

MODULE 3

Towards sustainable O&M

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Unit 1: Linking technology choice with Operation & Maintenance

1. Outline of session

►► Objectives

- To raise awareness on operation and maintenance criteria that influence technology choice
- To become familiar with the processes that influence technology choice for community water supply and sanitation facilities

►► Methodology

1. Introductory note
2. Plenary discussion on criteria
3. Group exercise on technology selection process
4. Conclusion

►► Materials

- ✓ Overhead transparencies
- ✓ Overhead projector, screen or white wall
- ✓ Flip chart and markers

►► Handouts

- ✓ Copies of transparencies
- ✓ Exercise sheet
- ✓ Extracts from background information

2. Notes for the facilitator

Introductory note

Module 3 deals with the main issues that influence effective operation and maintenance of water supply and sanitation services, including technology choice. The latter is the first determining factor for effective operation and maintenance. Indeed, the type of technology and its selection are likely to have an impact on future operation and maintenance activities. This session highlights the criteria as well as processes that link technology choice with operation and maintenance.

Plenary discussion on criteria

The facilitator draws 10 columns on the board, five for water supply and five for sanitation, which correspond to the following sustainability factors: 1) technical aspects; 2) community aspects; 3) environmental aspects; 4) institutional and legal aspects; 5) other aspects. Past experience has shown that participants like to add financial factors to this list, even though financial factors are implicit in all the other factors. The facilitator asks the participants with respect to each column, “What are the important O&M criteria to

consider during the planning stage?”, and writes down their answers. If needed, the facilitator can add the information given below (see background information, page 131).

Group exercise on technology selection process

The facilitator divides the participants into two groups for 1) water supply technology choice, and 2) sanitation technology choice. Each group receives a set of prepared cards (A4 size, divided into three), describing typical activities involved in the process of technology selection. The cards should be arranged in a logical way. This exercise shows how technical and social factors should be integrated. Each group discusses the best way to arrive at a choice, and presents the results in a plenary session. The facilitator can use the model given under background information to propose some feasible and realistic alternatives. The cards can be made using the text in the exercise sheets. As participants usually find it useful to keep a record of all the exercises, it is recommended to have secretarial support to record these exercises and distribute a copy to all the participants.

Conclusion

Linking technology choice with operation and maintenance is a key factor for sustainability; the resulting choice depends on the use of appropriate criteria and the selection process.

3. Exercise sheets: Sheet 1

Process of water supply technology choice

The facilitator should prepare beforehand a set of cards as described below, leaving some blank ones for additional activities if needed, and distribute a complete set to the group. The group will have to organize the cards in a logical sequence (some activities can be done in parallel with others). All these activities have a definite direct or indirect impact on future O&M activities.

Analysis of water quality

Analysis of data by the agency/department

Formal agreement

Formal request from community

**Assessment of user's expectations
(men and women)**

**Analysis of comparative advantages
between various options**

Initial service assumption

Participatory baseline survey

**Collection of information
on hydrology**

**Discussion with communities on the options
and the implications on O&M and costs**

**Definition of management
responsibilities**

**Community meeting to decide
the technology option**

**Deposit of community
financial contribution**

Initial contact with the community

Promotion campaign

Global hydro-geological survey

**Willingness to pay for the
assessment**

**Analysis of existing or potential
spare parts distribution system**

**Assessment of financial
mechanisms to cover major
repairs and replacements**

**Assessment of available
technical skills**

Exercise sheet 2

Process of sanitation technology choice

The facilitator should prepare beforehand a set of cards as described below, leaving some blank ones for additional activities if needed, and distribute a complete set to the group. The group will have to organize the cards in a logical sequence (some activities can be done in parallel with others). All these activities have a definite direct or indirect impact on future O&M activities.

**Participatory assessment
on sociocultural aspects**

**Study of the present situation
and practices**

**Selection of technology
by the community**

**Hygiene awareness
campaign**

**Baseline survey on
physical conditions**

**Assessment of men's and
women's preferences**

**Analysis of the comparative
advantages of various options**

**Participatory assessment
of problems related to sanitation**

**Discussion with the community
on O&M and the cost implication
of various options**

**Assessment of willingness to
pay for capital and O&M costs**

**Formal request by users
and/or the community**

**Identification of the availability
of technical skills**

**Identification of the availability
and cost of materials**

**Demonstration project in
selected families or areas**

**Start of sanitation
campaign**

**Set-up of financial mechanisms
for the purchase of latrines**

**Sanitary education
activities**

**Monitoring the use and hygienic
state of latrines**

4. Background information

4.1 Operation and maintenance specific criteria affecting water supply technology choice

Technical criteria	<ul style="list-style-type: none"> ■ Technical standards; quality and longevity of equipment; spare parts needs, costs, availability and accessibility ■ Dependence on fuel, power, chemicals; cost of O&M activities; cost of fuel and chemicals ■ Complexity of operation and maintenance procedures: necessity of skilled personnel ■ Potential for local manufacture, and for standardization ■ Use of local materials and equipment ■ Dependence on imported parts ■ Technical options available on the market ■ Water demand
Environmental criteria	<ul style="list-style-type: none"> ■ Quality of water source ■ Requirements for water treatment ■ Necessity for water source protection and wastewater management
Institutional and legal criteria	<ul style="list-style-type: none"> ■ Legal framework and national strategy for O&M ■ Training capacity and follow-up support ■ Availability of technical assistance to the communities ■ Capacity of municipalities to dialogue and assist communities ■ Involvement of the formal (informal) private sector and NGOs ■ Monitoring capacity ■ National or local budget allocations for O&M activities ■ Availability of financial mechanisms to cover replacement and rehabilitation costs
Community criteria	<ul style="list-style-type: none"> ■ Responsibility and ownership feeling ■ Desired service level ■ Demand for improved service level ■ Perception of benefits, culture, habits, beliefs ■ Organized and elected community structure to be responsible for O&M ■ Managerial capacity ■ Gender perspective in O&M activities ■ Technical skills available in the community or within reach of the community ■ Maintenance culture within the community ■ Tariff structure ■ Cost-recovery mechanisms to put in place ■ Financial management capacity ■ Ability and willingness to pay

4.2 Operation and maintenance specific criteria affecting sanitation technology selection

Experience has shown that many sanitation projects adopted interventions and technologies that were selected with poor assessment of the demand for sanitation. In these instances, there was hardly any communication between the future users and the project planners, and the social, gender, cultural and religious aspects were not taken into sufficient consideration.

In some cases, environmental factors were not considered in the design, which led to unsafe situations and even the collapse of pit walls. Hygiene education to change sanitation behaviour was hardly mentioned in the adopted project approaches. Planning for sanitation interventions therefore requires a comprehensive approach covering many aspects. The Table below presents four groups of general and specific criteria which influence sanitation technology choice.

	General criteria	Specific O&M criteria
1. Technical	<ul style="list-style-type: none"> ■ Technical standards ■ Availability of construction materials ■ Estimated lifetime ■ Cost of construction ■ Design preference (substructure, floor slab, squatting or raised seat, superstructure) 	<ul style="list-style-type: none"> ■ O&M requirements ■ Ease of access ■ Use for the decomposed waste
2. Environmental	<ul style="list-style-type: none"> ■ Soil texture, stability, permeability ■ Groundwater level ■ Control of environmental pollution ■ Availability of water 	<ul style="list-style-type: none"> ■ O&M implications for environmental protection ■ Groundwater contamination
3. Institutional	<ul style="list-style-type: none"> ■ Existing national/local strategies ■ Roles and responsibilities of actors ■ Training capacity ■ Availability of subsidies and loans ■ Availability of masons, carpenters, plumbers, sanitary workers, diggers and persons to empty the pit ■ Monitoring 	<ul style="list-style-type: none"> ■ Pit-emptying services (municipal/private) ■ Sewerage maintenance capacity ■ Potential involvement of the private sector ■ National budget allocations for sanitation ■ Training and sensitization
4. Community	<ul style="list-style-type: none"> ■ <i>Sociocultural aspects:</i> Taboos, traditional customs, religious rules and regulations, cleansing material, preferred posture, attitude to human faeces, gender-specific requirements ■ <i>Motivational aspects:</i> Convenience, comfort, accessibility, privacy, status and prestige, health, environmental cleanliness, ownership ■ <i>Discouraging factors:</i> Darkness, fear of falling in the hole or the pit collapsing, fear of being seen from the outside, smells, insect nuisance ■ <i>Social organization factors:</i> Traditional role of community leaders, religious leaders, school teachers, community-based health workers ■ <i>Other factors:</i> Population densities, limited space for latrines, acceptance of communal latrines 	<ul style="list-style-type: none"> ■ O&M costs ■ Training and sensitization ■ Health awareness and perception of benefits ■ Presence of environmental sanitation committee ■ Women's groups ■ Social mobilization on hygiene and sanitation behaviour

Upgrading an existing sanitation facility can be the first option for improving the sanitation conditions if it matches the social and cultural preferences of the community, as well as the local economic and technical capacities. If the existing facilities do not meet basic hygiene requirements, then upgrading must be considered. If no sanitation facilities are present, the simplest technology option is to be considered, taking into account the factors mentioned above.

4.3 Technology selection process

The technology selection process will depend on the strategies adopted by the planners and on basic principles which are emerging in the water and sanitation sector. One principle is the need to involve communities right from the start of the selection process. The agencies, the communities and users should therefore work together as partners, and plan their activities based on mutual agreement. The latter is particularly important in contexts where both men and women in the community and among the users are increasingly taking on the responsibilities of operating, maintaining and managing their water supply systems.

Various formulations of the word “technology” can be found in the literature, such as: appropriate technology, progressive technology, alternative technology, intermediate technology, village technology, low-cost technology, labour-intensive technology, self-help

technology, and technology with a human face. In this course, we advocate a *sustainable technology*, i.e. a technology that should, as much as possible, match the people's needs, expectations, preferences and cultural habits. It should be convenient, manageable, maintainable and affordable.

Linking operation and maintenance with technology selection covers several aspects, such as technical, environmental, financial, institutional and social aspects, and requires the testing and feasibility study of the O&M system to be put in place. The O&M framework defines all the actors and their roles and organization in O&M, as well as their interrelationships with one another.

Experience shows that the effectiveness of O&M is determined to a considerable extent by non-technical issues. Therefore, the persons involved in assessing and developing O&M should come from a wide range of disciplines—social development, economics, health, management, and engineering. It is important that all of them should function in partnership with the operators and users of the relevant services.

Rehabilitation of defective schemes is an economic alternative to investing in a new project, but that decision should not be made lightly. The rehabilitation option has to be evaluated, as one would a new scheme, by taking into consideration the community's needs, preferences and capacities to sustain whatever is undertaken, as well as the support potential of the water agency. In assessing the scope for rehabilitation, community members and the agency should review the reasons for which the system needs to be rehabilitated, by means of problem analysis, and carefully examine various feasible technologies. Furthermore, rehabilitation should not simply be a matter of replacing defective equipment or repairing damaged infrastructure because **the most common cause of failure is organizational**. Finally, a word of caution: the community might in some cases get the feeling that O&M does not concern them—believing that when the system is out of order someone will come and put it right!

If a risk analysis is carried out for each water supply option, then an attempt can be made to anticipate factors which may change and affect O&M. This will not be easy, especially in unstable economies, e.g. with high inflation rates and restrictions on imports, where equipment and spare parts are not easily available. However, a comparison of technologies can indicate the degree of risk attached to each option.

