities after termination of the present project period.

Module 5

The need for a measure of comparison

Example

Yardstick for evaluation

Selection of evaluation criteria

In Module 1, evaluation is defined as a systematic process of collecting and analysing information to decide the relevance of a particular project and/or appropriate solutions and improvements to increase project efficiency and effectiveness. This process always involves judgements and thus comparisons, and therefore, criteria are necessary. The following Sufi story may help to clarify this point (Shah, 1964 in Patton, 1979 p.83):

A king, who enjoyed Nasrudin's company, and who also liked to hunt, commanded Nasrudin to accompany him on a bear hunt. Nasrudin was terrified. When Nasrudin returned to his village, he was asked:

"How did the hunt go?"

"Marvellously!"

"How many bears did you see?"

"None."

"How could it have gone marvellously, then?"

"When you are hunting bears, and you are me, seeing no bears at all is a marvellous experience".

The example shows that the evaluation of the hunt depended on the selected criterion. On the basis of the criterion: "hunting is terrible", it was a marvellous hunt.

The same principle applies to the evaluation of water supply and sanitation projects. Evaluation findings have to be compared with something else in order to allow judgements and decisions to be made. For example, let us assume that the evaluation objective is to assess the functioning of hand pumps and to recommend appropriate actions for improvement in the area.

What does it mean when we find 70 out of 100 hand pumps are functioning? Is this success or failure? This finding will be considered as encouraging if we know that about 3 years ago only 35 out of 100 hand pumps were functioning, and consequently we will look for the factors contributing to this improvement. But the same finding (70 out of 100) may also be considered to be disappointing when compared, for example, with another project in which 90 out of 100 hand pumps are functioning. In this case, we are likely to give more attention to factors which interfere with the proper functioning of the hand pumps.

Use agreed criteria

Criteria on which to evaluate findings have to be agreed for each evaluation. For some evaluation issues, the selection of criteria may be relatively easy, for example, most countries have agreed water quality standards that may be used for this purpose. For other evaluation issues, such as community participation or institutional development, no agreed standards will be available. In such cases the selection and use of criteria may be more complicated and time consuming.

Common evaluation criteria

Evaluation criteria

The following may be selected, either separately or collectively as project evaluation criteria:

- project objectives
- national targets
- baseline data
- past performance
- other projects/other project areas
- comparable communities
- hypotheses

Project objectives

Project objectives are an important criterion and are often used in project evaluation. For example, if the project objective is to provide 20 000 people with a new water supply within three years, and in fact within that period only 9000 people have been served, then it may be concluded that project performance needs to be improved.

Unfortunately, project objectives are often too general to be used as evaluation criteria. For example, a project objective "to improve the health situation of the rural population" is too general for this purpose. Therefore, for future projects more attention should be paid to defining project objectives so that they can be used to evaluate project progress and the benefits being derived from a project at various stages of implementation.

National targets

Many countries set targets for water supply and sanitation (Five year plans; Water Decade), which may provide useful evaluation criteria. For example, a country may have a target to train X number of sanitary engineers per year. If a project has trained a significant number, then it may be considered very successful. National water quality standards referred to above can also be used as criteria in evaluating water quality.

Baseline data

Baseline data provide information about the situation before the start of a project, and therefore, are very

helpful in assessing project progress and/or benefits. For example, information about sanitation facilities and defaecation habits prior to a sanitation project, may be used to evaluate progress and benefits after project implementation. Particularly for pilot projects, new projects, and projects in new areas, it may be important to collect baseline data in order to evaluate project development. The use of baseline data as a measure of comparison is sometimes referred to as 'before/after intervention criterion'.

Past performance

Past performance (progress data) may serve as a useful criterion to assess project progress over a period of time. For example, if on average, five latrines were built per month in 1985 and 50 latrines per month in 1986, this may be considered to be a substantial achievement. The example cited above, of the improvement in the number of functioning hand pumps is a further illustration of this point. A good monitoring system greatly facilitates the use of this type of criterion in evaluation.

Other projects/other project areas

Features of other projects or the same project in another area may be used as measures for comparison. An example is a comparison of selection procedures for new water supply schemes used by various projects. A comparison of the rate of revenue collection in different project areas is another example. Items of costs and manpower can also be evaluated using this criterion. The use of this type of criterion is particularly helpful as experiences from elsewhere can make an important contribution to improving and developing the project.

Comparable communities

Comparable communities may also be used as a measure for project evaluation. For example, from two comparable villages, one served by the project and the other not, we may learn much about the possible benefits of an improved water supply scheme. However, as this is rather a complicated criterion to use and suitable mainly for scientific purposes, it is not discussed any further here. This comparative measure is sometimes referred to as 'with/without intervention criterion'.

Hypotheses

Hypotheses are statements about the expected evaluation findings and are used as a measure to compare actual evaluation findings with what we expect to find. For example, we may expect that 30% of households use a latrine. If the evaluation findings are better than expected, that is, more than 30% of households use a latrine, then we may consider the

project to be reasonably successful. If, on the other hand, evaluation findings are less than expected, further investigations may be necessary to discover the reasons. Hypothesis is mostly used for scientific studies. However, as we all have expectations about evaluation findings, these expectations may be used for comparison (see the example presented at the end of this module).

Involvement of those who are expected to use the evaluation outcomes

As for the evaluation objectives, it is important to agree on evaluation criteria with those who have to use the outcomes, because this will increase their support for the evaluation. This will also overcome the need for lengthy debates later about the interpretation of the information collected.

EXAMPLE: USE OF HYPOTHESES FOR EVALUATION

The objectives of the evaluation are as follows:

- a. to determine, given the cost of the pour-flush latrine and the loan/grant provisions made available by the government, what types of households (socio-economic characteristics) adopted the new technology;
- b. to determine whether or not these latrines are being used properly and exclusively;
- c. to determine users' attitudes to the design and functioning of the latrine.

The following hypotheses were selected to meet the objectives of the evaluation:

- a. because of the high cost of the facility to the consumer and the substantial down payment required, only the higher income families are able to afford the latrines;
- b. because of the expected relatively high income levels of probable adopters, and the positive socio-cultural variable generally associated with high income, literacy, etc., a high percentage of latrines are in use;
- c. because of the presumed appropriateness of the technical design of the latrine and the positive socio-cultural factors associated with pour-flush adoption in the demonstration areas, most households are satisfied with the design, construction, and functioning of their latrines;
- d. again because of the same positive socio-cultural values, utilization of the latrine is high.

Module 6

Main features of Terms of Reference

TOR is formal
agreement

Preparation of Terms of Reference

The Terms of Reference (TOR) is a document setting out the formal agreements about the evaluation and includes:

- evaluation objectives
- name(s) of the responsible organization(s)
- names(s) of the evaluator(s)
- agreements about reporting (what, to whom and on what date).

Very often, the Terms of Reference (MEP, 1983, p.10) also includes:

- introduction providing background information on the project and the reasons for evaluation;
- evaluation design and methods;
- project area to be evaluated;
- available manpower support and logistic arrangements;
- time plan;
- financial requirements.

At the end of this module, an example is given of TOR and also an overview of cost items to estimate the financial requirements of the evaluation.

The duration of the evaluation will be an important item for inclusion and often requires due consideration. Sometimes it will be necessary to create a sense of urgency in order to get the evaluation report finished within a reasonable period of time. The inclusion of a fixed date for a certain event, such as a workshop to disseminate the evaluation results, may be used for this purpose.

The TOR is usually prepared by the organization commissioning the evaluation in co-operation with the evaluators. This document is the formal agreement about the evaluation, and therefore is an important document for both parties. It sets out the requirements which the evaluators have to meet in order to fulfil their task. To the organization commissioning the evaluation, the document states what they can expect of the evaluators within the specified period of time.

The time chosen for preparation of the TOR will depend on the evaluation itself. In some cases, the TOR is prepared immediately after the formulation of evaluation objectives and in other cases the TOR is prepared only after a preliminary investigation (see Module 7).

Evaluation design
to replace a TOR

For some short, low key internal evaluations, a formal document setting out the TOR might be considered unnecessary. Instead, preference may be given to the preparation of a short evaluation design, focusing on the reasons for the evaluation, evaluation objectives and the selection and use of evaluation methods. If a TOR is not prepared, the evaluation design will provide the necessary guidance for the remainder of the evaluation process.

EXAMPLE: TERMS OF REFERENCE FOR AN EVALUATION

1. Background

In the early 1980s, the country embarked upon a massive rural water supply programme in the Northern District. Water supply systems included tube-wells with hand pumps which were expected to provide the most appropriate level of service in terms of economy and coverage.

Three years have past since the start of the programme. An evaluation is indicated to determine how appropriate the measures taken under the programme have been in providing potable water for the people. The evaluation will focus especially on the functioning of the systems and the socio-cultural patterns relating to water use. The evaluation should result in practical suggestions for improvements, both with respect to the planning and implementation of new hand pump projects, and to the use, upkeep and maintenance of installed hand pumps.

2. Evaluation objectives

The major objectives are:

- a. to evaluate the operation of hand pumps in rural areas with emphasis on siting, quality of installation, maintenance and repair;
- b. to assess the adequacy of hand pump coverage (how many hand pumps to how many users);
- c. to analyse people's water consumption and water collection behaviour;
- d. to advise on possible improvements.

3. Evaluation area

The evaluation will be carried out in two sub-districts, selected by the donor, where a considerable number of hand pumps has already been installed. Selection criteria for villages to be visited include:

- the degree of donor involvement in project activities;
- variations in maintenance systems;
- population composition (various socio-economic groups).

4. Evaluation methods

In view of the complexity of the situation, it is considered necessary to collect the required data through the use of a variety of evaluation methods,

including observations, interviews, screening of documents, and a questionnaire.

Field-work data will be collected through the use of a hand pump information sheet and a household survey. To collect the required data within the time available, six field investigators will be trained in data collection under the guidance of two supervisors. At least two of the investigators should be women.

The final evaluation design will be discussed both with the national and district government and with the donor before implementation.

5. Composition of the evaluation team

The team will comprise one district officer responsible for rural water supply planning; one water and sanitation engineer from the engineering department; one community development officer from the Ministry of Interior; and one public health officer. In addition, six field investigators will be trained to carry out the field-work.

6. Logistic arrangements

Logistic support (office space, secretarial services, one car) will be provided by the department for regional planning.

7. Programme of the evaluation team

The evaluation is expected to take two weeks for the district officer and public health officer, and eight weeks for the water and sanitation engineer and community development officer. The last two will be responsible for the preparation of the field-work, the training and supervision of the field investigators and the analysis of field data. The district officer will head the evaluation team and liaise with national government officials.

The draft evaluation report will be submitted within three months of the start of the evaluation and will be discussed with authorities and communities concerned before finalization.

EXAMPLE: OVERVIEW OF COST ITEMS FOR AN EVALUATION

A short overview of cost items is given below in order to estimate the financial requirements of an evaluation. Depending on the type of evaluation and methods selected, a number of these cost items may be irrelevant or not included in the evaluation budget. Other cost items may have to be added.

A. Fees/manpower costs

	<u>no. of days</u>	<u>costs</u>	
. evaluator 1	
. evaluator 2	
. evaluator 3	
. secretary	
. typist(s)	
. driver(s)	
. surveyors/enumerators	
	sub-total	-----	...

B. Travel costs

. travel costs for evaluators to and from evaluation area		..	
. travel costs evaluators and surveyors within evaluation area		..	
. daily subsistence allowances and/or food and lodging for evaluators and surveyors		..	
	sub-total	-----	...

C. Stationery

. Writing materials (paper, pens, note pads, adhesive tape, type out etc.)		..	
. Duplication material (cost of rental for duplicator or photocopying machine; stencils for duplicator, ink, paper etc.)		..	
. Communication and telephone costs		..	
. Postage costs		..	
	sub-total	-----	...