4.4 The process of community water supply technology choice

The following steps are proposed:

1. **The community requests the agency** for support to improve its water supply (demand-driven approach); this could be preceded by promotion and mobilization campaigns. The expectations and preferences of the users (both men and women) and their motivation should be assessed.
2. **Initial service-level assessment**—what service level is responsible for dealing with environmental issues and the preferences of users (both men and women)? What are the comparative advantages between various options (e.g. standposts and yard connections)? The validity of hydrological, technical and institutional data collected by agencies must be confirmed by local resource persons.
3. **Participatory baseline survey**, including needs and problem analysis with the community.
 - What reliable water source is available?
 - Can this source provide the required quantity and quality of water?
 - What is the treatment needed?
 - What materials, spares and skills are needed to sustain the desired service level?
 - What is the most appropriate structure to sustain the desired service level which corresponds to the management capacity of the communities?

- What is the capacity of present community organization to manage, operate and maintain an improved water supply system?
 - What is the involvement of women and men in community activities?
 - What are the costs (capital and recurrent) of the options considered?
 - What are the financial resources available and the willingness to pay?
 - What is the present approach to the application of O&M within the programme or country area?
 - What are the causes and effects of poor O&M within the area?
 - Should technology match the available O&M system and capacity (including spare parts distribution), or should the O&M system be adjusted to match the most suitable technology?
 - What type of support can the communities receive, in terms of technical, financial and capacity-building assistance?
 - What is the overall impact of the option selected ?
4. **Analysis of data** by the agency, leading to the possible selection of the most suitable technologies and service levels, including a review and appreciation of all specific O&M criteria.
 5. **Presentation and discussions with the community** of the most sustainable technologies, considering all O&M implications and commitment to long-term management of O&M. Clarifications should be made at the same time on all necessary adjustments of the existing O&M system, with a definition of the responsibilities of the actors involved in the development of the project. Communities should be given enough time to consider the options and the future implications of each one.
 6. **Formal agreement on technology selection** between the community and all partners, once the community has made its informed choice. This agreement can be formalized with a contract, and include a financial contribution (in cash or kind) from the communities.
 7. **Finalization of planning for implementation.**

4.5 The process of low-cost sanitation technology choice

It is assumed that the technology selection process is based on a participatory needs assessment, which is carried out following an expressed demand for improved sanitation facilities. Hygiene awareness and promotion campaigns can result in an increase in the demand for improved facilities. The process of choosing sanitation technology should include at least the following steps:

1. **Participatory assessment of problems** in the existing human excreta disposal system, as well as in hygiene behaviour, environmental hygiene and human excreta-related diseases. Participatory assessment of the cultural, social and religious influences on the disposal of human excreta and choice of sanitation technology. Participatory assessment of local conditions, convenience, capacities and resources (material resources, human resources and finance).
2. **Initial awareness-raising** of the community on hygiene and sanitary matters—about the benefits of safe human excreta disposal and appropriate human behaviours linked to sanitation and personal hygiene.
3. **Identification of local preferences and capacities** for sanitation facilities and possible variations. Matching these preferences with local capacities and environmental conditions including contamination risks, and determining the O&M requirements and other implications of the technology options.
4. **Discussions with the community** about implementing different sanitation technology options and their implications in terms of operation and maintenance.
5. **Selection of one technology option** by the community.

Improvement of sanitation facilities should be accompanied by activities in Information-Education-Communication (IEC) to promote safe sanitation behaviour and proper hygiene. These activities have a longer time horizon than the time required for improvement of physical structures. Schools and other institutions, churches, and social and community groups have an important role to promote proper hygiene and sanitation behaviour. Attention must be paid to selecting the most appropriate technology, design, and site in order to prevent environmental pollution, particularly of water resources and the living environment. Control measures must be carried out to minimize these risks.

Unit 2: Institutional set-up

1. Outline of session

►► Objectives

- To raise awareness about the importance of a proper institutional set-up for operation and maintenance
- To review the consequences of institutional changes, like those induced by decentralization and privatization
- To review possible management options at the local level
- To raise awareness on the importance of communication

►► Methodology

1. Introductory note
2. Review of analysis of participation exercise
3. Presentation and discussion on decentralization using a graphic
4. Document analysis on management options
5. Short presentation on various management models
6. Conclusion on the importance of communication

►► Materials

- ✓ Overhead sheets
- ✓ Overhead projector, screen or white wall
- ✓ Flip chart

►► Handouts

- ✓ Exercise sheet
- ✓ Copies of transparencies
- ✓ Copies of selected parts of background information

2. Notes for the facilitator

Introductory note

The analysis of participation has shown that many actors are involved in different ways and degrees in the operation, maintenance and management of rural water supply and sanitation services. This session reviews how the organization of all these actors provides an effective maintenance system. Most developing countries today are undergoing structural and institutional reforms, which have a far-reaching impact on the way maintenance will be organized and on who will be responsible. The session analyses the framework in which the actors evolve, which has links with the next session on community management.

Review of analysis of participation exercise

If the participation analysis exercise proposed in Module 2 (see page 107) has not yet been carried out, it should be done now by referring to the directions given. The review of this exercise consists in determining the degree of involvement and what could

happen at this stage, given the problems that have been identified. This review by the whole group can be summarized in the following Table (the shading given below is an example).

Major actors	Degree of involvement in O&M		
	Slight	Medium	Major
National institutions			
Provincial institutions			
Local authorities			
Community organizations			
Users			
Private sector and NGOs			
External support agencies			

Some conclusions can be drawn by the facilitator from this Table, e.g. that some sectors are greatly involved, that the process is still very much “donor-driven”, that the small role of the private sector and NGOs could be enhanced in the future, that the users appear not to be sufficiently involved, etc.

Presentation and discussion on decentralization

The various trends affecting the sector especially on sustainability, decentralization, private sector involvement, and new approaches are presented and discussed. The facilitator can first recall the main points of sustainability, which have been stated in Module 1, Unit 3 (page 35).

Document analysis on management options

The exercise sheets include descriptions of various forms of management options for piped water supply projects. The management of handpumps systems will be reviewed in the next session on community management. The participants will be divided into three groups, corresponding to, for example, the management options proposed in the exercise sheets: 1) Concession to a community association; 2) Direct municipal management; 3) Cooperative association of public administration. Each group will review its management option, and highlight the strengths and weaknesses. The groups will briefly present the results of their work in a plenary session.

Short presentation on various management models for a piped rural water supply system

The facilitator will review the Table which summarizes these management models (see background information, below).

Final conclusion on the importance of communication between all stakeholders

The facilitator starts a short game. He says to the group: “I will count to three and ask you to clap your hands.... One ... two ...” (while speaking, the facilitator imitates the clapping of the hands without really clapping). The result is that everyone claps. The facilitator says: “I asked you to clap at three, and everyone claps at two! ... Where is the communication? Is this type of situation frequent in our workplace?” Allow time for discussion. The facilitator then uses some of the information contained in the background information to make a concluding presentation on the importance of communication, and on how to set a communication strategy.

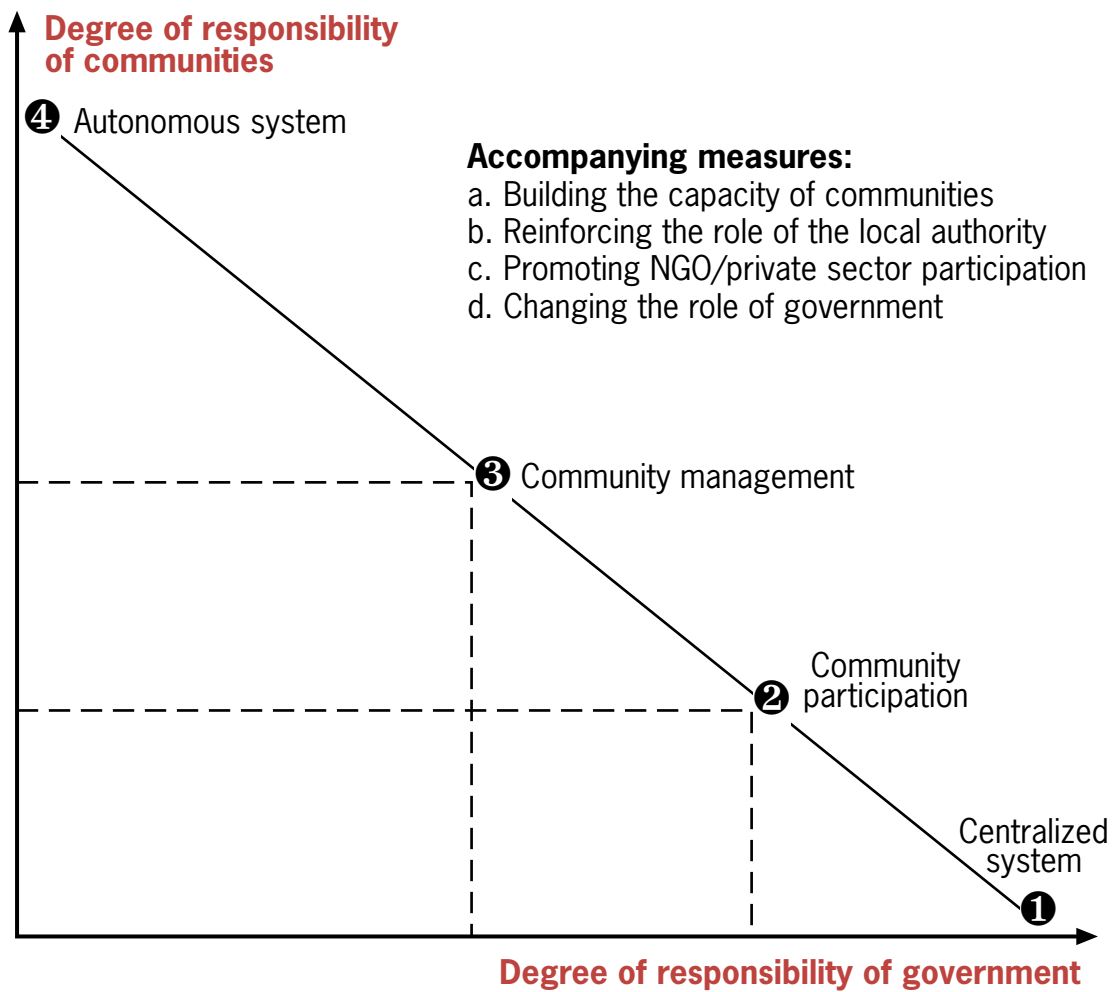
3. Overhead and exercise sheets: Sheet 1

After having reviewed the situation analysis done previously, mark the squares with a cross accordingly

	Degree of involvement in O&M		
Major actors	Slight	Medium	Major
National institutions			
Provincial institutions			
Local authorities			
Community organizations			
Users			
Private sector and NGOs			
External support agencies			

Overhead sheet 2

Substitution of responsibilities between government and community in a context of decentralization, with necessary accompanying measures