D. Costs involved in the organization of
activities to disseminate evaluation
results and recommendations

meetings		..	
presentations		..	
seminar/workshop		..	
slide show/video tape		..	
.....		..	
	sub-total	-----	...
		<u>Total</u>	...



Module 7

Reason for a preliminary investigation

Preliminary investigation

To meet the evaluation objectives, a decision has to be made on what information to collect and how this information can best be collected. For this purpose, it may be necessary to carry out a preliminary investigation to get a better indication of:

- the issues requiring further investigation;
- the most appropriate methods for data collection.

First review the present state of the evaluation

The preliminary investigation requires the collection of readily available information. This process actually starts at the initiation of the evaluation, but not until after the formulation of the evaluation objectives does this process become an explicit phase in the evaluation. Therefore, before proceeding with the preliminary investigation it will be helpful to review the present state of the evaluation by answering the following questions:

- what project documents and other material are already available? What documents and material are to be looked for?
- which organizations and individuals have already been contacted? Who should be contacted now and who should be contacted at a later stage?
- what other information do we have available?

Keep a notebook

It will be easier to answer these questions if a list of references has been kept and especially if a notebook with the names of the organizations visited, the people met and the information and suggestions received has been maintained. A notebook is strongly recommended as a useful tool for a systematic approach to evaluation. It will be an aid to memory and can be used to check earlier observations and information received. Therefore, if you have not used a notebook in the previous phases, use one now. Some evaluators also use a notebook to write down ideas and issues that need further attention.

Sources to explore

Information sources

Having summarized the present state of the evaluation, the following sources may provide readily available information:

- easily accessible written or printed material
- interviews with key persons
- short visit to project area.

Easily accessible material

The first source of information is easily accessible written or printed material, such as project

Aids to the
screening of
material

documents, progress reports, minutes of meetings, project correspondence, field visits reports, cost data, baseline data, monitoring reports and data, evaluation reports, documentation on institutional arrangements, policy papers, special studies on water supply and sanitation, general data (statistics) about the project area, socio-economic data about the population, health statistics, maps, aerial photographs and records of operation and maintenance.

Generally the quickest way to work is to begin by obtaining an overview of the project by reading the main project documents, and preparing a short project description covering the following aspects:

- objectives of the project, long-term objectives and immediate objectives;
- project executing authorities;
- reason for the project being set up, that is the justification for the project;
- project work plan/plan of activities;
- inputs in time, money and manpower;
- main characteristics of the project area;
- main population characteristics.

An example project description including a number of these aspects is presented at the end of this module. A project description together with the evaluation objectives will also help in selection of which other documents or parts of documents should be read. A project description will also be useful in the preparation of the evaluation report.

A quick method of going through a large number of project documents in order to determine whether they contain relevant information for the evaluation is to examine the title, the year of preparation and the table of contents of each document. If this gives no indication, put the document aside. If the document shows promise, read the summary or the introduction and conclusions and other parts as indicated by the table of contents.

Interview
key persons

Key persons are those who have an intimate knowledge of the project being evaluated and/or have expertise and experience on aspects for which information is required. Project staff are of course key persons. Interviews with these people may provide a considerable amount of valuable information within a short period of time. Interviews are likely to be more effective if:

- the reason for your visit is explained in relation to the objectives of the evaluation;
- a short list of items for discussion is prepared beforehand and checked off during the interview;
- inquiries are made of relevant material and the

names of other important persons to contact.
Interviewing is discussed further in Module 10.

Visit to project
site(s)

A short visit to a few project sites at an early stage may also assist in the preparation of the data collection phase of the evaluation. This visit may be used:

- to note difficulties in the physical terrain;
- to talk informally with local officials about their problems and experience;
- to note residence patterns, especially of disadvantaged groups;
- to talk informally with households, men, women and children and ask about their experience and problems;
- to look at the physical structure of old and new facilities;
- to visit a workshop, training centre, health centre, central stock, etc. (MEP, 1983: 10).

Be selective

Exploring all sources thoroughly is not only very time consuming but also often unnecessary. It is important to be selective. The evaluation objectives and the time schedule should be used as guide to the collection of useful information.

For evaluators who are familiar with the project under evaluation, the above suggestions may be largely irrelevant. However, it is recommended that they review what they know from an evaluation point of view. More often than not this will focus attention on aspects of importance to the evaluation.

Using the findings of the preliminary study

Use of preliminary
findings

Information and suggestions received during the preliminary investigation can be used:

- to meet one or more evaluation objectives: if enough information has been collected during the preliminary study there will be no need to collect additional information;
- to formulate the issues requiring further investigation: the more information we have, the better the impression of questions that need further investigation;
- to select most appropriate methods for data collection (see Modules 9-12);
- to prepare a position paper, which is a short paper summarizing the present position of the project including a project description (see above), a short history of the project and the progress made to date. This document is especially useful for more in-depth evaluations because it systematically sets out information collected during the first phases

and provides the evaluation team with a common base of information collected by the individual team members. This paper will also be extremely useful in preparing the evaluation report.

A short investigation as evaluation

Short, often formal evaluations may be similar to short investigations in that information collected is analysed and interpreted without further data collection. A short evaluation in the form of a preliminary investigation may be indicated if the evaluation objectives require only information for arriving at broad decisions, for example in policy making.

EXAMPLE: PROJECT DESCRIPTION

- Activity: Support to the Rural Water Supply Department
- Place: Institutional support for the entire country;
Construction of water supply systems in two provinces
- Executing authority: Rural Water Supply Department, Ministry of Rural Development
- Duration: 2 years; starting date: 1 May, 1986
- Budget: Government: 2 000 000,=
Donor: 2 000 000,=
- Summary of activity: - institutional support to the Department for planning and construction of water supply and sanitation facilities;
- implementation of 60 water supply systems and three sanitation pilot projects;
- development of a hygiene education programme in conjunction with the implementation of the water supply and sanitation facilities.
- Justification of the project - rural water supply projects enjoy a high priority amongst the rural population. Rural water supply also ranks high in the country's five year plan;
- improved rural water supply and sanitation facilities and practices are expected to have a positive effect on the rural health situation, which is generally poor at present;
- institution building for rural water supply is in its early phase; procedures still need to be developed and manpower requirements still have to be met.
- Long-term objectives: - to improve the living conditions in rural areas by making available adequate quantities of safe water;
- to promote better health and sanitary conditions and practices;
- to relieve villagers from carrying water over long distances;
- to promote a rational utilization and management of the scarce resource of water.
- Short-term objectives: - to strengthen the Rural Water Supply Department in managerial, operational and maintenance aspects;
- to co-ordinate activities with other Government

institutions and Non-Government Organizations in the field of water supply and sanitation;

- to contribute to the development of a national strategy for rural water supply and sanitation;
- to initiate and stimulate an integrated approach to water supply, sanitation and public health;
- to introduce hydrogeological and geophysical methods for well siting;
- to implement 60 water supply systems with local participation;
- to implement three sanitation pilot projects with local participation;
- to train project staff;
- to develop a viable maintenance system.

Plan of activities:

- technical assistance, training and general support to the Rural Water Supply Department in:
 - . planning and construction of water supply systems, particularly boreholes and hand-dug wells with pumps;
 - . hydrogeological activities such as site selection and designing the dimensions of wells;
- preparation of manuals, guidelines and procedures to be incorporated in the Rural Water Supply Department;
- initiation and stimulation of an integrated approach to water supply, sanitation and public health;
- development of a hygiene education programme;
- geophysical measurements during well sitings;
- monitoring of water resources during the drilling of wells and after the wells are in use;
- supervision during the drilling of wells and sampling of the drilled formations;
- checking of the water quality of wells in use and of the environmental health threat of waste water;
- selection of 60 villages to be provided with improved water supply facilities, based on the following criteria: need, workload, interests of women and health aspects;
- planning and implementation of 60 water supply systems based on the following criteria:
 - . participation of village population, both men and women, in decision-making with respect to the location of the wells and proper solutions for bathing, washing, cattle watering, and waste water disposal;
 - . contribution of the village to finance the water supply system;
 - . implementation of a hygiene education programme in co-operation with basic health services and extension activities in the project area(s);
- planning and implementation of a minimum of three sanitation pilot projects;
- training of village caretakers in co-operation with the village population;

- development of a proper maintenance system for the facilities.

Inputs:

A. Inputs, Government:

- One project manager/civil engineer, two construction supervisors, one hydrogeologist, one hygiene educator;
- running costs, for example transport and office facilities;
- contribution to construction costs by local development organizations.

B. Inputs, Donor:

- one project manager/civil engineer, two construction supervisors, one hydrogeologist, one hygiene educator;
- equipment, land cruisers and hydrogeological equipment, and running costs, for example transport;
- financial assistance to complete the water supply and sanitation facilities.

Module 8

Selection of questions/ points of attention

Selection of evaluation points

At this stage, we know which issues require further investigation to meet our evaluation objectives. We now can decide what additional information has to be collected. This is done through the preparation of lists of evaluation questions and/or checklists. The points on these lists are often referred to as "indicators" because they help to find answers to what we need to know.

The selection of questions or points of attention is guided by:

- the evaluation objectives
- the evaluation criteria
- the evaluation methods
- the time, money and manpower available.

Evaluation objectives

It is most important that questions are selected which serve the evaluation objectives. To this end, we take the evaluation objectives one by one and discuss, select and write down the relevant questions to obtain the additional information needed. Often, it is not necessary to start from scratch, as the preliminary investigation will already have indicated important items. Reference books and evaluation reports may include checklists, questionnaires and guidelines which might aid in selection of questions. The Minimum Evaluation Procedure (MEP) for example, developed by the World Health Organization, can greatly aid the selection of questions to be raised in studying the functioning and use of water supply and sanitation facilities. At the end of this module, key points are listed on the various evaluation items to be used as a source to aid selection of questions.

Although we may benefit from available checklists, questionnaires and guidelines, these should never be adopted without careful consideration and adaptation. These materials may provide us with useful ideas and suggestions, but can never replace our own efforts.

Example

The above can easily be illustrated by the use of the example evaluation objectives: "to what extent are the hand pumps provided by the project functioning". To select evaluation questions to serve this objective, the MEP (1983, p.18) suggests the following four indicators to study the functioning of a new water supply system:

- water quantity (W1);
- water quality (W2);

- reliability of the water supply (W3);
- convenience of water points (W4).

For each of these indicators a number of questions are suggested. Whereas some of these questions may be used directly, others will need further consideration. For example, the questions concerning the water quantity (W1) are primarily intended to study the water quantity of piped supplies, and thus for the study of the water quantity of hand pumps, some of these questions are inapplicable whilst others may have to be added. To give another example, in the case of a heterogeneous population it may be necessary to include more questions on the convenience of water points (W4) for the various population groups because some groups may be denied access to new facilities for social reasons.

Evaluation criteria

In selecting questions, we also have to remember the evaluation criteria we will use to evaluate our findings. For example, if our measure for comparison is the situation before a new water supply was built, we will have to include questions to provide us with information about the pre-project situation.

Evaluation methods

The evaluation methods to be used will also influence the selection of questions. This is discussed in Modules 9-13 on the selection and use of evaluation methods. Here we will limit ourselves to an example derived from the MEP on questions about the quality of water (W2).

As indicated in the MEP (p.21-22), two methods may be used to assess the quality of the water:

- water quality analysis;
- sanitary survey, including community views and behaviour.

For the water quality analysis method, the presence of faecal coliforms in the water may be used as an indicator of the bacteriological water quality, thus questions may be: "what is the faecal coliform count of the water at the public standpost, and in the water containers of the households?" However, these questions are of no value if a sanitary survey is used to assess the quality of the water. In a sanitary survey in which the water quality is indirectly assessed, one of the indicators may be the use of a clean bucket to draw water from a well (see also, WHO Guidelines for Drinking Water Quality, 1982-1983).