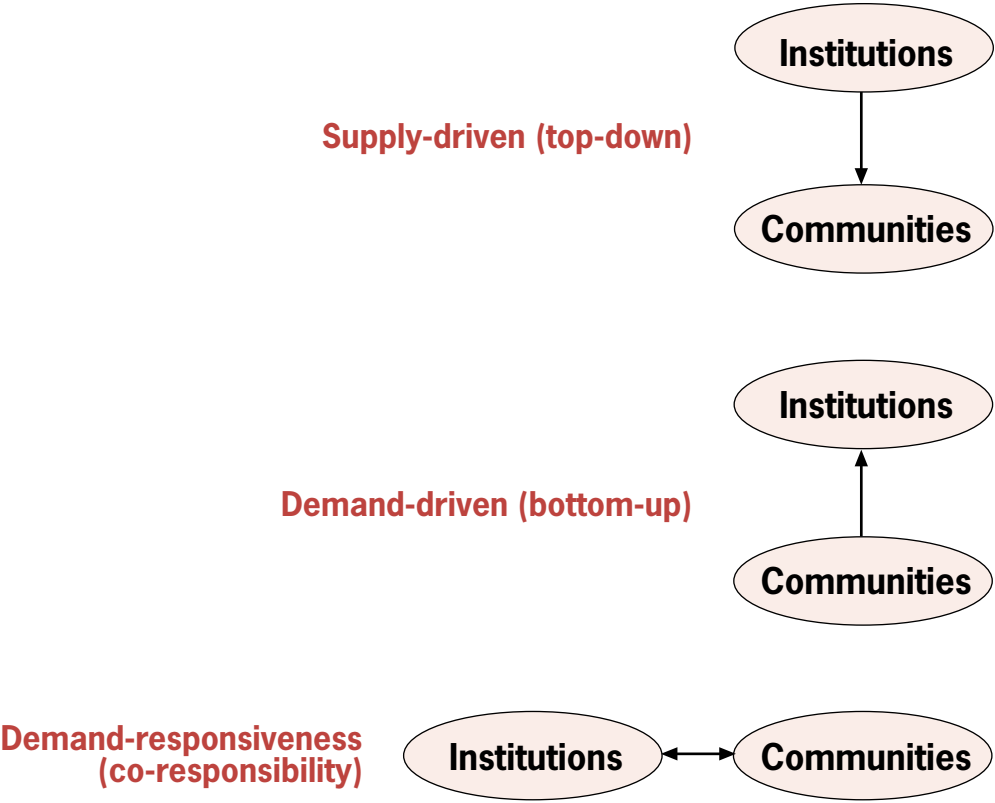
Overhead sheet 3

Who constitutes the private sector?

Actors in the private sector	O&M support role
International and national manufacturers and suppliers	<ul style="list-style-type: none"> ■ design and manufacture pumps and other equipment for operation and maintenance at the village level ■ supply spare parts and consumables
International and national consultants	<ul style="list-style-type: none"> ■ design schemes for community management ■ develop community/agency-managed O&M systems ■ provide O&M training
International and national contractors	<ul style="list-style-type: none"> ■ rehabilitate and extend schemes for community O&M ■ on-the-job training of O&M staff during construction
Local contractors	<ul style="list-style-type: none"> ■ service and maintenance contracts ■ major repair work
Small-scale industries	<ul style="list-style-type: none"> ■ local manufacture of spare parts and tools
Nongovernmental organizations (NGOs)	<ul style="list-style-type: none"> ■ training, raising community awareness ■ technical assistance
Self-employed artisans in the formal and informal sectors	<ul style="list-style-type: none"> ■ local skills for preventive and corrective maintenance and repair work: mechanics, plumbers, builders, masons, blacksmiths, electricians, etc. ■ operation of facilities
Local shops	<ul style="list-style-type: none"> ■ provision of spare parts
Administrators and accountants	<ul style="list-style-type: none"> ■ billing, rate collection, auditing of accounts
Banks	<ul style="list-style-type: none"> ■ banking facilities for O&M funds ■ credit facilities for irregular high-cost items and for the expansion or modification of facilities

Overhead sheet 4

Approaches to development



Overhead sheet 5

A communication planning sequence includes:

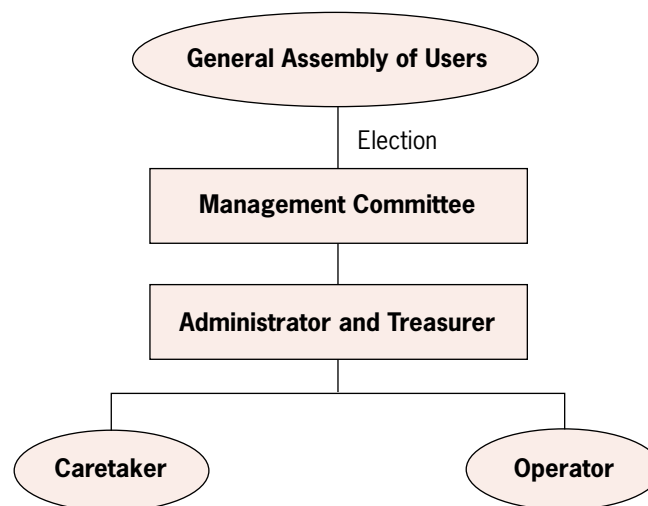
- Identification and formulation of key issues to be communicated
- Identification of target audiences
- Research on current knowledge, attitude and practice of each target group around the required future change in behaviour
- Development of messages based on current knowledge and behaviour
- Pre-test messages
- Identification of appropriate communication channels
- Preparation of communication materials
- Pre-test of materials
- Training of communicators
- Development of indicators to assess the impact
- Implementation of communication programme
- Assessment of impact and adjustment of programme design

DOCUMENT ANALYSIS 1

Concession to community associations

Briefly highlight the strong and weak points of this management option for rural piped water supply systems

Communities can already count on existing associations, which sometimes have been organized in an informal way. It is important in this case that associations are organized in a formal way, and obtain legal status. They will be established as non-profit-making associations with the aim of providing a public service, which could give access not only to community resources but also resources coming from the municipality, the province or the central government. The mayor can be a member of the association but has to promote community participation and facilitate access to municipal, provincial and national funding. The community association is organized in the following way:



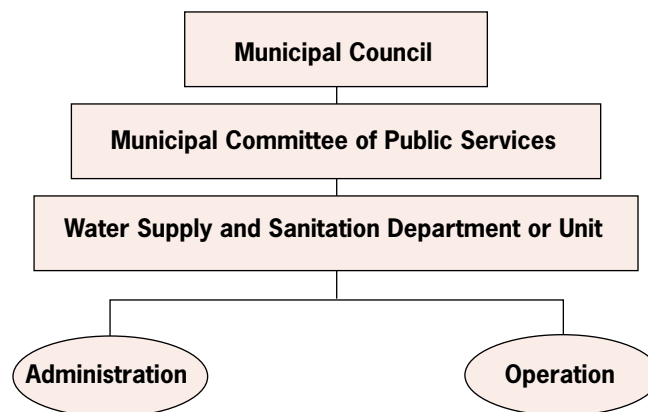
The General Assembly adopts decisions and elects the members of the Management Committee of the Association. The Management Committee is composed of a President, a Vice-President, a Treasurer or Administrator, a Secretary, representatives from the users, a representative from the local administration (if decided by the General Assembly, and if the local conditions allow it). The General Assembly has the responsibility to supervise and control all managerial, technical and financial aspects of the service. The caretaker and operator are responsible for the operation, maintenance and conservation of the whole system; they participate in tariff collection as well. The Association has to be created by a decision of the General Assembly which passes an Act constituting the Committee. The General Assembly must study and approve the Rules and Regulations for the functioning of the organization. The Constituting Act and the Rules, together with a written application, are registered with the Chamber of Commerce. The creation of such an Association will be authorized through an official document of the Municipal Council.

DOCUMENT ANALYSIS 2**Direct municipal management****Briefly highlight the strong and weak points of this management option for rural piped water supply systems**

In this management option, the municipality is directly responsible for the administration of the water supply service, through a department or unit which has been created for that purpose. However, several conditions are applicable:

- direct municipal management will be possible only if the municipality has made a public call for firms to operate, manage and maintain the system, and if no one has proposed its services;
- direct municipal management will be possible even if a private or public firm is available, only after a study has shown that the operating cost of direct municipal management will be lower than that of the private firm, and the quality of the service to the users will be higher.

It is stipulated that the accounts for the running of the service must be separated from the general accounts of the municipality, and must distinguish between incomes through tariffs and income through subsidies. Direct municipal management is organized in the following way:

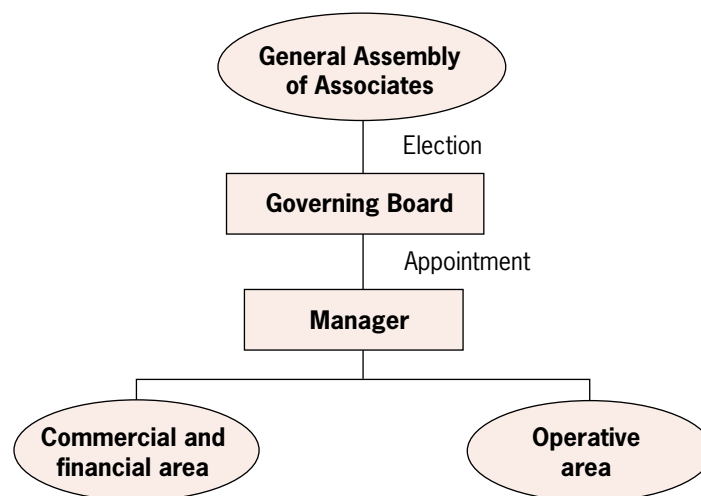


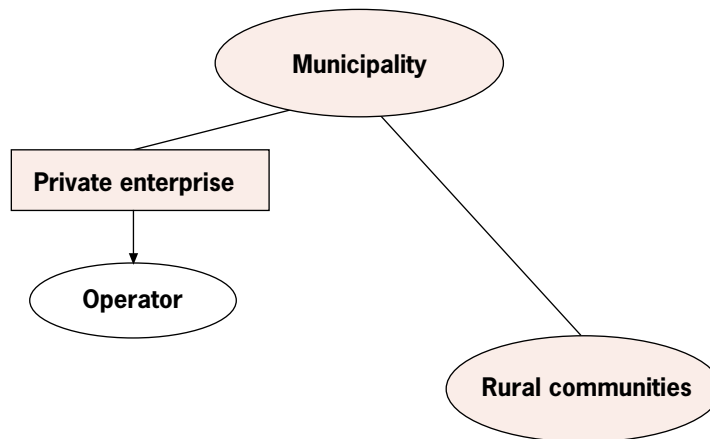
DOCUMENT ANALYSIS 3**Cooperative association of public administration**

Briefly highlight the strong and weak points of this management option for rural piped water supply systems

The cooperative association is an organization in private law, which aims at solving a social need through the production and provision of a service. It is composed of associates including: users of the service, representatives of local authorities, representatives of other associations or public/private firms.

How is a cooperative association created? After an authorization obtained from the Municipal Council, a General Assembly composed of all the associates elects the members of the Governing Board, approves the charter and regulations, establishes policies and programmes, and gives the general orientation. The Governing Board is the permanent body for the management and administration of the cooperative association. It will nominate or remove the manager, determine the profile for the staff, propose the budget for control (which will have to be approved by the General Assembly), and convene the General Assembly. It is composed of a President, Vice-President, a Secretary, and a Controller who are elected for a period of one year. The cooperative association is organized in the following way:



DOCUMENT ANALYSIS 4**Private management**

The municipality, after constant dialogue with the rural communities, contracts the services of a private firm to manage, operate and maintain the water supply system, with the understanding that the communities will be consulted over all matters that have a financial implication for them. The actual operation is done by an operator who is employed by the private firm. The community, in turn, ensures basic preventive maintenance and the payment of a fee. The firm will have to recover the costs through a tariff system, agreed with the community and the municipality.