**Available time,
money and manpower**

The type and number of questions will further be influenced by the time, money and manpower available. In the example above, it makes no sense to formulate

questions about water quality analysis if there is no one to carry out the task. A large number of questions on the use of various water sources for a number of purposes may be unsuitable for an evaluation which has to be completed within a few weeks. In Module 13, more attention will be given to time, money and manpower aspects.

Points for consideration

Selection of relevant and realistic questions

To ensure that the selected questions are relevant and realistic, the following questions can be asked:

- What difference would it make to have this information?
- How can this information be used? (Patton, 1981)

Types of questions

In addition, it may also help to distinguish three types of questions:

- "situation" questions, for example, how many taps do not work? This will help us gain insight into the situation.
- "why" questions, for example, why are taps not working? This will help us to understand the situation.
- "what to do" questions, for example, how can we improve the working of the taps? This will help us to search for realistic recommendations to improve the situation.

Check the selected questions

The preliminary list of questions should be checked. This will be discussed later in the course in combination with the selection and use of evaluation methods. Here only some preliminary suggestions are made:

- * ask future users of evaluation findings to review the list;
- * ask an expert to review the list;
- * check whether questions can be answered from the available information resources, both persons and materials;
- * try out some of the questions to see whether the information obtained can be used to meet the evaluation objectives.

Suggested reading

Two useful booklets which provide more information on the meaning and use of "indicators" for evaluation studies are:

- Health Programme Education: guiding principles for its application in the managerial process for national health development (1981). Geneva, WHO.
- Development of indicators for monitoring progress towards health for all by the year 2000 (1981). Geneva, WHO.

REFERENCE LIST OF KEY POINTS

A reference list including the key points of various evaluation items is given as a source to aid the selection of evaluation questions. The list mainly refers to "situation" questions with "why" and "what to do" questions still to be included.

Evaluation of project objectives and progress

- Were the original project objectives realistic? Is or was reformulation necessary?
- Were the proposed project activities appropriate to attain the project objectives?
- Has a work plan and time schedule been drawn-up, and have they been reviewed and developed in time?
- What progress has been made in attaining project objectives within the original time schedule? Were adaptations necessary? What are the achievements and constraints? Could the efficiency and/or effectiveness be improved?
- Who were the original target groups? Did or do they need changing? What is the relevance of the project in meeting the needs of the most disadvantaged?
- What is the relevance of the project to the national water supply and sanitation policy? What is the relevance of the project compared with other priority needs of the target groups and other water supply and sanitation projects?

Evaluation of project organization and management

- How is the project organized? What are the stronger and weaker points of the organizational structure?
- What are the tasks and responsibilities of the project manager? What factors facilitate and/or hamper the work of the project manager?
- What are the tasks and responsibilities of the various project staff members? Which factors facilitate and/or hamper their work? Do women and men have the same rights and possibilities?
- Was sufficient manpower available to carry out the project? Did this change with time?
- Were adequate provisions made for:
 - * transport
 - * office accommodation

- * administration
- * secretarial support

- Is communication within the project timely and adequate?
- Are the financial and other contributions to the project timely and adequate?
- Are project budgets prepared, reviewed and updated at regular intervals?
- What are the mechanisms for expenditure requests, authorization, bookkeeping and auditing?
- Have contracts and co-operative activities been developed with various government organizations and projects?
- What are suitable options and suggestions for improvement?

Evaluation of socio-economic aspects

- What are the main population characteristics with respect to:
 - * number of people living in the project area?
 - * household composition; position of women and men?
 - * sources of income and income distribution?
 - * groups according to class, religion, caste?
 - * local organization?
- What was the need for water supply and sanitation facilities? Have selection criteria been developed and applied as to which communities are to be served first?
- Do the new facilities meet the identified need for water supply and sanitation? for both men and women? for various groups of people?
- Are the new facilities being used? the whole year through? by men, women and children? by all population groups?
- Did construction of the new facilities provide jobs for people from the community? Did some people lose their jobs, for example as water carrier or waste collector, as a result of the new facilities? Were they offered another source of income?
- Is it possible to make economic use of water and waste, for example for gardening? Who would benefit from these economic activities?

- Do the new water supply and sanitation facilities provide time gains for women? How do women use this time or would they use this time?

Evaluation of technical aspects

- Was there a need for a water resources study in the planning phase?
- Is the level of service and choice of water supply and sanitation technology adequate in relation to need, health aspects, manpower requirements, cost-effectiveness, and operation and maintenance aspects? Are additional facilities necessary, for example, for bathing, laundry, cattle watering, and are special arrangements required for children?
- Have design criteria been developed and tested with regard to:
 - * maximum number of users per water point
 - * maximum walking distance
 - * average consumption per person per day
 - * design period
 - * efficient drainage of waste water
 - * number and type of private latrines
 - * number and type of communal/school latrines
 - * type of slab, cover and pit volume
 - * allowance for future upgrading of the system
 - * is the construction according to design?
- Was construction carried out by tender, direct labour, self-help or a combination of these? What were the administrative and supervisory arrangements?
- Do the facilities function? Are they easy to operate and to clean?
- Is there a system for water quantity and water quality control at regular intervals?

Evaluation of community participation aspects

- What strategy has been used for community approaches and community participation?
- To what extent and in which phases was the community involved in decision-making with respect to:
 - * selection of source(s);
 - * priority setting for sanitation improvements;
 - * selection of water supply and sanitation technology;
 - * level of service;
 - * siting of water points/sanitary facilities;
 - * design and construction;

- * timing;
 - * organization of operation and maintenance;
 - * costs and contributions;
 - * training and manpower development;
 - * division of responsibilities between community and governmental/non-governmental agencies and organizations?
- To what extent and how did the various socio-economic groups within the community, that is men and women, children, social groups and local organizations, participate?
 - Who was responsible for the community participation in the project and in the community? How did community participation relate to other project activities?

Evaluation of operation and maintenance

- Has an organizational structure for operation and maintenance been developed?
- What tasks are carried out at the local level and what tasks at higher level?
- Who is responsible for operating the system, for preventive maintenance, for maintenance and repair?
- Are people trained? Are they supervised? Are they remunerated?
- Is there an adequate system for stock control and distribution of spare parts?
- What are the financial arrangements for all operation and maintenance activities? (see also next point)

Evaluation of financial management for operation and maintenance

- Do people pay for the construction and/or use of the facilities? How much?
- Do contributions cover recurrent costs? Initial capital costs?
- What system has been developed for resource generation? Who is in charge and who is responsible?
- Is there a problem of non-use of the facilities, of use by outsiders, of non-contribution? To what extent do these problems influence the working of the facilities?

- What control mechanisms have been developed? Do they work and are they accepted?
- Is there a division of responsibility between the community and government agencies and organizations?

Evaluation of hygiene education

- Was hygiene education included in the project activities?
- What were the main hygiene education objectives?
- How was it organized and by whom? When was it organized?
- Who were the main target groups? What were the main approaches and methods? What were the main messages? Was it community based? Was it based on dialogue?
- How do people and hygiene educators value the programme?
- Were enough funds available to carry out the hygiene education programme?

Evaluation of manpower development and training

- How do individual project staff members evaluate what they have gained from the project? To what extent and in what way will it influence their future?
- Were training needs identified and training programmes developed, adapted and/or executed? Which ministries and organizations were involved? How many people were trained and at what level(s)?
- Is attention being paid to salaries and career perspectives? Is this the same for both women and men?

Module 9

Methods of data collection

Observation method to study physical conditions

Methods of data collection: observation

Introduction

Having defined the evaluation questions, we can now decide how to find answers to these questions. For example, how do we find the answer to the question of whether the quantity of water is sufficient for the present human and animal population. This requires the selection of the most appropriate data collection methods. One method would be to make direct observations on the quantity of water collected at the various water points. This is known as the observation method. Another method, known as the questionnaire survey method, would be to visit all water consumers and ask whether the new system supplies sufficient water throughout the year. Yet another method would be to ask the caretaker or some other key person, whether the new facility meets the total water requirement. This is called the interview method. If research data on the water supply for the present human and animal population are already available, these data can be used to answer this question. Screening of project and other documents as method of data collection has already been discussed in Module 7.

Each method of data collection has its own characteristics, advantages and limitations. In this module, observation is discussed. Interviewing will be discussed in Module 10 and the questionnaire survey method outlined in Module 11. These three data collection methods are compared in Module 12. These modules use material from "An introduction to social research" (J. Doby, ed. 1967).

Observation as a method for data collection

Observation is a powerful method for collecting data on:

- physical conditions
- behaviour patterns.

The observation of physical conditions can include many aspects. We can observe whether the project area is hilly or flat, rocky or sandy, dry or wet; whether the area is densely populated; the general appearance of houses, public buildings and roads; whether the animal population or small-scale industries affect the water supply and sanitation situation. We can also see where people collect water, how far they have to go and how difficult the journey is. We can observe where

water collection points are located and what they look like; whether waste water from the collection points is safely drained and whether fences have been constructed to keep animals away from them. We can see the water level in a shallow well and whether the well is properly lined and covered. We can inspect the distribution system of a piped supply and the functioning of pumps. We can taste and smell water and observe its colour. We can see whether there are suitable arrangements for bathing and laundry, and for cattle watering. We can check whether latrines are being used and whether the latrines are constructed at a safe place; whether water for cleansing and handwashing is available and whether pits are properly covered.

Observations of physical conditions can be very revealing because they give an indication of the living conditions of the various socio-economic groups in the project area and their water supply and sanitation situation. It also shows what physical progress has been made on the project. These observations may then be used as an indication of the achievements of the project and what further actions need to be taken.

Observation to study
behaviour patterns

Observation can also provide valuable information about behaviour patterns. We can see who collects water, where, when, and how. We can observe peak periods of water demand and whether there are long waiting times. We can see whether the new hand pump is easily handled by women, men, and children. We may observe how people store their water at home and how it is used for hand washing, washing of vegetables, and cleaning. We can observe where and when people go to bathe and to wash clothes. Sometimes we may see where children defaecate. We can observe the activities of water vendors and caretakers. We may also get an idea of how people communicate and who are the leading persons in the community. We may see who attend meetings (women, men, various groups), who are concerned, make suggestions, want to be actively involved, and who object or are ignored. At hygiene education meetings we may get an idea of the extent to which people participate. A visit to a school may show who attends classes and what teaching methods are used. Joining a meeting of a water committee may reveal how they operate and whether they need additional training or support to carry out their tasks.

Observation of behaviour patterns is particularly helpful in determining the proportion of the population who is satisfied with the new facilities and who use them without resorting to other water sources. These observations may also provide us with

an indication of communication patterns, and division of rights and responsibilities within the community. Observation can show how community-level workers carry out their tasks and it may give a general idea of how far the community supports the project. It can also reveal possible solutions to problems and short-comings, for example, suitable ways of securing greater involvement of women in the planning and management of new facilities.

Quantitative and qualitative observation

Observation may be used to collect:

- quantitative data to learn the frequency of a certain condition or behaviour;
- qualitative data to get a general feeling for the local conditions or to obtain specific in-depth information.

One particular type of observation is participant observation. For this, the evaluator takes up residence in the community to be evaluated. He/she stays for a period of time which can be from one week to several months. During this time he/she observes and records the daily pattern of water supply and sanitation through participation in daily activities. This type of observation is used to acquire an intimate understanding of local conditions and behaviour, but requires a trained observer and much time. More information on using this method can be found in: Simpson-Hérbert, M. (1983), Methods of gathering socio-cultural data for water supply and sanitation projects (TAG Technical Note no.1).