The contract with the private firm is renewable, and only concerns management, operation and maintenance. All other activities, such as decisions for extension, rehabilitation and replacements, are the responsibility of the municipality, in consultation with the community.

4. Background information

4.1 Institutions are evolving

The concept of sustainability implies making some institutional changes as it highlights the importance of community and user involvement, working in coordination with the local authorities, in the demand, design, management, operation and maintenance of the system. Sustainability also encourages the use of local resources, e.g. artisans and shops, as well as NGO assistance to help develop the local economy.

Several countries are now implementing decentralization policies which have a direct or indirect impact on the water and sanitation sector. The institutional implications, however, vary from one country to another. The main aim for implementing a decentralization process is greater efficiency, effectiveness and sustainability of public services. It is based on the assumption that local institutions can better respond to the needs of the population, and therefore adapt strategies and policies to the local context. Central-level institutions must change their role from provider of services to that of coordinator, facilitator and support. This can be done by: 1) transfer of responsibilities from national to provincial/communal level; 2) “deconcentration” of activities from national to local levels; 3) transfer of various activities to other actors such as NGOs and the private sector.

The graphic on page 148 describes this decentralization process and its consequences.

In ❶, the government is responsible for everything and the communities have no legal authority in such a centralized system. This system has proved to be very inefficient, especially with regard to O&M of rural water supply and sanitation systems.

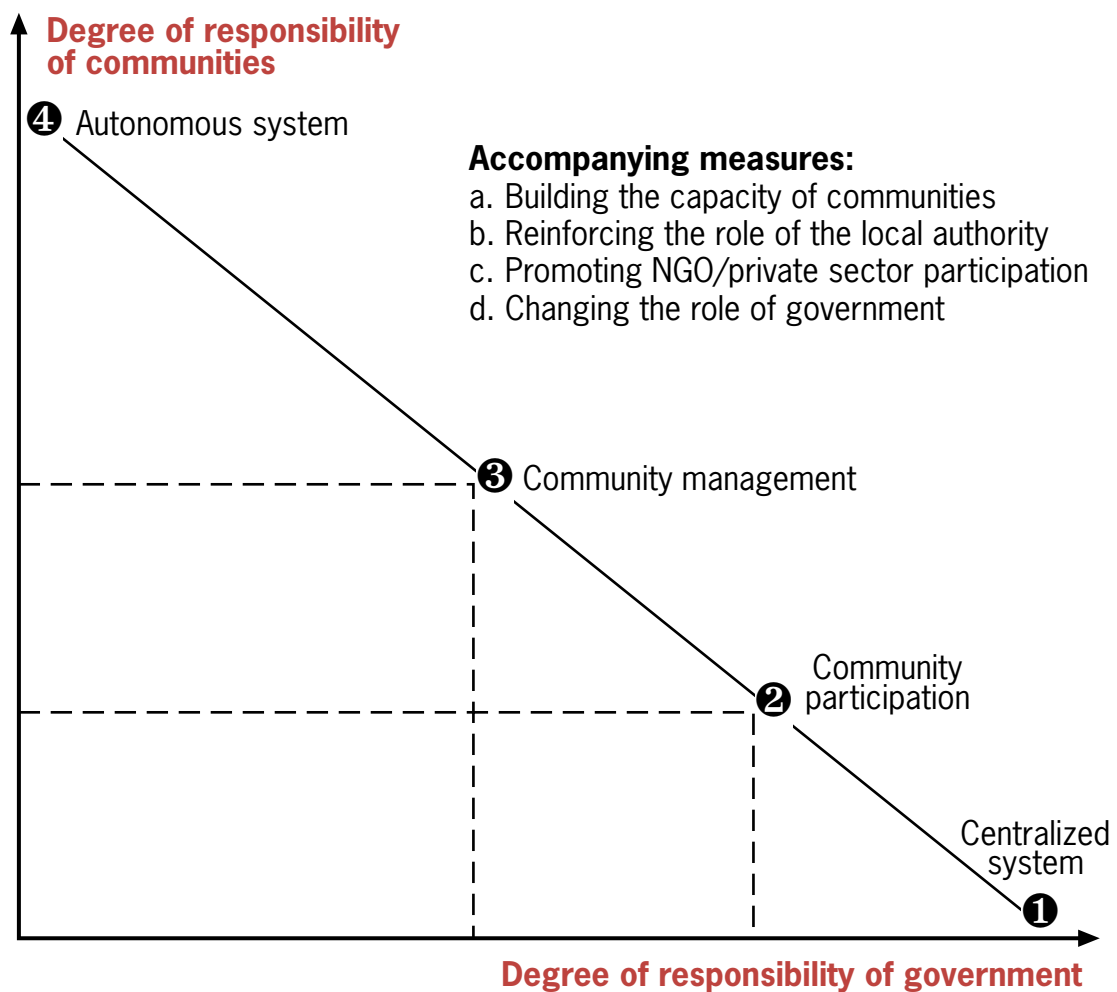
In ❷, the communities have a certain degree of responsibility ranging from participation in labour to payment of services. The government still keeps an important role in the management of the system. This situation, which is now commonly accepted and implemented in many projects around the world, corresponds to community participation but not community management.

In ❸, communities manage their system, but still rely on technical assistance and support. This situation corresponds to community management.

In ❹, communities are autonomous; very few communities in the world have been able to sustain their activities in a completely autonomous way.

The main consequence of this process from government to community level is that it increases the financial, operational, technical, and managerial burden at the local level, which communities do not have the capacity to carry. This process must therefore rely on accompanying measures such as:

- Building the capacity of communities in technical, financial and managerial terms, with awareness of gender questions.
- Reinforcing the role of local authorities in coordination with communities, and giving the technical and financial means to do so.
- Promoting the participation of local nongovernmental organizations and small private firms (formal and informal) in the provision of services (technical assistance, training, repairs, spare parts provision).
- Changing the role of government institutions from provider of services to coordinator and facilitator.



4.2 Changes in the approach

Water supply and sanitation improvements may also be characterized by being either a supply-driven or a demand-driven approach. In the present case, we shall be promoting a demand-responsive approach (see page 141).

The supply-driven approach (top-down) is based on pre-selection of the intervention area, with village and technology selection criteria based on policies of replication of successful experiences in other countries or projects. This approach can have serious implications for the sustainability of projects, particularly in terms of community acceptance, functioning, use and O&M costs—the community not being involved in any phase of the project cycle.

In the case of a demand-driven project (bottom-up), the problems and needs are identified with and by the communities. This may be preceded by some awareness-raising by extension workers. The advantages are that the motivation of the community to participate in the planning, implementation and O&M phases will be high, and that community-based management will be better accepted and implemented.


A demand-responsive approach (sharing responsibilities) puts the accent on two sides—the need to elaborate projects around a demand emerging from the communities, but also on the capacity of the public and private, formal and informal organizations to respond to this demand. As we have seen in the participation analysis, many actors are involved in the operation, maintenance and management of water supply and sanitation systems.

4.3 Summary of various management options

MANAGEMENT OPTIONS	MAIN CHARACTERISTICS
Direct municipal management	
Direct administration	Administration by the municipal service or department, with no autonomous budget. Controlled by the mayor.
Autonomous administration	Administration by the municipal service or department, with autonomous budget and separate services.
Semi-direct municipal management	
Inter-municipal administration	Administration agreements between several municipalities, with a coordination unit controlled by the municipalities, for managing the system.
Direct or autonomous administration with some activities delegated to other firms	Administration by the municipal service, with activities delegated under a contractual service agreement to other firms for a specific task, and a limited period of time.
Delegated management	
Management contract to a firm or individual	While the municipality remains responsible for the service in investment and tariff setting, it delegates their management to a firm or an individual, under a remuneration contract.
Special management contract to a firm or an individual	Same as management contract described above, but with a remuneration based on a fixed agreement with the municipality and a percentage of the collected tariffs.
Leasing/renting contractual arrangements with a firm	The municipality establishes a contract with a firm, which will not be responsible for the investments, but only for the operation and maintenance of the system, whose remuneration comes through collected tariffs.
Public administration (cooperative association)	Distinct legal status, and financial autonomy. Controlled by the Assembly of Associates (where the municipality is a member among others), with the authorization of the Municipal Council.
Concession to community associations	Associations created by a General Assembly of users, with the authorization of the Municipal Council. It manages and operates the system.
Concession to a private firm or society	Under a contractual agreement between the firm and the Municipal Council, the firm will fully manage, operate and maintain the system, with complete financial autonomy. The firm will invest with its own resources, at its own risks, but the municipality must approve them.
Private management	
BOOT contractual agreement (Build-Own-Operate-Transfer). Also possible: BOT (Build-Operate-Transfer); BOO (Build-Own-Operate); Inverse BOOT.	Under a contractual agreement, a private firm is totally responsible for the construction, operation and management of a system, but will transfer it to the municipality at the end of the contract, which is usually long term. For the inverse BOOT, the public authority builds, but the system becomes private at the end of the contract.
Private management with public/private capital	Private company whose shares are public and private; some control is kept at the shareholders' assembly.
Private management	Private company owns the system and is totally responsible.

As described above, the management options consist in a blend of ownership and responsibilities between the public sector and the private or social sector (social sector = associations). This can be graphically represented in the following way:

Towards more ownership or responsibility of the public sector

- 
- ❶ Direct/autonomous administration
 - ❷ Inter-municipality administration
 - ❸ Direct/autonomous administration with service contracts
 - ❹ Administration with (special) management contracts
 - ❺ Leasing/renting contract
 - ❻ Cooperative associations
 - ❼ Concession to a community association
 - ❽ Concession to a private firm
 - ❾ BOT (Build-Operate-Transfer) contracts
 - ❿ BOOT (Build-Own-Operate-Transfer) contracts
 - ⓫ BOO (Build-Own-Operate) contracts
 - ⓬ Inverse BOOT contracts
 - ⓭ Private company with public/private capital
 - ⓮ Private company

Towards more ownership and responsibility of the private or social sector

4.4 Issues affecting the choice of management models for the operation and maintenance of rural water supply and sanitation systems¹

The choice of an O&M management model is influenced by several key issues that are listed below and are discussed in detail: capacity of traditional community organizations; key community skills; health education and community participation; gender-balanced development; complexity of technology; availability of spare parts; standardization and local manufacture of equipment; requirements shared with other sectors; capacity of the private sector; cost recovery mechanisms; ability and willingness to pay; national and regional economies; logistics and transportation; government leadership; strength of government agencies and staff; regional autonomy; policies and legislation; communication and information sharing.

Capacity of traditional community organizations

The community is a focal point in the management of rural WSS (water supply and sanitation) systems because it has a vested interest in efficient operation and maintenance. By their very nature, communities are structured to provide leadership, conduct social and religious activities, and attend to legal, property, and economic matters affecting their members. The control of traditional water supply sources and waste disposal sites is part of this structure, since all communities have some type of WSS facilities, however primitive these might be.