Factors influencing observation

Basically, observation is using our eyes and registering what we see. This may appear to be simple but often proves to be difficult if it is meant to provide useful data for the evaluation. If we ask ten people who observed a shop robbery to relate what they saw, we will probably get a considerable variation of answers. Similarly, ten people viewing the same film will notice and emphasize different aspects. There are two main reasons for this. Firstly, the world around us is so complex and overwhelming that we cannot see and register everything, and thus we continually make selections. Secondly, we are all inclined to link observation with interpretation which leads to varying and often incorrect conclusions. The following example may serve as illustration:

We are selective in what we see

We interpret what we see

Example

Observations of an evaluation team who visited a village with a new piped water supply, indicated that water from the new supply was being used for everything except drinking and food preparation.

Drinking water and water for food preparation continued to be drawn from the old wells. The first conclusion was that the villagers were still unaware of the possible health benefits of the improved supply. However, further investigation indicated just the reverse. They were very health conscious; they knew that the water from the piped supply was untreated surface water and thus unsafe to drink.

Usually, the more familiar we are with what we are observing, the better our observations and the conclusions we draw. However, this may carry the risk of assuming that we know how a situation is instead of making careful observations and conclusions. On the other hand, unfamiliar situations are often more difficult to observe, as we are all apt to notice only those things which are connected to what we already know or have experienced ourselves. Although, the opposite may also be the case, being unfamiliar with a situation may create an interest in observing the situation more carefully.

We have a selective memory

There are two additional problems related to observation as an evaluation method. Firstly, even with a good memory, no one can possibly remember everything, especially not a considerable number of observations made in a very short period of time. Therefore, observation always requires a recording system. The advantages of keeping a notebook have already been discussed in Module 7. The second problem is that the observer influences the situation by her/his very presence. The example of observing how many people visit a public bathing place is well known. At one place, more people than usual may visit the bathing place simply to see what the observer is doing. At another place, fewer people than usual may come to bathe because they may feel uncomfortable about being observed. One way to reduce this problem is to select locally accepted observers (see also Module 12). Another suggestion is to stay in the village for some time so that the community becomes more accustomed to your presence before you start your systematic observations.

We influence the situation to observe by our presence

Aids to useful observation

For observations to provide useful data for evaluation, we have to prevent disturbing influences as much as possible. The following rules of thumb may aid to this.

Decide carefully what to observe and why

Select carefully what to observe and why. It may sound contradictory, but this also applies when the observation method is used to explore a situation or

problem for which an open mind and eye are prerequisites. In such cases, the selection is broader and less defined, but we will always need some direction for our observations (for information in the selection of observation items, see Module 8).

Include a try-out

Use your first observations as a practice run and modify your observation items, approach and recording system, if necessary.

Be systematic in your observations

Be systematic in your observations. This means, for example, when taking an observation walk through a community to gain a general impression of the water supply and sanitation situation, make sure that you visit all sections of the community. If you wish to count the number of trips per day made by women to collect water, be sure to start early in the morning and to cover the whole day. Do not be satisfied with one or a few observations. These might be exceptions to the general pattern, and therefore unreliable. Initial observations should always be cross-checked by additional or other observations or by data collected through another evaluation method.

Keep systematic records

Be systematic in registering your observations. Write down what you have observed as soon as possible and indicate clearly what you saw, where and when, including the time of the day and the year. Be careful to distinguish between observation and interpretation. When you are observing the frequency of a particular activity or situation, note this down immediately. A good format for registration of this type of information would be helpful. See the example at the end of this module.

EXAMPLE 1: OBSERVATION SHEET VILLAGE WATER SOURCE

Site of source: Date of visit:
Type of source: Time of arrival:
Distance from village: Name of village owning source:
.....

Observations:

Fencing around area? no/yes
type:
.....
condition:
.....

Protection of source? no/yes
type:
.....
condition:
.....

Drainage of source? no/yes
type:
.....
condition:
.....

Additional facilities present? no/yes
type:
.....
condition:
.....

Refuse around source? no/yes

Excreta around source? no/yes

Water and mud around source? no/yes

Latrines within 20 m? no/yes

General remarks:
.....
.....

EXAMPLE 2: OBSERVATION SHEET LATRINES

1. Distance from house to latrine metres
2. Type of latrine:
 1. simple pit
 2. ventilated improved pit
 3. double vault
 4. flush toilet
 5. aqua privy
 6. other, specify
3. Floor material:
 1. concrete or cement
 2. soil, sand, logs
 3. other, specify
4. Floor condition:
 1. intact
 2. cracks
 3. visible holes
5. Floor cleanliness:
 1. clean
 2. soiled with faeces
6. Wall material:
 1. no walls
 2. cement blocks
 3. mud blocks
 4. banana leaves, grass, carton, sisal bags
 5. other, specify
7. Roof:
 1. no roof
 2. asbestos sheets
 3. sheets of metal
 4. banana leaves, etc.
 5. other, specify
8. Ventilation pipe:
 1. absent (continue with point 10)
 2. PVC
 3. asbestos
 4. cast iron
 5. cement blocks
 6. other, specify
9. Pipe screen:
 1. not screened
 2. intact
 3. intact but blocked mesh
 4. broken mesh wire
 5. no observed
10. Flies present:
 1. none
 2. less than 5
 3. more than 5

11. Anal cleansing material:
1. absent
 2. tin with water
 3. tin without water
 4. coarse paper
 5. toilet paper
 6. other, specify
12. Lid on latrine:
1. absent
 2. with handle, put over hole
 3. with handle, not put over hole
 4. without handle, put over hole
 5. without handle, not put over hole
 6. other, specify
13. Size of squatting hole: ... cm X ... cm
14. Level of faeces:
1. less than 50 cm
 2. more than 50 cm

Module 10

Methods of data collection: interviews

Types of interviews

Three types of interviews can be distinguished:

- free interviews
 - focused interviews
 - standardized interviews
- > to collect mainly qualitative data
- to collect mainly quantitative data

Free interviews

In a free interview, the only guidelines are the evaluation objectives. The line of discussion and the subjects covered are left largely to the respondent. This free interview is a good tool for exploring the opinions and feelings of a respondent. Such an interview may uncover unexpected factors influencing both the project progress and achievements, and unexpected suggestions may be made which might lead to improvements. This type of interview places great demands on the listening skills of the interviewer and his or her ability to ask stimulating and motivating questions, to weight answers and to ask additional probing questions. This type of interview is not recommended for evaluators with limited interview experience. The exception to this is when the respondent requests an interview because she/he has something to say of relevance to the evaluation. Then the interviewer should concentrate on the point the respondent wants to make.

Focused interviews

For a focused interview, a checklist is prepared and the respondent is asked to provide information about the items on the list (see Module 8 for preparation of a checklist). A checklist will help to ensure that all items are covered, and that the interviewer sticks to the points on which information is required. If a respondent wants to give information or suggestions not on the checklist, it is important to give him the opportunity to do so, either immediately or at the end of the interview. As with free interviews, focused interviews provide good opportunities to pick up important issues that may otherwise be overlooked. But this is only the case if the interviewer keeps an open mind, and is really interested in what the respondent has to say. The suggestions made in this module to make interviewing effective may also be of use to this end.

Standardized interviews

Whereas free and focused interviews are directed to collect qualitative data, standardized interviews are developed to collect quantitative data. To this end a questionnaire with a fixed number of questions and sometimes a pre-selected range of possible answers is used. As the construction of a questionnaire has to meet a number of requirements, this type of interview will be discussed separately in Module 11.

Focused interviews to obtain in-depth information

Selection of persons to interview

The focused interview often provides the best method of obtaining information, opinions and feelings from key persons. Key persons are persons who are particularly knowledgeable about the matter in question. The data to be collected will largely determine who are suitable key persons to be interviewed. For example, background information on the project area and the inhabitants may be provided by district officers; for information on the health situation in the area health workers may be interviewed, and caretakers may provide information on the functioning and use of facilities and the institutional organization of the water supply. Formal and informal community leaders may wish to share their insights into the local political situation and socio-economic condition, and members of the community themselves are the best people to ask whether or not the community has been involved in the planning, implementation and management of the new facilities and whether they are satisfied or whether changes and improvements need to be made. Thus, key persons may include community members and representatives, volunteers, professional workers, and government officials. Within this range, some types of persons are in a particularly good position to provide insight information, such as:

Types of key persons

- Insiders
- Outsiders
- "More willing to reveal" persons
- "Not to be missed" persons.

Insiders

Insiders have an intimate knowledge and/or experience on subjects about which you need more information. The most important group of insiders are the users and non-users of new water supply and sanitation facilities, for example, the women who collect and the women who do not collect water from the new supply; children who use and children who do not use the new school latrines. In selecting people for interviewing, we must take care to select real insiders. For example, not all women in a community collect water themselves, some may have children or servants to do this. Not all children attend school and so some have no opportunity to use school latrines.

Another group of insiders are professional staff with long experience in the project area. Often, they have an intimate knowledge of working relations and of constraints in and between organizations involved in water supply, sanitation and health. Also, they will remember how the situation was before the start of the project and they may know of earlier attempts to improve the situation.

Insiders can also be project staff and related workers. They have intimate knowledge and experience on particular subjects: a bookkeeper who records the income and expenditure of the new facilities; a community health worker in charge of hygiene education activities; a local healer who treats communicable diseases; a schoolteacher, religious leader and/or agricultural extension worker; a plumber who repairs leaks in the piped system; a community motivator or social worker who knows the needs, problems and interests of community members; a money lender who knows the financial problems of various socio-economic groups and their capacity to pay.

Outsiders

Outsiders can be newcomers to the area or persons whose behaviour and beliefs are a little different from the majority of the population. These people often have a fresh view of the situation, and notice aspects taken for granted by others. Newcomers are often able to make interesting suggestions for improvements and may also be enthusiastic to contribute to new activities.

"More willing to reveal" persons

"More willing to reveal" persons are more willing to talk, perhaps because they feel they have something to say or because they are frustrated or dissatisfied with the project activities, or because they are interested, enthusiastic and willing to contribute to the progress and achievements of the project.

"Not to be missed" persons

Some people, whether community representatives or professional workers, may feel passed by if they are not interviewed. Consequently, they may refuse to co-operate in project development and improvement once recommendations have been made. Be aware of these people and include them on your list of persons to be interviewed. It may help to make them future active participants instead of future underminers. Others not to be missed are those who may become important contributors to the project and/or the management of the facilities in the future. Interviewing these people can be seen as the first step to their involvement.

Aids to effective interviewing

As with observation, effective interviewing is an art (see Module 9). Some suggestions to aid the collection of useful data through interviewing are given below.

Prepare a checklist

Prepare yourself thoroughly by deciding what information you need to collect (see Module 8). Prepare not only a checklist, but also a number of pre-worded questions to help to cover all important issues to be discussed. The preparation of pre-worded questions will also help to focus on the use of appropriate words and sentences during the interview. This is particularly important for the discussion of sensitive subjects. Another advantage is that you will have some questions to fall back upon in a sudden pause or when you wish to change the subject.

Introduce yourself properly

It is preferable to introduce yourself to the respondent via someone already known to him/her. Otherwise, introduce yourself and the reason for the interview, including the purpose of the evaluation. How much information you will have to provide depends on the respondent. As a rule of thumb: be clear and to the point and explain the importance of the information to be provided and how this information will be used.

Create a relaxed atmosphere

Open the interview by asking factual, non-threatening questions. Usually there is some general background information you will have to collect anyway and this may provide a good starting point. For example, you may ask for some general information about the community or about the organization for which the respondent works. This will help to create a relaxed atmosphere in which more detailed and/or sensitive questions can be asked and where constraints to development and suggestions for improvement can be discussed.

Move from general to specific in each subject

After the initial, general questions, you may wish to ask more details about the subject under discussion. When you move to another subject, start once again with a more general question allowing the respondent to come up with her/his own answers. Then continue with more detailed questions to draw out the respondent's opinions.

Do not be satisfied with generalities

As the interview aims to collect useful data, do not be satisfied with general answers, but try to obtain clear and specific information. There are a few standard ways to get through generalities:

- * just pause, this is often a most effective way of encouraging a fuller response;
- * say "I see", or nod with your head to show that you are interested to hear more;
- * make zooming sound (some African countries);
- * to stimulate further response, use a neutral phrase, such as:
 - . Could you tell me more about
 - . What do you mean
 - . I'm not sure I understand
 - . Why do you think
 - . Are there any other reasons
 - . Could you give me an illustration
 - . How recently/often has something like that occurred?

Ask neutral questions only

In order not to influence the answer and thus to collect information of less value, ask neutral questions. Also, it is very important to word your question clearly and to use common or shared language to avoid misunderstandings. This is especially important when your professional or personal background differs from that of the respondent (see also Module 11).

Be a careful listener

Be a careful listener and try to understand what the respondent is saying. If the respondent says something you would like to know more about and you cannot interrupt him/her, make a mental note of it and return to this point later.

Think of future co-operation

Where possible and feasible, try to create an atmosphere for future co-operation in project development and/or management.

Take notes

Be systematic in taking notes. Often it is quite possible and acceptable to take notes during a meeting or conversation, without disturbing the interview. Read through your notes after the interview to check whether you have written down all the important points. If it is not possible to take notes during the interview, write up the interview as soon as possible afterwards. Finish your notes by writing down your observations and your interpretation of the information collected.

Informal and group interviews

Informal talks

During the evaluation you may find many opportunities for informal talks with professional workers and community members. Such talks can be quite useful to obtain a better understanding of the real issues

affecting the water supply and sanitation project.

Although these talks are informal by nature, applying the suggestions given above may contribute greatly to the collection of useful data. Informal talks prove to be especially fruitful when combined with observation. If you can discuss what you see, and if people show you what is being discussed, you may come to a better understanding of the situation. The two methods can also be combined to cross-check data for greater reliability.

Group interviews

Group interviews are particularly useful for the discussion of feelings, opinions, alternative solutions to problems, new ideas and initiatives. If the group consists of more than four or five people, it may be better to work together with a colleague or at least to have somebody in the group who will take notes. It may be too difficult for one person to guide the interview, to listen carefully and to write down information, all at the same time. To make full use of a group interview, get the group to discuss the various issues among themselves. Take care that shy and less forthcoming persons also get a chance to put their views forward.

Module 11

Methods of data collection: questionnaire survey

When to use a
questionnaire

A questionnaire as tool for data collection

A questionnaire consists of a fixed number of questions. It is used as a standardized interview to collect quantitative data on:

- population characteristics, such as socio-economic background, attitudes and feelings;
- project achievements, such as the functioning and use of water supply and sanitation facilities; the performance of trained manpower.

Use of a questionnaire is indicated only when a deeper understanding is needed of the extent of a problem or issue. For example, a questionnaire may be indicated when we want to know whether socio-economically disadvantaged groups have equal access to improved facilities when compared to better-off groups. This information can then be used to decide on actions to improve this situation if needed. However, it should be noted that whereas information collected by means of a questionnaire may provide a strong basis for action, it usually does not indicate the most suitable action to be taken. Additional information obtained by other data collection methods will often be needed to determine the most appropriate way to change the situation.

Features of a
questionnaire

The construction of a questionnaire and the analysis of the answers include a number of steps:

- construction of questions
- construction of response categories
- enumeration of responses
- combination and comparison of responses.

Construction of
questions

Firstly, questions have to be selected and formulated to cover information needs. For example, if we want to know the socio-economic situation of the population and their access to improved facilities, we will have to select questions that will provide us with this information.

Construction of
response categories

Secondly, categories have to be found around which answers on each question can be grouped. For example, answers to questions about the socio-economic situation of the population may be grouped into better-offs and disadvantaged; answers to questions on having access to the improved facilities may be grouped under having access and not having access.

Enumeration of responses

Thirdly, the various answers have to be enumerated, for example, so many belong to the better-offs and so many to the disadvantaged; so many people have access to improved facilities and so many people do not. The enumeration of responses will be discussed further in Module 13.

Combination and comparison of responses

Fourthly, the total numbers of answers have to be combined and compared, for example, the number of better-off people having access to the improved facilities, compared with the number of disadvantaged people having access (this will also be discussed further in Module 13).

Contact an expert for longer questionnaires

For these characteristics, a questionnaire survey is not an easy method to use. Therefore, longer and more complicated questionnaires should not be developed and used without the assistance of a trained researcher or statistician, and often the use of a computer is also necessary. If you plan to prepare more than a very short questionnaire, contact an expert at a very early stage, certainly before you finalize the construction of the questionnaire. In this course, discussion is limited to short questionnaires used to collect data in order to obtain a quantitative impression of some basic information needs.

Construction and pre-testing of the questionnaire

A questionnaire must be constructed carefully in order to collect the information required. The following suggestions should be followed.

Relevant questions

Firstly, each question must be relevant in providing information to meet evaluation objectives and also be meaningful to the respondents. Selection of questions which meet evaluation objectives have been discussed in Module 8. To construct questions meaningful for the respondents it is necessary to know their situation and to know how they think and talk about water and sanitation related issues. Otherwise you may construct questions that are inapplicable, or which people find uninteresting. In such cases they will not bother to give realistic answers. Only when meaningful questions are asked, can you expect meaningful answers.

Wording of questions

The wording of the questions will also need particular attention. Each question must be clearly understood by the respondents, otherwise the answers may not be applicable. The more the questions are phrased in words familiar to both the interviewer and the

Neutral/unbiased questions	<p>respondent, the less confusion and misunderstanding will occur.</p>
Need for precise answers	<p>As for focused interviewing, the questions in the questionnaire must be neutral. "Where do you collect water for drinking?" is a neutral question, but "do you collect your drinking water from the new water supply?" is a biased question, begging for a "yes" answer.</p>
Open and closed questions	<p>The questions should stimulate precise answers. Do not ask more than one thing at a time. For example, to the question "Where do you go to bathe and defaecate" you may get the answer "to the river". But then you do not know whether the respondent is going to the river to bathe, or to defaecate, or both.</p>
Keep it short	<p>A decision has to be made whether the questions are to be open or closed. A closed question includes a pre-selected range of answers, or response categories. Standard response categories are: "Yes - No - I do not know"; "Often - Sometimes - Rarely"; "More - Same - Less"; "Very (.....) - Fairly (.....) - Not so (.....)". In constructing response categories, remember that the response categories should be meaningful to the respondents and should also fulfil the objectives of the evaluation. If this is not possible, then you may decide to omit the question or to leave it open, as in model question number 10 at the end of this module. Answers to open questions will need to be grouped after the survey has been completed.</p>
Have a clear structure	<p>Keep the questionnaire as short as possible. It should not take more than 15 to 20 minutes to introduce yourself and for the respondent to answer all questions. If you need a longer questionnaire, ask for experienced help (see above).</p>
Pre-testing	<p>Structure the sequence of questions carefully. Pay attention to the layout so that questions which are not applicable can be passed over easily, as shown in the example at the end of this module.</p>
	<p>Pre-test the questionnaire on at least three people similar to those to be included in the survey. This will serve to identify possible problems in the selection and wording of questions; understanding of questions and answers; using of response categories; inadequate writing space and the length of the interview. If necessary the questionnaire should be</p>

modified and tested again (Simpson-Hébert, 1983, p.9).

Sampling

Once we have tested the questionnaire, the survey can be carried out. Often, it is neither possible nor necessary to visit all persons or households in the survey. Instead, a representative sample of the total group of persons or households can be made. Sampling is discussed further in Module 12 because the same principles apply to observation surveys. The use of survey staff will be discussed in Module 12 for the same reason.

Use of the questionnaire

Guidelines for questionnaire use are as follows.

Visit people at a convenient time

Firstly try to determine the daily schedule of activities of those you wish to survey and the appropriate times to visit them. When you visit a respondent, always begin by explaining who you are in an understandable and non-threatening manner. Keep your explanation as short as possible. If a respondent is busy, ask if you may ask your questions while she/he continues her/his activities. Otherwise ask if you may return at a more convenient time.

Approach respondents in a friendly way

Respondents approached in a friendly way seldom refuse to co-operate. Often they welcome the opportunity to express their opinions. Respondents who are hesitant to co-operate because of feelings of uncertainty or because of fear of how the information will be used, need to be reassured. If the respondent does not want to co-operate, you can try to find ways to interest him/her in the issues addressed by the questionnaire, but never force people to co-operate.

Use the words as formulated in the questionnaire

Take care to ask the questions in the wording as formulated in the questionnaire. Do not argue with the respondent about the questions, or about the answers. If an answer is not adequate or too vague to be classified in a response category, ask some additional questions until you have a full answer. Always be very careful not to suggest an answer. Remember that the survey is to collect data from the respondents.

Write down the answers immediately

Write down the answers immediately and carefully. After the interview you should run through the answers to check whether you have made no mistake in completing the questionnaire and whether additional information has to be added. You may also wish to include observations made during the interview. The next respondent can then be visited.

EXAMPLE: LAYOUT AND SEQUENCE OF QUESTIONS

6.

7. Have you attended any meetings organized by the project staff?

1 no (continue to question 10)

2 yes

8. Do you remember how many meetings you attended?

1 one meeting

2 two meetings

3 three meetings

4 four meetings

5 more

6 I do not know

9. Do you remember what was discussed during the meeting(s)?

1 no (continue to question 11)

2 yes 3 formation of water committee

4 selection of type of facilities

5 selection of location of facilities

6 other _____

(continue to question 11)

10. Why didn't you attend any meeting?

11.

Note: The numbers for each open square need only be included if you plan to use a computer for tabulation and analysis of data collected.

Module 12

Selection and use of data collection methods

Selection of methods

What evaluation method should be used

The main methods for data collection in an evaluation have been discussed in the previous modules: observation (Module 9); interviewing (Module 10); and surveying (Module 11). The following questions may serve as guide when making a decision on which method(s) are most suitable for filling information gaps:

- What information do we have to collect and why?
- What is the best method to collect this information?
- Can this method be used with the time, manpower and money available?
- Do those who will have to support the outcome of the evaluation have confidence in the use of this method?

Comparison of methods

The most appropriate method(s) will probably be suggested by the information to be collected. The suitability of the observation method of collecting data on physical conditions and behaviour patterns has already been discussed. Generally interviewing is the best method of collecting information from key persons and groups. The questionnaire survey is most suitable for collecting quantitative data for an overview of population characteristics and/or to show the particular needs of a population, as well as to show what achievements have been made by the project.

Qualitative methods

The characteristics of the various methods imply that qualitative observations and interviews are more suitable for collecting data necessary for obtaining an overall indication of project performance, progress and achievement in relation to community needs and preferences. These methods are also excellent tools for exploring a problem, because the selected observation items and interview questions can easily be adapted or changed during the investigation. This will allow for a deeper understanding of the problem under evaluation. For example, an investigation of vandalism of the distribution network may reveal that the primary problem is inappropriate construction design. The use of qualitative observation and interview then permits attention to be directed to an explanation of the problem of construction design. The exploratory nature of these methods also permits thorough investigation of possible improvements and alternative solutions to problems and new ways to proceed with the project. A further advantage of these

methods is that it will be easier to establish fruitful relationships with those concerned and to increase their enthusiasm and commitment for future co-operation in water supply and sanitation activities.

Quantitative methods

The survey method is more suitable for assessing various population characteristics, or showing the extent of a problem or feature. Quantitative data sometimes have the advantage of being impressive. When it can be stated that 92% of the population is satisfied with the new facilities, we are all impressed with project achievements. Quantitative data may also be used to press for action. For example, if the survey shows that 65% of the caretakers lack adequate training, this information may help in making the decision to establish a training course for caretakers. A disadvantage of the survey method is that a good understanding of the situation and the problems is required before a meaningful questionnaire can be constructed (see Module 11). To overcome this, qualitative observation and interviewing can be used to collect initial data. The survey can then be based on this. When the survey results are known, observation and interviewing methods may again be needed in order to collect additional information on how to steer the situation in the desired direction.