Some communities have a highly sophisticated set of rules and responsibilities for managing their WSS facilities. For instance, communities located near rivers may not have a rigorous management system, since water is readily available, but communities with limited water supplies usually have strict rules governing individual rights and responsibilities and impose penalties for violations. Similarly, densely populated communities usually have a tighter management system for sanitation facilities than those more sparsely settled.

¹ Extracts from: *Management models for the operation and maintenance of rural water supply and sanitation systems*, by Phil Roark. Arlington, VA, WASH Project of the U.S. Agency for International Development, 1993 (WASH Technical Paper No. 71).

While the physical environment dictates the need for certain levels of management, so does the character of the society. There are significant differences between societies and their view of management needs for WSS. Some societies have a strong communal approach to meeting their needs; others prefer an individualistic approach. Some are hierarchical while others are more diffuse in structure. These differences must be considered, and, whenever possible, the traditional management system should be empowered. However, certain technologies may require skills which the traditional management system does not have, and new management models may need to be introduced.

Key community skills

Among the key community skills that must be considered in assessing local management capacities are leadership, accounting, and mechanical aptitude. Leadership is required to organize, motivate, and educate the community. Many decisions require a consensus after the issues and alternatives have been clearly explained. For example, the siting of a well or standpipe could be controversial, since one location will be more convenient to some users only. The level of service and fee structures are questions that deserve wide discussion. Many WSS projects rely upon community participation for the construction of facilities. To marshal this work force requires leadership skills. Often communities can draw on their experience in sectors unrelated to WSS, such as building a school.

Accounting and record-keeping skills are necessary for the proper collection and disbursement of funds. Typically, families in a community pay a flat fee or one that is based on the service received. In some cases, fund-raising such as the sale of crops from a communal field is organized for the WSS facility. Community confidence must be ensured by public disclosure of collections and spending and scrupulous accounting. Further, decisions reached at meetings should be placed on record. In some developing countries where literacy levels in rural areas are low, this is not always possible.

Some mechanical skills within the community are necessary. Depending on the technology involved, these can range from simple caretaker skills to repair skills for sophisticated machinery. Deep wells, for example, may be the only option for supplying potable water to a community, but the pumping requirements may be beyond local repair capability. In such cases, the community will provide only caretaker and operational labour and call upon outside assistance for repairs.

Training is one way of upgrading community skills. Of course, there are limits to training adults with a low level of literacy, but for most areas of community need, instruction within these limits can achieve adequate results. Many projects provide WSS management committee members with training in the maintenance and repair of pumping equipment.

Health education and community participation

In addition to technical and management training, the community's understanding of health, hygiene and community participation is important. This understanding may vary considerably from region to region. For a WSS facility to be effective it must not only be functional but also be used. Many properly designed WSS facilities have not been utilized sufficiently or correctly due to ignorance of their health benefits. When poor quality water is more easily available, good quality facilities are often allowed to fall into disrepair. Sometimes clean water at the distribution point is polluted by the user through improper transportation and storage.

Other areas of health awareness, particularly child survival activities, are also important. Widely disseminated information on the benefits of immunization, oral rehydration therapy, breastfeeding, and nutrition will reinforce understanding of the causes and

effects of disease and lead to effective use of WSS facilities. Female literacy is a particularly important determinant of community health, since women are the key implementers of health practices. Since WSS projects usually are cited as a priority need among potential beneficiaries, they often serve as a catalyst for the introduction of other health interventions.

Gender-balanced development

Women are primarily responsible for obtaining and using water, but generally have not been given much say in decision-making. The result has been facility designs and management structures that hamper effective use. A gender balance of roles and responsibilities between men and women is therefore important in the design, construction, management, and utilization of WSS systems.

The role of women as decision-makers varies among societies. While there is general progress in increasing their participation, some societies maintain barriers that must be respected in designing management systems.

Complexity of technology

Technologies for rural or periurban water systems range from capped springs that feed gravity distribution systems, to deep wells equipped with electric pumps and a distribution system consisting of a storage tank and pipelines, to household connections. Sanitation systems in rural or periurban areas range from simple latrines to flush toilets with cesspools. Many of these technologies have been in use for decades with only minor changes. However, research has produced many new improvements adapted to the needs of developing countries. For example, handpumps are now designed to be more robust and easier to repair. Drilling rigs for shallow wells have been reduced in size and cost. Pumping systems relying on wind and solar energy have been developed. Low-cost latrines that are sanitary and well ventilated are now easily available.

Given this range of technological choice, the fundamental maxim is that the technology should be compatible with the beneficiaries' ability to handle it. If repairs are too complex for them, the next tier up must assume this responsibility. Some communities may be able to repair part of a system, such as a pipeline, but not an electrical generator. In this case the responsibility would have to be shared. Generally, it is preferable for the beneficiaries to be primarily responsible for managing the system even if they require outside mechanical assistance.

Availability of spare parts

The availability of spare parts has been a recurring problem for many WSS projects. Some have installed hundreds of handpumps and presumed that market mechanisms would impel local hardware dealers to provide the needed parts. In certain countries government agencies retain this responsibility, in others they import spare parts and rely on a commercial system for distribution. In any case, the laws of supply and demand do not always work as expected. Too often the systems fail because spare parts are simply inaccessible.

Standardization and local manufacture of equipment

The installation of pumps made by several foreign manufacturers has led to a chaotic situation in many countries. Spare parts are often not available and repairers are not familiar with certain pump designs. This situation is largely the result of bilateral aid which restricts procurement to pumps manufactured in the donor country. Some devel-

oping countries, in response, have insisted on specifying which pumps they will accept.

Many of these countries are now developing an indigenous capacity for the manufacture of plastics for pipes and well casing. Local manufacture also eliminates the need for hard currency, which is always in short supply.

Requirements shared with other sectors

Procurement problems often can be eased by considering the requirements that the WSS sector shares with other sectors. The irrigation sector, for example, uses considerable quantities of pumping equipment, pipes, and related materials. The housing sector uses faucets, toilets, pipes, and building materials. The market for equipment in one sector can influence decisions in another sector. Thus, a new irrigation project could determine the type of pump the WSS sector would select for a project in the same region.

Capacity of private sector

The private sector may have a role in the design, construction, maintenance, and repair of WSS facilities. In urban areas there is seldom a question of its capacity; in rural areas its presence may be limited or nonexistent. Some projects have trained repairers to maintain several facilities in a region. Others have presumed that a sufficiently large market will in itself attract repairers to the target area. This generally is true of WSS facilities near urban centres.

If the profits to be made are reasonable, private sector participation is usually assured. Some projects have established prices for services and parts to protect the communities from being cheated. But prices must be fixed with due regard to adequate financial returns in the context of the local economy. Tasks such as well drilling and the construction of storage reservoirs are best contracted to the private sector. Many projects arrange franchised regional repairers for the equipment installed.

Cost recovery mechanisms

Government policies requiring cost recovery in WSS projects have two objectives: to make the beneficiaries pay for the benefits they enjoy; and to ensure that the beneficiaries gain a sense of ownership and thereby a concern for preserving the facilities. The costs of many rural WSS projects are beyond the means of the communities they serve, and the government or a donor subsidizes all or part of these costs. The philosophy behind this is that state revenues are to be distributed for the national good, and that rural health and living standards are entitled to special attention if this goal is pursued. However, if a project is to be sustainable, the beneficiaries must be able to fully cover all operation and maintenance and replacement costs.

Among the cost recovery mechanisms employed in WSS projects, perhaps the most common is a flat monthly fee levied on each family or household. In arid zones, where water is at a premium and conservation is essential, water typically is sold by the unit volume. When water is pumped by a fuel-driven engine, volume sales are the norm. In areas where cash is not in general use, communal sales of agricultural products are earmarked for the WSS system. Some communities insist on payment from every consumer, while others may provide free water to the very poor. In some notable instances, communities receive funds from richer members who have moved to the city or to foreign countries.

Ability and willingness to pay

The ability to pay is a function of disposable income and depends on the absolute wealth of the wage earners in a household. WSS interventions must be scaled to a level compatible with the ability to pay.

Willingness to pay is a different matter, influencing all expenditures including that for WSS service. Where there is no alternative water choice, the willingness to pay may be quite high, resulting in vastly inflated prices. Thus, water vendors in peri-urban areas often charge several times the price that is paid in the adjacent urban zone. In contrast, improved water supplies may not be used if there are streams nearby and the cost of water from the improved source is considered high. Water quality is often ignored if water can be obtained free from an unimproved source. In societies where women control money, they are often more willing to pay for water than men are, realizing the benefit of a clean and convenient source. For sanitation facilities, convenience and privacy are paramount. Dwellers in dense housing neighbourhoods appear more willing than their rural counterparts to pay for latrines or toilets.

Because of difficulties with payment, many projects require funds to be collected in advance for O&M, and sometimes for construction, as evidence of the community's willingness to participate. In other cases, potential participants are surveyed to determine their willingness to pay. These surveys require the use of appropriate sampling techniques to ensure accurate answers to delicate questions related to personal financial preferences.

National and regional economies

Many developing countries have high rates of inflation, cost of living, and unemployment, all of which have a significant effect on O&M management. High inflation requires careful attention to budget planning. Many meticulous plans have crumbled because of the loss of buying power by local currencies. Rapidly rising prices of basic commodities also plague certain countries. Fuel prices are often critical for WSS projects that use engines for well drilling or pumping.

Unemployment can create a large labour pool for labour-intensive tasks such as the digging of a pipeline. This lessens the need for expensive machinery and places responsibility in the hands of the beneficiaries. Some communities carry out such tasks without remuneration as their contribution to the project. These tasks should be arranged to coincide with seasonal levels of unemployment, so that they do not interfere with the regular agricultural cycles for planting and harvesting, when everyone is busy.

Some countries have regional pockets with distinctive characteristics that set them apart from the national economy. These may be areas of high poverty which lack natural resources, or they may border a country that has a more developed economy and thus be in a more favourable position to support development projects.

Logistics and transportation

Isolated areas are difficult to reach because of long distances, and bad roads will add to project costs and increase the uncertainties in planning. These matters will require special attention in the logistics of communication and transport of supplies.

Government leadership

The strength of government leadership in the WSS sector is an important factor in selecting a management model. However, it should be noted that most countries are now going through a process of decentralization, which gives a new perspective to the role of

the government. This role is changing from a supplier of services to that of sector coordinator and facilitator. Some prudence is necessary, however, in evaluating public pronouncements. It is not uncommon for politicians to develop platforms that call for improvements in the WSS sector. Some governments take a paternalistic attitude to providing for the people's welfare.

Visible and active leadership is needed to bring issues relating to WSS to the forefront. Where government leadership is lacking, more emphasis must necessarily be placed on management approaches adapted to fit local conditions.

Strength of government agencies and staff

Institutional effectiveness is a critical factor in the sector and is influenced particularly by the organizational framework and the quality of the staff. The organizational framework should encompass all the components of the sector from planning and design to operation and maintenance, with support for programmes of health education and community participation. There should be clear lines of authority and responsibility, and when several government agencies are involved, coordinating mechanisms are essential. Often the Ministry of Public Works and the Ministry of Health are each assigned special tasks: the former is responsible for constructing the systems, while the latter is responsible for health education and community surveys. Coordination is crucial but difficult unless there is a formal organizational agreement and framework. Extension agents are the vital link between the agency and the community. There must be enough of them to cover vast rural areas, and they must have adequate transportation and be skilled in community outreach techniques. Another important requirement for a successful agency is a budget large enough to carry out the mandate, including budget lines for staff salaries, administration, equipment, transportation, and training. Attractive salaries and benefits are necessary for retaining good workers since the private sector often competes for their skills.