Time, manpower and money available

After the most appropriate method(s) for data collection have been determined it has to be decided whether the time, manpower and money available permit the use of this method. Qualitative observation and interviewing can be more easily adapted to the resources available. These methods are more appropriate for short evaluations, and qualitative observation and interviewing can usually be done by the evaluation team themselves without support from assistant staff. A survey on the other hand, requires considerable time for preparation, testing and data collection. In addition time will be needed to train and supervise survey staff to collect the data and also to tabulate and analyse survey data. Therefore, as surveys often require more time and manpower inputs, they are generally more expensive than qualitative observation and interviewing. The exception to this is participant observation, where data collection and analysis is very time consuming.

A rough indication of the inputs required for the various evaluation methods is given in Table 12.1.

Table 12.1: Rough indication of inputs required for various evaluation methods

Method	Time	Cost	Man-power	Transport/logistics
Observation	++	+	+	++
Interviewing	++	+	+	++
Survey	+++	+++	+++	+++
Participant observation	+++	++	+	+

+ = low
 ++ = medium
 +++ = high

Credibility of evaluation methods

Selection of evaluation method(s) will also depend on whether those expected to implementing the evaluation recommendations have confidence in the method(s) selected. The point here is the credibility of the method, or confidence that the data collected in fact reflect the real situation. Some consider that only quantitative data provides reliable information as it produces hard figures. Conclusions drawn from qualitative data, they argue, can only be tentative as one can never be sure of the extent to which the information collected is representative. Others, however, raise doubts about the reliability of questionnaires, because respondents may give incorrect or biased (socially acceptable) answers; surveyors may record information incorrectly; and distortion can occur in the analysis (see Module 13). They also argue that the collection of qualitative data provides better opportunities for arriving at a deeper understanding of problems and for suggesting ways of making improvements.

In view of the above considerations, methods should be selected in consultation with those to whom the evaluation findings and recommendations will be directed. It will help to meet their credibility requirements and it will prevent disputes and/or rejection of evaluation results and recommendations once they have been compiled.

During these consultations, opportunity can be taken to stimulate involvement in evaluation discussions on the general progress, preliminary findings and additional questions for data collection. As already stressed, the more people are informed and involved, the more they will feel committed to the evaluation results and the greater the chance that recommendations will be implemented.

Recruitment and training of survey staff

It is often necessary to recruit additional staff to carry out a survey. It is important to select persons carefully as evaluation results and recommendations will be drawn from the data they collected.

Characteristics
of good surveyors

What are the characteristics of good survey staff? Preferably, survey staff should come from the same area as the population being surveyed and be accepted by the respondents. They should be good in reading, listening and writing and should be able to follow the mechanics of the questionnaire. They need to be conscientious in their work because while the first questionnaires and observations will be fun to do, the task could become a matter of tedious routine.

These requirements can best be met by recruiting friendly, interested laymen, project workers (such as sanitarians and community motivators) and other community-level workers who would like to contribute to the evaluation. Heads of schools, chairpersons and directors of local organizations and community representatives can be approached and asked to suggest the names of suitable candidates. Where appropriate, recruit sufficient male and female surveyors to contact male and female respondents respectively.

Training and
supervision of
surveyors

For the survey staff to collect precise data, they will require a short period of training. An outline of activities is attached to this module. They will also need support while on the job. For the first day(s) it will be necessary to accompany the surveyors and to check and discuss each questionnaire and/or observation form immediately upon its completion. For the rest of the survey period it would be a good idea to contact the surveyors every one or two days and/or to call a meeting to discuss problems, exchange experience, and to maintain their level of motivation.

Sampling

The need for
sampling

In a survey, it may not be necessary or possible to include the whole target group, for example all households, all construction supervisors, all caretakers, or to include all observation points, for example all latrines or all improved shallow wells. Therefore, a sample may need to be drawn to represent the total.

Total "population"

To meet the requirement of representativeness, the first step of sampling is to define the total "population". A total "population" may be defined as: all people living in the project area; all households

in a village; all caretakers who followed a training course two years ago; all latrines constructed with project support between 1984 and 1986; all improved wells in the dry part of the project area.

Random sample

When the total population has been defined, random samples can be drawn. A random sample gives each unit of the population, for example, each household, each caretaker, each well, an equal chance of being selected. This is done by assigning a number for each unit, for example, to all households on a village map, on an official list, or to the houses themselves, and then selecting at random the numbers to be included in the selection. Often it is a good idea to start with an observation walk through the village in which a number of village people participate. A general impression can then be obtained of the local situation. Special care should be taken to include all parts of the village in the sample.

Stratified random sample

Depending on the evaluation objectives, it may be preferable to use a stratified random sample. For example, if we want to know to what extent various socio-economic groups have access to new water supply facilities, we have to draw a sample in such a way that minority groups are also adequately represented. This is done by subdividing the population into the various socio-economic groups and then by sampling each group separately.

Representativeness

For a sample to be representative, the sample size has to be taken into account. The smaller the total population sampled, the larger the proportion to be included. In a group of 60 caretakers, for instance, at least 20, that is one-third, 33.3%, should be included. For a community of 1000 households, a sample of 10 % would normally be sufficient (for further information, see Simpson Hébert, 1983, p.11-12).

Selective sampling

It is not always necessary or possible to draw a random and representative sample. An alternative may be to select extreme cases, for example households that are farthest away and closest to the new water source; a few villages with a successful, and a few villages with an unsuccessful latrine programme; the poorest area and the most well-to-do area. Looking at extremes may be particularly helpful in identifying problems, constraints and possible solutions.

Ways to increase people's participation in the evaluation

Participation of target groups in data collection

Various ways may be found to increase the participation of target groups in data collection. At village level there are many ways to increase involvement in the evaluation process. Apart from the fact that this may provide more insight it may also create more interest in participating in future water supply and sanitation activities. Some examples of how this can be done are given below.

- * A number of women are invited to prepare and organize an observation walk through the village. After the walk they are asked to summarize their observations and to suggest possible actions which might improve the situation. They are then invited to have a meeting with the district officer or project manager in charge of water supply and sanitation.
- * A number of village representatives are asked to discuss evaluation issues. At the end of the meeting, the participants are invited to take home a list of observation items. A second meeting is then organized to discuss the completed lists and to seek suitable solutions to undesirable situations.
- * Schools are visited in order to gain their co-operation. Schoolchildren are invited to discuss their home situation or asked to interview their parents and their neighbours on a few selected items. The results are then discussed at school, and follow-up action planned.
- * Several caretakers are asked to contribute to the preparation of the survey of caretakers. They also help to analyse the survey data.
- * A workshop may be organized with those involved in operation and maintenance of the facilities to discuss a number of problems and possible solutions.

Suitable alternatives will always depend on the evaluation objectives and the selected target group(s). Care needs to be taken that the various sub-groups and both men and women are represented in organized evaluation activities.

EXAMPLE: TRAINING OF THE SURVEY STAFF

The training of survey staff may take one full day.

- a. After a short welcome to all participants, start with an overview of the project and the purpose of the evaluation. Stress the fact that the success of the evaluation will depend largely on how well they do their job of collecting precise data.
- b. Slowly go through the questions on the questionnaire and explain the purpose of each question and how to record the answers. Alternatively, discuss the observation form and how to record the observations. Modules 9, 10 and 11 may provide additional aspects to be discussed with the survey staff.
- c. Ask two participants to volunteer for a role play to practice the questionnaire. Pay special attention to how to ask questions and how to get clear answers. Also practice with the observation form. Discuss where, how, and for how long to observe and how to avoid disturbing people too much.
- d. Take time to discuss how the surveyors should introduce themselves to community representatives and respondents. Practice their introduction several times, because this is often the most difficult part of the job. Discuss the list of persons/locations they have to visit and what to do when this is not possible.
- e. For a questionnaire survey, divide the participants in groups of two. Ask one to act as the surveyor, the other as the respondent. After completing the questionnaire, reverse the roles. Check whether participants have had any problems with the questionnaire. Also arrange for a practice run to familiarize the surveyors with their observation task. Emphasize that it is always necessary to check a completed questionnaire or observation form before starting with the next.
- f. To end the training session, discuss the arrangements made about guidance and support for the survey staff while they are in the field.

Module 13

Data analysis and interpretation; formulation of recommendations

Data analysis and interpretation

Definitions

In this phase of the evaluation, the collected data are processed and information is provided which can meet the evaluation objectives. For this, the collected data has to be analyzed and interpreted. Data analysis involves the organization of data into groups and the establishment of findings.

Interpretation of data involves making judgements about the findings and implications for future action. Qualitative and quantitative data analysis and interpretation require different methodologies. They are therefore discussed separately.

Analysis and interpretation of quantitative data

Check of questionnaires

If you did not carry out the survey yourself, the first step is to run through all the questionnaires and to check whether some have to be excluded from the analysis because of unreliable or incomplete data. Then give each questionnaire a number for easy reference.

Decide on response categories

Before we can analyse the quantitative data, the answers to each question on the questionnaire have to be counted. For closed questions, the range of answers has been pre-determined and thus counting can be begin immediately. For open questions, it will first be necessary to group the answers into categories. The first step is to take all the questionnaires and read through all the answers to one open question. Next, the answers need to be fitted into as few categories as possible. Using the example "Why didn't you attend the meeting?" (see Module 11, example questionnaire) The categories selected could be:

- not invited;
- because of the children;
- represented by somebody else;
- unsuitable time of the day/year.

Tabulation

Answers can be counted in various ways. Here a simplified form, using only two response categories, is presented (for other examples, see the attachment to this module). We will assume that the objective is to know: "to what extent are the improved wells used?", and one of the detailed questions was "where do you collect your water for drinking?". The answers may then be counted as set out in Table 13.1.

Table 13.1: Type of water source used by each household

Number of household	Improved well	Other source
1	X	
2	X	
3		X
4	X	
-		
/		
-		
100		X
Total	60	40

Combination of data

From Table 13.1 we know that 60 of 100 households included in the questionnaire draw water from an improved well. To get a better indication of who uses the improved facility, this finding may be combined with the answers to another question, for example on the socio-economic status of the households which we divide here into two groups: "better-offs" and "disadvantaged" (see Table 13.2).

Table 13.2: Type of water source used as compared with socio-economic status of households

Number of household	Improved well		Other source	
	Better-offs	Dis-advantaged	Better-offs	Dis-advantaged
1	X			
2	X			
3				X
4		X		
-				
/				
-				
100			X	
Subtotal	40	20	10	30
Total	60		40	

The totals in Table 13.2 show that better-off households make more use of the improved wells than the disadvantaged households. Of the 50 better-offs, 40 use the improved supply whereas of the 50 disadvantaged households only 20 use the improved supply. Thus, additional information has been obtained on who uses the new facility. However, it may be necessary to consider other factors as well, for example, the resident pattern as set out in Table 13.3.

Table 13.3: Type of water source used compared with resident pattern

Number of household	Improved well		Other source	
	down hill	up hill	down hill	up hill
1	X			
2	X			
3			X	
4	X			
-				
/				
-				
100				X
Subtotal	55	5	15	25
Total	60		40	

Table 13.3 shows that where people live also influences the use of the new water source: more people down hill than up hill use the new facility. If we need more precise information about the main reason for non-use of facilities, these findings can be analysed further. However, it is often sufficient to know the main influencing factors without ranking them.

Use of percentages

Findings are usually expressed in percentages to facilitate comparison. However, for totals below 30, this is not recommended as it can give a false impression. For example, to say that 60% of the population were using the improved supply, when actually this means 12 out of 20 gives a distorted impression.

Interpretation of findings

Judgements can now be made about what these findings mean and what the implications are for action. Evaluation findings are seldom either completely

positive or negative and thus have to be considered carefully. To aid this process the findings can be compared with the agreed criteria (see Module 6). This will help to put a value on the findings, in this example the implication of having 60% of households using the new facility and 40% using other sources. Refinements are made by evaluating this finding in combination with other findings, such as socio-economic status and/or resident pattern. Comparison and combination of findings will provide more information on their meaning.

Implications
for action

When we have decided what the findings mean, for example, "non-use of the improved well is a matter of serious concern, especially as the disadvantaged households tend to be non-users", the next step is to decide on what action should be taken. To this end, both other findings and the project environment have to be taken into account, because they will determine what actions are suitable. For example, in one situation it may be a feasible suggestion to put more emphasis on hygiene education, whereas in another situation, it may be necessary to pay more attention to social aspects of well siting. As discussed previously, quantitative data often provide little information about what action can most appropriately be taken. In interpreting the findings it may be decided that additional information or try-outs will be required to determine the most appropriate ways to alter the situation (see Module 11).

The analysis and interpretation of quantitative observation data follow the same procedures.

Analysis and interpretation of qualitative data

Analysis and
interpretation
as a process

The collection, analysis and interpretation of qualitative data are more closely linked than of quantitative data. During observation and interviewing it is possible to reflect on what is being seen and heard. This enables comparisons, adaptations, and tentative conclusions to be made while the investigations are proceeding. This feature has already been discussed as one of the advantages of the observation and interview methods (see Module 12).

Selection of
key-points

Although analysis and interpretation start during data collection, at the end of the investigation all information received and ideas developed will have to be reviewed and analysed in order to reach final conclusions and recommendations. To this end, key-points are selected which can be used to group the data to provide answers to meet evaluation objectives. You may wish to use your observation and

Analysis and interpretation

interview checklists as a reference for the selection of key-points.

Various procedures can be used to group the data under the key-points. One procedure is to duplicate all your notes and cut the copy into pieces to allow for the rearrangement of material. This procedure is recommended for larger evaluations with a considerable amount of qualitative data. Of course this method cannot be used if there are no duplicators or if paper is in short supply. Another procedure is to write codes for the key-points in the margin of your notes. The codes will thus enable you to read quickly all the information about a particular key-point.

To analyse and interpret information under a particular key-point can be quite difficult. Some information can be categorized numerically, for example: "Of the six organizations interviewed, five mentioned the problem of revenue collection for public facilities". However, most information has to be weighted against other information. For example, a short remark by a respected community representative on the problem of vandalism may outweigh a lengthy explanation by an outsider. There are no rules for weighting information. It is very much an art. The only safeguard is to check findings with other information received.

Interpretation of findings will often be facilitated when put together on a summary sheet. Such an overview may include both qualitative and quantitative findings (two examples can be found at the end of this module).

Deciding on evaluation results and recommendations

Qualitative findings also have to be judged according to agreed criteria in order to meet the evaluation objectives (see Module 6). When this has been done the implications for action can be decided. During the data collection phase, various alternatives will have been discussed and considered. Final decisions can now be made on practical recommendations that can be implemented.

Involvement of those who have to support the evaluation outcome

Formulation of conclusions and recommendations

The interpretation of data and its implications for action, as discussed above, can be done by the evaluation team alone, but it is important to involve the people concerned in the discussion. This includes first of all the members of the evaluation reference group or committee. If they are not involved in this phase, the outcomes of the evaluation may come as an unwelcome surprise. Therefore, formulating conclusions

Possible forms of involvement

and recommendations should involve all who have to support the outcome of the evaluation. This involvement will also increase their commitment to implementing the recommendations.

Rules of thumb

One procedure is to discuss the tentative conclusions with members of the evaluation reference group at a joint meeting. The meeting could proceed as follows: Start by recalling the purpose of the evaluation, the evaluation objectives, and the methods used. Then present the major findings, and invite comments before the conclusions and recommendations are discussed. While proceeding, or at the end of the discussion, distribute the tentative conclusions and recommendations of your evaluation team for comment and adaptation. End the meeting with a short summary of the agreed conclusions and recommendations. This procedure will increase support for the conclusions and recommendations and will also allow for quicker implementation of recommendations, even before the final report is presented.

Do not jump to conclusions

The following guidelines may aid the formulation of conclusions and recommendations:

Conclusions and recommendations have to flow from the evaluation findings. Take care not to jump to conclusions or to make too sweeping statements.

Do not suppress conflicting findings

Conflicting findings should not be suppressed or spirited away. Instead they should be carefully considered. If no explanation can be found, this should be stated in the conclusions.

Include unexpected findings

During the evaluation you may collect information that you were not looking for, but which proves to be very important. Even if these unexpected findings do not serve a particular evaluation objective, they should nevertheless be incorporated in the conclusions and recommendations.

Delineate practical and feasible recommendations

During the discussion and formulation of recommendations, attention needs to be given to delineating practical and feasible recommendations which are possible to implement. Recommendations that cannot or will not be implemented are not worth making.

Be as clear as possible

To increase their impact, conclusions and recommendations need to be stated clearly. Therefore, each conclusion or recommendation should cover one

Finalization of
recommendations

message only, and the level or organization to which it is directed should be precisely indicated.

Conclusions and recommendations should be arranged in order of importance, from the general to the more specific. Before finalization, check whether they meet the evaluation objectives and thus the purpose of the evaluation.

EXAMPLES: COUNTING OF SURVEY DATA

1. Counting of data by using an empty questionnaire
(or observation form).

A quick and easy way to count all the answers on the questionnaires is to use an empty questionnaire. An example is given below:

6.

7. Have you attended any meetings organized by the project staff?

- II III III III no (continue to question 10)
III III III III yes

8. Do you remember how many meetings you attended?

- IIII one meeting
I III III two meetings
IIII III three meetings
III four meetings
/ more _____
III I do not know

9. Do you remember what was discussed during the meeting(s)?

- I III no (continue to question 11)
 yes I III formation of water committee
III III selection of type of facilities
III III selection of location of facilities
III other _____

(continue to question 11)

10. Why didn't you attend any meeting?

- III Not invited
II Because of children
III Represented by someone else
II Unsuitable time of the day

As can be seen in the example, the answers on the open questions have first been categorized. Alternatively, all answers can be written on a separate sheet and then categorized, but often this is more time consuming.

This method of counting is only recommended for very short questionnaires, because in counting, errors occur easily. Combination and comparison of data will also be difficult, because it is impossible to relate answers to other answers given by the respondent. Therefore, in general the counting example given in the main body of the module or the example following under 2. must be given preference.

2. Counting of data using a data collection sheet

For both very short and longer questionnaires, a data collection sheet is a valuable tool and facilitates counting and the combination and comparison of data. An example is given below.

(1) Number of household	(2)	(3)	(4) Attended meeting	(5) Number of meetings	(6) Subjects meetings	(7) Reason absence meeting	(8)
1			NO	-	-	children	
2			Yes	3	committee; type facilities	-	
3			Yes	1	committee	-	
4			Yes	2	type + location-facilities	-	
5			No	-	-	not invited	
6			-				

Alternatively you may use codes for answers (for example the same as for a computer, see Module 11) to save space.

3. Counting of data in a matrix

Counting by use of a matrix will provide direct information on the relation between two variables (combination of the answers on two questions). An example is given below.

	downhill	uphill	total
improved well	IIII IIII IIII IIII IIII IIII IIII	IIII IIII IIII II IIII IIII IIII	51
other source	IIII IIII IIII IIII IIII IIII	IIII IIII IIII IIII IIII IIII IIII	49
total	49	51	100

When the answers are taken directly from the questionnaire, this way of counting is only recommended for short evaluations. Errors may easily occur, especially when the answers to be combined do not stand together in the questionnaire. When counting is done directly from the questionnaire it will be difficult to combine the findings with other data since no relation can be made to the respondent. Therefore, as an intermediate step, it will often be necessary to count the data as discussed in the main body of the module or to use a data collection sheet as discussed under 2.

EXAMPLES: FACILITATING INTERPRETATION OF RESULTS.

Presentation of findings in summary sheets (see examples on page 94-95) often greatly facilitates interpretation and make the information more accessible.

PRESENTATION OF RESULTS: EXAMPLE 1: SUMMARY OF FINDINGS

VILLAGE	NO.	INDICATORS FOR										POPULATION	NO. OF HOUSE-HOLDS	NO. OF STAND-PIPES	NO. OF CONNECTIONS
		FUNCTIONING					UTILIZATION								
		W1	W2	W3	W4	W5	W6	W5	W6	W5	W6				
Mmangodi	1	0	0	●	0	0	98	0	21	2693	419	15			
Kanye	2	0	0	0	●	0	99	0	27	20215	9731	69	674		
Mmathethe	3	●	0	●	●	0	90	●	13	1990	959	6	1		
Tsamaya	4	0	0	0	●	0	93	0	23	2198	357	12			
Tsau	5	0	0	0	0	0	95	0	18	535	107	5	1		
Moshaneng	6	0	0	●	0	0	100	0		716	116	3	2		
Mbalane	7	●	●	●	0	0	98	0		1771	319	9	3		
Khuis	8	0	0	●	●	0	0	0		<500		1			
Sehitna	9	●	●	0	0	0	96	0		1452	289	8			
Palapye	10	●	●	0	0	0	99	0		9653	1707	22	337		

W1 = water quantity
W2 = water quality
W3 = reliability

W4 = convenience
W5 = proportion of households using facilities
W6 = water use l/h/d

0 = acceptable
● = problem
⊙ = serious problem

PRESENTATION OF RESULTS: EXAMPLE 2: OVERVIEW CONSTRAINTS

SCHEME NO.	OPERATION AND MAINTENANCE										SCHEME CAPACITY		
	PUMPER TRAINING	FUNDS	SPARE PARTS	TRANS-PORT	ADMINI-STRATION	RECORDS	PREVENT. MAINT.	FUEL DELIVERY	RODS	PIPE NET-WORK	BORE-HOLE YIELD	STOR-AGE	PIPE NET-WORK
1	0	0	0	0	0	0	0				0		
2				●						0	0		●
3	0	0	0	0	0	0	0	●		0	●		0
4	0			0			0						●
5	0					0	0						
6	0	0		0	0	0	0	●	0				
7	0	●		0	0	0	0	●		●			
8	0		0						0				
9	0	0		0		0	0			0			
10										0	0		●

0 = constraint
 ● = serious constraint

Module 14

Report writing

Purpose of the report

The purpose of an evaluation report is to communicate the findings and recommendations of the evaluation to others. Often it will serve as a very important tool for formal decision making, thus requiring clear formulation of conclusions, recommendations and proposed actions. The length and style of the report will depend largely on the intended readers. Policy makers and planners are interested in a short, to-the-point report, summarizing the findings, conclusions and recommendations. Project staff are interested in detailed technical information to improve project implementation.

Intended readers

Therefore, it is necessary to define for whom the report is intended. This is unlikely to be an issue, as these people will have been identified at the start of the evaluation (see Module 3).

Type of report

If the reporting is to serve a number of groups, one or two options could be considered. The first is a short and concise report for people, such as policy makers, planners and managers, and a more detailed report for other groups, such as health staff and engineers. The second option is to produce only one report, and to include a number of annexes, each of which provides more detailed information on a particular subject.

Format of the report

There is no standard format for an evaluation report but it usually consists of the following:

1. Title page

The title page should give the title of the report, the name of the commissioning organization, and the date and year of the evaluation.

2. Executive summary

An executive summary summarizes the main points of a report and includes the purpose of the evaluation, the procedures followed, the major findings as well as the conclusions and recommendations. The length of the summary will depend largely on the length of the report; on average a summary of 2-3 pages is usually adequate.

3. Table of contents

With the exception of a short report of one to three pages, a table of contents should always be included. This makes the report easier to use.