Regional autonomy

Many countries have wide regional differences in climate, topography, land use, social and religious customs, economy, and access to services and materials. Climates may range from tropical to arid, requiring significant differences in the approach to WSS projects. Mountainous regions may offer abundant spring development, while flat lands may require deep drilling. Local cultures can differ considerably and can be separated by their beliefs and geographical distances. Some regions may have a relative abundance of natural resources. In large countries travel to outlying areas may be arduous. All these differences are conducive to the creation or strengthening of regional administrations. Decentralization brings power nearer to the beneficiaries. Central control of the WSS sector in countries with significant regional autonomy can be detrimental to development.

Policies and legislation

Without sound policies and legislation, there is little chance for significant WSS development. Policies must express government goals and objectives, and issues must be clearly defined. Policies governing the following issues are particularly important:

- the responsibilities of the communities and their ownership of the WSS systems;
- technology choices affecting equipment standardization and the procurement of spare parts;
- the role of the private sector;

- cost recovery mechanisms and fee structures;
- the role of government agencies and the scope of their support.

The application and enforcement of government policies and legislation must be judged by the results. Comparisons between stated goals and actual outputs offer useful insights.

Communication and information sharing

Communication and information sharing spring from a commitment to the process. Objectives can be met only if adequate information is available at all levels from the communities to the central government. All players within the sector should be fully aware of policies, legislation, decrees, administrative decisions, and any other pertinent matters. While the lack of technological hardware sometimes impedes communication with distant points, more often it is a lack of will that is the cause.

Mass communication techniques such as radio messages in local languages have been successfully used to inform dispersed populations in rural areas. Frequent visits by extension agents to the communities are also an important means of communication, as are audiovisual aids such as posters, bulletins, and videos.

4.5 The importance of communication¹

One area often overlooked in planning a water and sanitation programme is the need for a clearly articulated and systematic communication strategy. The inclusion of a planned communication strategy not only recognizes the necessity of communicating with people, it articulates the needs of each stakeholder and helps find a way to bridge the gap between planners, government agencies, the private sector and communities.

Communication can also both complement and, in some cases, substitute for the regulatory work. It can complement because the design and successful implementation of a rural water policy requires a level of dialogue between those who design or implement the policy and those who are addressed by it. It substitutes for other instruments when it motivates people to change their behaviour voluntarily.

Communication is not the same as “telling”; to “communicate” implies a two-way process. A communication strategy must include the opportunity for feedback from the audience to the sender and back again. When people are allowed to participate in the process of defining and implementing the rules for their own water strategy, the potential for sustainability is accelerated. A corollary to this is the need to “listen”, and therefore communication requires “listening”. If the messages coming back across the feedback loop are not listened to (and acted upon where appropriate), communication is not taking place.

In order to be effective, a communication strategy must be deliberately and systematically planned. While most programme planners assume that some level of communication will take place, whenever it does, it does so on an ad-hoc basis without necessarily reflecting the communication needs of different groups of people, nor does it facilitate a two-way dialogue between planners and people.

A communication planning sequence can include the following activities:

- Identification and formulation of key issues to be communicated
- Identification of target audiences

¹ Extracts from: *Study of the institutional arrangements for the provision of rural water supply and sanitation services in Mozambique*. Toronto (Canada), Cowater International Inc. (with the National Directorate of Water of Mozambique in Maputo), 1993.

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- Research on current knowledge, attitude and practice of each target group which will help to promote the required future change in behaviour
 - Development of messages based on current knowledge and behaviour
 - Pre-test messages
 - Identification of appropriate communication channels
 - Preparation of communication materials
 - Pre-test of materials
 - Training of communicators
 - Development of indicators to assess impact
 - Implementation of communication programme
 - Assessment of impact and adjustment of programme design.

Unit 3: Community management

1. Outline of session

►► Objectives

- Participants understand the concepts of community participation and community management
- Participants are familiar with the pros and cons of degrees of community involvement in management
- Participants are aware of the resistance to change and how to deal with this when working with communities
- Participants have identified ways to approach the community and facilitate community management

►► Methodology

1. Introduction
2. Discussion on: “What is a community?” and “What is management?”
3. Role-play on resistance to change and ways to deal with it
4. Participatory lecture on community management
5. Concluding exercise on the prerequisites for community management

►► Materials

- ✓ Overhead transparencies
- ✓ Overhead projector, screen or white wall
- ✓ Flip chart and markers

►► Handouts

- ✓ Copies of transparencies
- ✓ Exercise sheet
- ✓ Extracts from background information

2. Notes for the facilitator

Introduction

One major element of the concept of sustainability is community management. This session highlights this element, which will be followed by a session on gender issues and another on how to approach and work with communities.

Discussion on “What is a community?” and “What is community management?”

It is important first to assess the participants’ familiarity with community management approaches by having a discussion. The concept of community management contains the word “community”. Too often the community is taken for granted. Support and

development agencies just assume that the people they support form some kind of a 'common-unity', that is a group of people sharing common values and interests. Too often it is assumed that people living in a specific geographic unit or administrative service area (e.g. a district, a subdistrict or ward, a village, a village quarter, or a group of households sharing a water point) form a homogeneous group. Is this true?

Participants should reflect on this by asking themselves questions like: "Are you a member of a community? Which one? Are you a member of other communities? Which ones?"

Similarly a rural community does not necessarily consist of a homogeneous group of people. Participants can identify typical subgroups within a community (e.g. rich/poor, peasants/cattle owners, women/men, groups using water for different purposes, polluters/nonpolluters, people living in the centre/in the periphery, and highly/poorly educated people).

Support agents should be aware of this and take into account these differences within a 'community' when promoting community-based management.

In the term community management is also the word "management". It is important to make some clear distinction on what is meant by management in "community management". The facilitator therefore asks the participants the question, "What does management mean in community management?", and highlights the difference between community participation and community management. The overhead sheets and background information provide more information on this matter.

Role-play on resistance to change and ways to deal with it

This exercise has several objectives: a) the receptivity of a community to a water project can be very different; b) as communities are not all the same, it would be wrong to apply only one type of approach to all communities; c) there are appropriate responses to each type of community.

The role-play should be prepared beforehand. It is in fact both a role-play and a presentation, and basically involves two persons: 1) an "engineer", who represents the project assistance, and 2) a "peasant" (preferably a woman), who represents the community. The latter can wear traditional clothing or the traditional headgear of a peasant.

The facilitator prepares in advance some cards, which correspond to the various steps of the role-play/presentation, similar to that shown in the overhead sheet (Resistance to change continuum, see page 167). On a board should be drawn only the "climbing" steps. The seven steps will be filled in gradually.

Step 1: The community does not see the need for any improvement; there are no problems!

- Cards needed:

No!

and

Awareness-raising

- Role-play: The engineer arrives in the community very happy to have something to propose to them. He briefly presents to the "peasant" (who looks quite surprised!) his water supply improvement project. But soon, the peasant manifests her opposition, and says there is no problem with the water they drink, that they have been drinking this water for generations, and that they don't need this project. She throws the engineer out!
- Question to the participants: "Is this a common situation?"; "Can you give an example?"

- Presentation: The “No!” card is put on the board at the level of the corresponding step of the drawing. The facilitator explains that the best way to approach the community in this situation is to organize “awareness-raising” activities, puts up the “Awareness-raising” card and briefly tells them what this means.

Step 2: The community sees the problem but it feels that it is not their responsibility

- Cards needed: **Maybe!** and **Mobilization**
- Role-play: The engineer arrives in the community and explains briefly what the project is about. This time, the peasant says that the project looks interesting but it is not their responsibility; they pay enough taxes to the government and it is up to the government and the project staff to take this responsibility. Again the peasant throws the engineer out!
- Question to the participants: “Is this a common situation?”; “Can you give an example?”
- Presentation: The “Maybe!” card is put on the board at the level of the corresponding step of the drawing. The facilitator explains that the best way to approach the community in this case is to organize mobilization activities, puts up the “Mobilization” card and briefly tells them what this means.

Step 3: The community sees that there is a problem but has doubts about the proposed project

- Cards needed: **Doubts!** and **Information**
- Role-play: The engineer again arrives in the community. The peasant recognizes him and says that they now see that there is a problem in their community concerning safe water supply, and that they accept that they will have to take some part of the responsibility. But they have strong doubts about the proposed solution, and they don’t understand why this is proposed.
- Question to the participants: “Is this a common situation?”; “Can you give an example?”
- Presentation: The “Doubts!” card is put on the board at the level of the corresponding step of the drawing. The facilitator explains that the best way to approach the community in such cases is to organize participatory information activities, puts up the “Information” card and briefly describes what this means.

Step 4: The community sees that there is a problem but is afraid of the changes that it might bring

- Cards needed: **Afraid** and **Demonstration**
- Role-play: The engineer arrives in the community, and the peasant seems somewhat reluctant to accept the project, because they are afraid of all the implications that it will have, especially the changes in the community’s present habits. The peasant thanks the engineer, and says that sometime in the future they will accept it.
- Question to the participants: “Is this a common situation?”; “Can you give an example?”

- **Presentation:** The “Afraid” card is put on the board at the level of the corresponding step of the drawing. The facilitator explains that the best way to approach the community in such a case is to organize demonstration activities, puts up the “Demonstration” card and briefly explains what this means.

Step 5: The community sees the problem and is willing to take responsibility, and feels somehow that the option is appropriate to their situation, but they don't know enough about it yet

- Cards needed: **What?** and **Training**
- **Role-play:** This time, when the engineer enters the community the peasant is much more welcoming and tells him that they like the project but feel that they need to know more. The engineer then sits down with the peasant in order to organize the timing of the training events.
- **Question to the participants:** “Is this a common situation?”; “Can you give an example?”
- **Presentation:** The “What?” card is put on the board at the level of the corresponding step of the drawing. The facilitator explains that the best way to approach the community in this case is to organize training activities, puts up the “Training” card and explains briefly what this means.

Step 6: The community is ready for a change, accepts the responsibility, and requests that the project be implemented

- Cards needed: **Yes !** and **Implementation**
- **Role-play:** The community warmly welcomes the engineer with simulation of a party, and is ready to move ahead with the project. Some mention should be made about the contribution the community has agreed to make, in terms of cash or labour, as well as in terms of responsibilities.
- **Question to the participants:** “Is this a common situation?”; “Can you give an example?”
- **Presentation:** The “Yes!” card is put on the board at the level of the corresponding step of the drawing. The facilitator explains that the best way to approach the community in this case is to organize the implementation of the project, puts up the “Implementation” card and briefly explains what this means.

Step 7: The community has been involved in the implementation of the project and is willing to demonstrate to other communities the benefits of such a project

- Cards needed: **Yes, and ...** and **Duplication**
- **Role-play:** The engineer and the peasant are seen discussing how successful the project has been. The peasant says that if other communities around them have the same problem, she would be willing to collaborate with the engineer to demonstrate to them the positive benefits of the project.
- **Question to the participants:** “Is this a common situation?”; “Can you give an example?”