4. Introduction

The evaluation report requires an introduction which sets out basic information about the evaluation and the project under evaluation. This provides the framework of the report. The introduction should provide the following information:

- name, location, duration and client or funder of the project being evaluated;
- a brief statement of the main features of the project;
- reasons for the evaluation;
- composition of the team;
- organization and duration of the evaluation;
- cost of the evaluation (optional).

The introduction should be kept short and to the point. As a general rule, 2-3 pages is more than sufficient.

5. Evaluation objectives and methodology

For a long and complex evaluation covering a number of aspects and project areas, it may be necessary to set out the evaluation objectives and methodology in separate chapters. However, for many evaluation reports it may be sufficient to combine the objectives and methodology in one chapter. The information should then be set out under the following major headings:

- evaluation objectives;
- methods of data collection;
- methods of analysis and interpretation.

6. The evaluation findings

The evaluation findings need to be set out as clearly and concise as possible. They should be presented in a separate chapter but may require more than one chapter, depending on the issues covered. It is important to set out the findings under clear and precise headings.

7. Conclusions and recommendations

This chapter discusses the implications of the evaluation findings which are expressed as conclusions and recommendations. The form and order of presentation has already been discussed in Module 13.

8. Plan of action

In addition to recommendations and conclusions, it is important to set out a proposed plan of action which shows how these conclusions and recommendations can be implemented. This plan needs to spell out in concrete terms:

- what actions/activities are to be undertaken;
- who within and outside the project structure should be responsible for implementation;

- availability of resources (manpower, funds, etc.) for implementation of these actions.

9. Annexes

Additional information relevant to the evaluation can be provided in a number of Annexes to the main report. This information may include the TOR; the checklists and/or questionnaires used; a list of organizations visited and persons met; a list of villages visited and persons met; a list of documents used for the evaluation; overviews and other material supporting the evidence presented in the main report.

The report writer(s)

Whether report writing is a team effort or delegated to one person, consensus is needed on content and presentation. If the report is to be written by one person, time will have to be reserved for the other members of the team to comment and adapt the report where necessary. If report writing is to be a joint effort, then the task can be divided up according to respective disciplines. To ensure consistency in wording and to eliminate repetition and contradictions, one person should be responsible for editing the report.

Material prepared during the evaluation, such as the project description and the position paper (see Module 7), will be useful in preparing the report.

Tips to improve the readability of your report

The report is your means of communication, therefore, it needs to be written in such a way that those who have no knowledge of the evaluation can understand it. You can check whether you have achieved this by asking an interested outsider to read the draft report and point out passages that are unclear.

For easy-to-read reports, headings of chapters and sections should be short and precise. Divide each section into a number of paragraphs, one for each main idea, topic or aspect. Each paragraph should contain 3 to 4 sentences developing the idea or point. In general, two or three simple sentences will be easier to read than one long sentence. Examples of striking points and statements made by persons interviewed will make your report more readable.

Quantitative data are often best set out in a table, or figure (see the examples presented at the end of this module). Reference should be made to the tables or figures in the text, but there is no need to restate the data in words in the body of the text. The implications of these findings however must be clearly stated in the report.

It is often very effective to illustrate certain points through maps, drawings and/or photographs. For example, a map will provide the reader with a clear idea of the project area and the villages which have been visited. A village map could show the alternative water sources used for different purposes and during different seasons. Drawings and photographs could draw the reader's attention to specific points you want to illustrate.

A draft report usually evokes more comments than does a final report. Therefore, the draft report may often be an effective tool to communicate the evaluation results with those concerned. Asking for comments will increase the chance of the report being read and also increase commitment to implementing the recommendations.

EXAMPLE OF TABLE AND FIGURES

Table 1: Usual place of defaecation of men in Centre A

Age	Total number of persons	Defaecation sites				
		Latrine only	Latrine and other sites	Animal room in house	Field/streets	Other
0- 5	21	-	1	10	7	3
5-14	23	-	4	1	16	2
15-34	29	4	9	3	13	-
35 +	27	6	1	6	14	-
	100	10	15	20	50	5

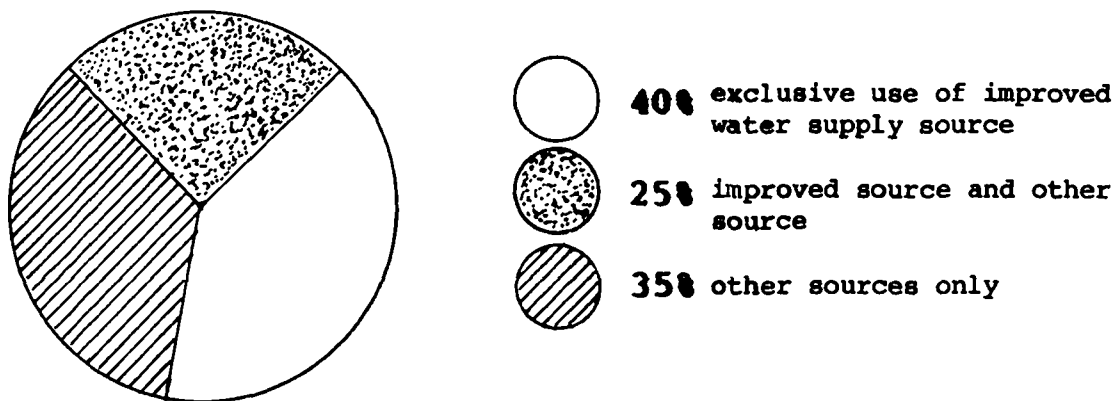


Figure 1: Source used for drinking water by 100 households

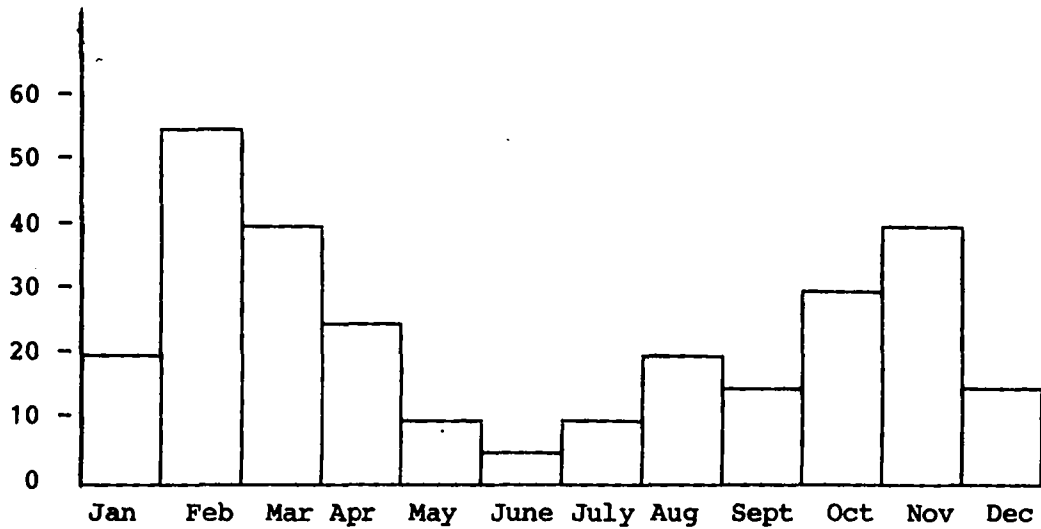


Figure 2: Number of diarrhoea cases reported per month at the primary health centre of village C in 1985

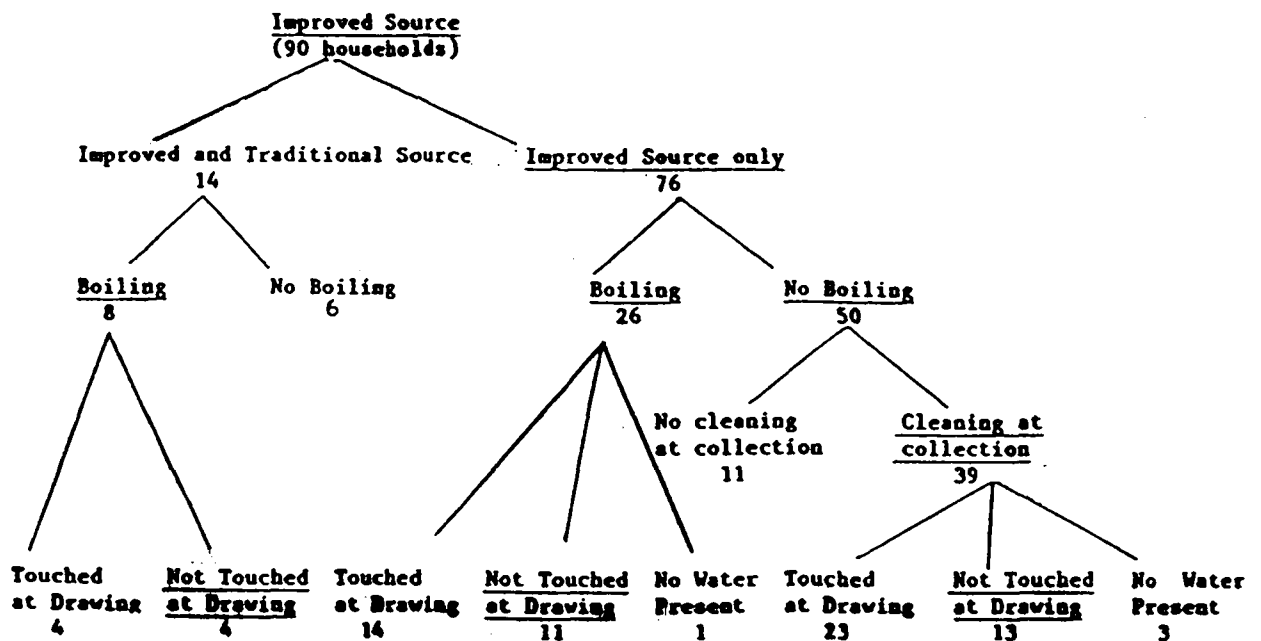


Figure 3: Risks of water contamination between source and cup for 90 households using improved water sources in four villages. Safe water practices are underlined

Module 15

Implementation of recommendations

Implementation and dissemination of recommendations

The evaluation process, as discussed in this training course, is directed at increasing the likelihood of practical recommendations being made which can and will be implemented. The strategy promoted is that those who have to implement the recommendations be involved in the evaluation from the beginning. One way to effect this is to have the evaluation team composed of these future implementators. However, there are more people for whom the evaluation should or would be useful than can be included in the evaluation team. Therefore, it was suggested that others who are likely to make use of the findings be involved in the main evaluation decisions, from formulation of objectives to formulation of recommendations. It has been argued that this strategy will lead to commitment and thus provide the best chance that recommendations be implemented. As it takes time to implement recommendations, it could be agreed from the outset to monitor this process and to have a further discussion after about six months. This will not only provide the opportunity to promote the implementation of recommendations, but also to evaluate recommendations jointly.

Dissemination of recommendations

It is very important to share the outcomes of the evaluation so that others may learn from them. Various communication channels can be explored to disseminate the lessons learned. Feasible opportunities to promote the use of evaluation outcomes will depend upon the type of evaluation, conclusions and recommendations. The evaluation report may be sent to a number of interested organizations and persons. The summary of the report could be distributed more widely and those interested could request a copy of the complete report. Seminars and training workshops may be organized at national, regional level, or at local levels, and the evaluation outcomes could be discussed with community groups, students, schoolchildren, and workers. Articles could be written in newspapers and journals; radio and television talks could be organized; pantomime, puppet shows and scene playing could be developed and used on various occasions.

Different audiences require different approaches and messages. Therefore, before organizing an event the following questions should be asked:

- Who do I wish to reach?
- What is the best approach to reach these people?
- What is the message I wish to bring across?

It may be very helpful to review the event in order to make improvements in the future.