- **Presentation:** The “Yes, and...” card is put on the board at the level of the corresponding step of the drawing. The facilitator explains that the best way to approach the community in this case is to organize the duplication of the project, puts up the “Duplication” card and briefly explains what this means.

Participatory lecture on community management

The facilitator then proceeds with an interactive presentation, using the following overhead sheets (see pages 168–173):

- Why involve communities in the management, operation and maintenance of rural water supply and sanitation?
- Goals of community management
- Characteristics of community management
- Forms of community management
- Typical tasks of a water committee
- Composition and legal status of a water committee.

Concluding exercise on the prerequisites for community management

The facilitator asks the group, “What are the main elements which should be looked at in order to reach sustainable community management?” The facilitator writes down their answers on the board, using as a reference the list provided in the overhead sheet (page 174).

3. Overhead sheets: Sheet 1

What is a community?

- Is a community a group of people sharing common values and interests?
- A community can be heterogeneous in various aspects
- A community does not necessarily live in one contiguous geographic area
- People can be a member of a number of communities
- A 'community' can also consist of groups of people with divergent values and interests:

rich/poor

peasants/cattle-raisers

women/men

people using water for different purposes

polluters/nonpolluters

people living in the centre/in the periphery

highly educated/low educated

Overhead sheet 2

What is management?

- **Planning**
Development of a strategy, objectives, and results to be reached—with what resources and in what time?
- **Organization**
Distribution of responsibilities and tasks
- **Decision-making**
Taking decisions on regular activities, as mandated
- **Coordination**
Harmonization of contacts between various actors, and communication
- **Control**
Supervision and enforcement
- **Monitoring**
Regular check and problem-solving

Overhead sheet 3

What is community management?

Social management

(all aspects linked to the organization of the community)

Technical management

(all aspects linked to O&M technical activities)

Financial management

(accounting, tariff setting and all aspects of O&M cost recovery)

Overhead sheet 4

(adapted from Community Water Supply and Sanitation Conference material, May 1998, Washington, DC, World Bank–UNDP)

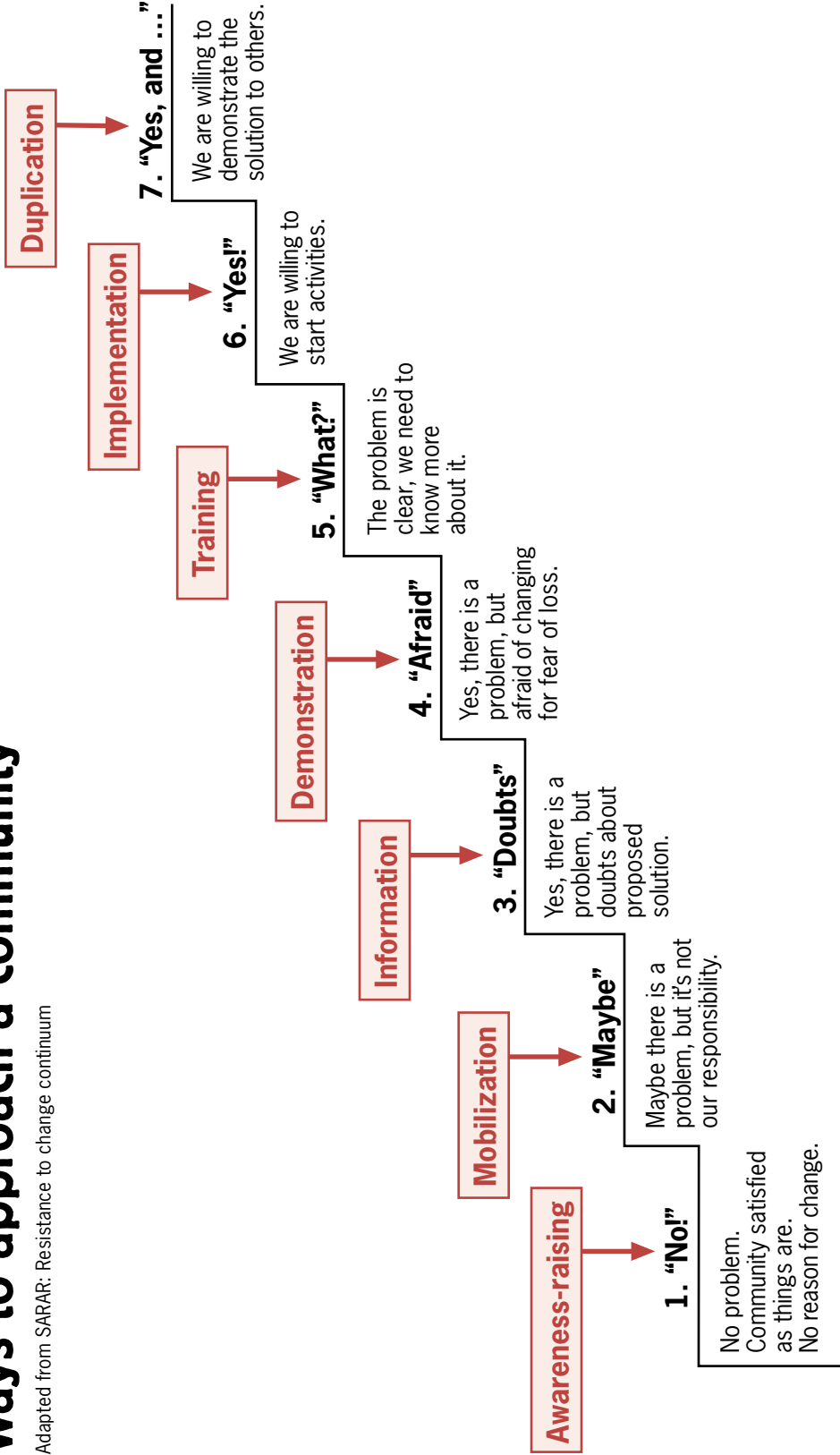
What is the difference between community participation and community management?

Participation as a form of 'cheap labour'	Participation as 'cost-sharing'	Participation done as a 'contractual arrangement'	Responsibility in 'decision-making'
<p>Community's contribution</p> <ul style="list-style-type: none"> ■ Free construction labour ■ Free local raw materials 	<p>Community's contribution</p> <ul style="list-style-type: none"> ■ Token contribution in cash or in kind towards maintenance 	<p>Community's contribution</p> <ul style="list-style-type: none"> ■ Volunteers in committee ■ Volunteer as caretaker ■ Commitment by leaders ■ Contributions 	<p>Community's contribution</p> <ul style="list-style-type: none"> ■ Community fully in charge with possible subsidies for capital investments; part of running costs/support
<p>Community's involvement</p> <p>Only carrying out work</p>	<p>Community's involvement</p> <p>Only some community members</p>	<p>Community's involvement</p> <p>Not all community members; contract can be commented on</p>	<p>Community's involvement</p> <p>All community members, including women</p>
<p>Role of "outsiders"</p> <p>Idea, planning and design</p>	<p>Role of "outsiders"</p> <p>Decide on contribution level</p>	<p>Role of "outsiders"</p> <p>Develop ideas and contract</p>	<p>Role of "outsiders"</p> <p>Facilitation, advice</p>
<p>Aim/Benefit</p> <p>Lower cost</p>	<p>Aim/Benefit</p> <p>Lower cost Cost recovery</p>	<p>Aim/Benefit</p> <p>Minimal local management infrastructure (local leadership, local committee, local maintenance volunteer)</p>	<p>Aim/Benefit</p> <p>Genuine commitment and support from whole community through participatory community education and involvement in decision-making from the start</p>
<p>Assumption</p> <p>Pride will lead to maintenance</p>	<p>Assumption</p> <p>Contribution indicates service is valued and shows commitment</p>	<p>Assumption</p> <p>Legitimizes the project; local management; technology transfer through contract</p>	<p>Assumption</p> <p>Long-term benefits and increased use and sustainability justify high investment (staff, time, costs)</p>
<p>Limitation</p> <p>Not a community priority Contribution not voluntary Use and maintenance may vanish</p>	<p>Limitation</p> <p>Commitment only from some Not all involved, e.g. women, the users; system rejected if major breakdowns occur</p>	<p>Limitation</p> <p>Not all villagers may be involved in the decision. Contract not fully understood. Selection of committee and caretaker too hasty; willingness to pay can be poor after some time</p>	<p>Limitation</p> <p>Requires highly trained and motivated staff; Difficult, time-consuming, expensive</p>

Overhead sheet 5

Ways to approach a community

Adapted from SARAR: Resistance to change continuum



Overhead sheet 6

Why involve communities in the management, operation and maintenance of RWSS?

- Building on existing local knowledge and management capacities
- All social groups feel concerned and can participate
- Addressing the true needs of community members
- Solutions acceptable to community members
- Solutions adapted to community capacities
- Increased community commitment to improve the situation
- Better understanding of the causes and effects of problems
- Empowering the community and reducing dependency
- Increased sense of ownership and responsibility
- Increased self-consciousness and confidence in own capacities
- Direct interest to have a system well maintained
- Possible improvement of willingness to pay
- Reduced overall and government costs
- Improved reliability and sustainability of systems

Overhead sheet 7

Goals of community management

- Improved reliability and sustainability of the system
- More appropriate choice of technology and service levels
- Reducing investment and operation costs for both the support agencies (government) and the communities
- Increased confidence and problem-solving capacities for further development activities
- Promoting gender-sensitive solutions
- Contributing to democratization and equity in the development process
- Increased health and socioeconomic well-being

Overhead sheet 8

Characteristics of community management

Community is responsible for:

- Maintenance and repair
- Local management and organization
- Financing

Community decides on:

- Technology choice
- Service level
- Form of local organization
- Local rules and regulations on use
- Financing mechanisms
- Sanctions

Community controls:

- Ownership of the system
- Outcome of decisions
- Quality of work done and functioning of the system

Overhead sheet 9

Forms of community management

The forms of community management vary according to the size of the community, the technology used, the local context, and national legislation. Basically, community management operates through a Committee whose members are elected by a General Assembly of users. The following forms can be found:

- **Tap or Neighbourhood Committee**

Responsible for operating and maintaining a specific water point.

- **Water Committee**

Responsible for all activities (managerial, operational, technical and financial) of a particular scheme, which covers a larger area than a neighborhood and possibly the whole community.

- **Village Association**

Responsible for all development activities concerning the village, and includes overseeing water and sanitation.

- **“Coordinating” Water Committee**

Responsible for managerial and financial matters and coordination of several smaller committees (tap/standpost or neighbourhood committees), which retain responsibility for operation, maintenance and collection of fees.

- **Water Committee contracting a private body**

Responsible for general management and control, but contracts a private body (an individual, a mechanic, a group of artisans, or a firm) to operate and maintain the system.

- **Delegated responsibility by local authority**

Ownership and decision-making are held by the local authority, while the water committee operates and manages the system.

- **Inter-community Federation of Committees**

When several communities share the same pipe source or water source, each community has a water committee to operate and maintain its own water point and collect fees, part of which goes to an Association or Federation of Committees for maintenance of the whole system (pipes, source).

Overhead sheet 10

Typical tasks of a Water Committee

1. Represents the community in contacts with support agencies
2. Coordinates with other community institutions and decision-making bodies
3. Ensures efficient and effective overall management of systems:
 - takes up assigned roles and tasks
 - ensures equity
 - organizes contributions
 - organizes effective O&M
 - ensures accurate financial management
 - promotes hygienic and effective use of facilities
 - holds regular committee meetings
 - ensures good communication at all levels
 - provides information and feedback
 - collects information.

Overhead sheet 11

Composition and legal status of a Water Committee

The composition of a Water Committee will vary according to its management and operational mandate.

Generally it is composed of a President, Vice-President, Treasurer and several representatives of the users, with a balance between posts occupied by men and by women. If the community is directly responsible for the technical operation and maintenance of the system, the Committee also includes the operator and/or caretaker.

In many countries, the Water Committee does not have proper legal status. This makes it vulnerable in situations with material, financial, contractual or legal problems. The following types of legal status are found:

- **The Municipality officially registers the Water Committee**
If it has been elected by a General Assembly of users, a “constituting” Act must be produced by the Assembly
- **The Water Committee is registered with the Chamber of Commerce as a non-profit-making Association**
- **The Water Committee is registered with the Chamber of Commerce as an Association with an economic interest**
It can then operate as a concession or under contractual arrangements with local authorities
- **The Water Committee operates under the legal mandate of a Development Association**

Overhead sheet 12

Prerequisites for community management

- Demand to improve the system
- Policy and legal framework for promoting community management
- Effective external support, if required
- Information on system options, as well as on cost and technical implications of each system, must be available to the community
- Technology options must be selected with the communities, and adapted to the community's capacities and needs
- The community understands the implications of choice in terms of responsibilities and tasks
- The community is willing to pay
- The community has decision-making power
- The community has access to required capacity-building support
- There should be a policy framework to permit and support community management

4. Background information¹

4.1 The concept of community management

Community management has different connotations in the literature. This was also the case with community participation, the definition of which already in 1982 ranged from the provision of free community labour inputs in government projects, to auto-nomous self-reliant development. Despite or perhaps because of the unclear definition, community management of water supply and sanitation systems has increasingly been seen as a fundamental option for sustainable development. Community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes, was one of the guiding principles adopted in the New Delhi Consultation in 1990 and reconfirmed in Agenda 21.

Why is it believed that community management of water supply and sanitation systems will be any more successful in achieving sustainable coverage than the top-down approaches from the past? Experience in many developing countries shows that even very good water agencies cannot successfully operate and maintain a network of widely dispersed water systems without the full involvement and commitment of the users. Despite the best endeavours of central agencies, the overstretching of staff, transport and budgets has led to breakdowns in the system, dissatisfied consumers and demoralized agency personnel. Many governments are becoming convinced that centralized systems cannot deliver the required services for the sector. This resulted in a strong push towards decentralization which started in the late 1980s.

Hopes are now high with respect to community management, because it is believed that this approach seeks to make the best use of the available resources in the community with some support from government agencies. It puts the people in charge of their own water systems in a flexible partnership with the supporting agencies. Communities take on more tasks and responsibilities, and relieve the agencies of all routine management and maintenance duties. This frees the agency's resources, which can be used to reach more people. Successful community management is claimed to build community confidence and stimulate wider development efforts. It is also stressed that there is still a lot to learn.

Much of this learning is at the level of the agencies and institutions, which often hold the purse strings and so can dictate the course of development. Increasingly, governments and institutions are trying to adopt a more integrated and demand-responsive approach. This is stimulated by the growing pressure to focus on sustainable functioning and effective use of water supply and sanitation systems. Another reason why government agencies are searching for alternatives and are amenable to participatory approaches is that, over the past two decades, blueprints of development strategies have been shown to be ineffective in meeting the basic needs of large numbers of marginalized, vulnerable people. Thus public sector agencies are showing a growing interest in participatory approaches that involve the community in their attempt to do more with fewer financial resources. They are developing, for example, links with NGOs that used similar types of approaches.

In this context, it is surprising that agencies do not have internal mechanisms to learn from their experience with communities, to learn how to work with them, and to share this among their staff. What is needed is an approach to learning that allows the development of new methodologies and promotes change in the prevailing attitudes, behaviours, norms, skills and procedures within the agencies.

Not only do the agency staff have to learn to work with the communities and

¹ Most of this background information has been extracted from: "Putting Community Management in Place"—Four years of experience with improving water management in rural communities—Community Managers for Tomorrow. Document N.1, IRC, 1998.

overcome the top-down approach from the past, but the communities also must come to grips with working with the agency staff in a horizontal relationship. In the future, the push for change will be more radical, with increasing decentralization and with communities who will bear a larger share of the cost. Then the paradigm shift from communities participating in agency projects to agencies participating in community projects will become even more important.

According to Franz Gahwiller of SKAT (Swiss Centre for Development Cooperation in Technology and Management), "... we usually do not allow for the required time to initiate a process of change. Such a process may take years and years, but we want the communities to manage their systems as soon as possible. Moreover, the societal environment for such processes of change needs to be democratic."

4.2 Some findings from the field

In 1995 a participatory action research (PAR) project on community management for rural water supply was initiated by IRC together with partner organizations in six countries (Cameroon, Colombia, Guatemala, Kenya, Nepal and Pakistan). Local research teams worked closely with community members in 24 communities to better understand community management and to explore possible improvements. The essence of this project is to help communities to gain a better understanding of the problems they face and to let them become a key factor in problem-solving. "The knowledge we gain from this 'research' is much more valuable than gifts. It is something we keep for life" (villager from Nkoundja, Cameroon). Community members thus become catalysts and in beginning to understand and discuss their problems, they create the space to allow a range of actors to participate and express their views.

A first assessment of the situation in the six countries indicates that:

- In each country, community management of completed rural water supply systems is the accepted national policy, but implementation is not universal and each agency has its own procedures.
- None of the governments so far treats communities as future managers in the sense that they can make their own choices from a range of options, each with their own pros and cons. Nor do they train communities for all community management aspects. Training is focused on technical tasks and book-keeping, and is mostly given to men.
- Experience with existing community managed water supply systems varies. In Cameroon, 438 projects that were built and managed by the community showed a breakdown rate of 9%, whereas many others built without community involvement are no longer operational. Other reports indicate that a number of community managed systems do not function well, partly for technical and ecological reasons, and partly because of poor administration and lack of management training and back-up support.
- A considerable number of community members are not served because of poor water distribution and poor network management. Several of these persons contributed to the construction of the system in cash or kind, but do not obtain the benefits.
- Although existing systems have technical, managerial and socioeconomic problems, the communities only mention the technical problems. The other problems are revealed only after further probing and discussion.
- Record-keeping of finances and of agreements made in meetings is very limited and erodes the confidence of the community members. There is a similar weakness in communication and information-sharing which are mainly in the hands of the local leadership.

- Many ESAs (external support agencies) stipulate preconditions for future management, usually the formation of a water committee with some women represented. However, little is done in developing management tools or management training.

Another participatory evaluation of 40 community managed water systems in Ecuador revealed that the systems do provide water but are in need of both technical improvements and better management.

On the positive side, the above-mentioned PAR project already shows that working in a horizontal way with the communities and helping them to clarify their problems is a very powerful tool for change. Communities in Kenya, for example, were initially timid but are now enthusiastic about the management of the water system, and are undertaking tasks in a transparent way. An overall picture is emerging that communities are capable of managing their water supply systems, but they need back-up support. The agencies also clearly need support. Strategies and tools for enhancing management capacity in communities are developed and tested in the project, which now offers a flexible support approach, called Participatory Action Development for community management. This approach aims at responding to the concrete needs of communities related to the management tasks and skills in their public services, and at finding solutions to problems and conflicts in the management of rural water supply by communities.

4.3 “Revisiting” community management

Instead of trying to refine the existing definitions of community management or add another version, there seems to be an easier way to increase our understanding of what it encompasses. Community management deals with two dimensions: communities and management, and the relation between them.

Communities are groups of people with common but also conflicting interests and ideas and different socioeconomic and cultural backgrounds. The identity of the people in the communities is shaped by their history and their socioeconomic and environmental conditions. Some of them, often the economically better off, may be better informed and know more about the world, but on the other hand, may have certain interests in keeping the status quo and therefore may not be willing to solve certain problems. Women may have different interests from men and their views may not have been heard in the past, or their position may make it difficult to achieve changes on their own. Men, women and children have different needs, different access to resources, and different areas in which they can take decisions. Yet, all of them have equal rights to contribute to and benefit from development activities, thus making it necessary to strike a gender balance in programme activities, problem identification, conflict resolution, and joint management of common interests.

The water supply system may be one such common interest, but at the same time can be a major source of conflict. This brings us to the dimension of **management**. Management is a concept which is very much being developed and is changing to entail sharing of responsibilities in new ways. It is becoming more focused on learning, creating an enabling environment, and building trust, and places strong emphasis on communication and holistic approaches. A collective learning process starts with dialogue, or an open exchange of ideas in the group. This permits the participants to discover their potential and perspectives. This dialogue differs from the more common discussion, which has its roots with ‘percussion’ and ‘concussion’, literally a heaving of ideas back and forth in a winner-takes-all competition. Team learning develops the skills of groups of people to look beyond individual perspectives. It requires a positive learning environment. This is not easy, particularly in a politicized environment such as the water and sanitation sector. Not only are good facilitation and a variety of techniques required, but also leadership training for group members and a review of the historical developments

with the community. Equally important is the need to review, with the sector staff, the social missions of their institutions and their own aspirations. This requires building confidence and trust, helping them to become self-confident and gain self-esteem. A guide to this process was already provided in ancient China (c. 700 BC):

“Go to the people, live among them, learn from them, love them, start with what they know, build on what they have. But of the best leaders when their task is accomplished, their work is done, the people will remark: We have done it ourselves!”

The community is not the only actor, but can benefit from partnerships with water sector institutions and the private sector. There is no blueprint on what the inputs of different actors can be in the different project stages, but what may be expected is that the role of the government or NGOs who were initially the project leaders will reduce over time, and the role of the community water enterprise (water committee, users’ association, private enterprise, etc.) will increase. The different actors or their representatives thus have to come to an agreement on what the specific contributions and responsibilities will be over a period of time. This they can only do on the basis of informed decision-making which particularly addresses the expected service level, and the long-term management of the system which is still the weakest issue today. The discussion may include possible future extensions of the system, not in great detail, but the basic concept should be clear.

4.4 Some concluding remarks about community management

Although a paradigm shift seems to be emerging, the principal challenges to put community management into mainstream practice are still huge. Currently in most countries, community management of rural water supply systems is the accepted national policy. However, there is still a considerable gap between policy and practice. In fact, communities are not treated as future managers in the sense that they can make their own choices from a range of options. Nor do they get the opportunity to learn the required management skills.

This and the lack of back-up support for problems going beyond the community level are important reasons for the sub-standard performance of many systems. This will continue to be the case unless the managerial aspects are better taken in hand and practical management tools are developed together with communities. Management skills also include handling of conflicts because communities consist of people who do not necessarily share the same interests and values. Often conflicting interests exist both within the community and between the community and outsiders.

Gradually we see agencies starting to participate in the development endeavour of the communities instead of the community participating in the agency’s projects. This paradigm shift, however, will only materialize if new learning approaches and participatory methods are adopted in challenging institutional settings where community knowledge and institutional knowledge are equally valued and people start to respect each other’s views.

The partnership approach, for agencies, means that new coherent strategies and methods are needed to further build management capacity in the communities, and through dialogues with them. This also implies that agencies need to make the necessary adjustments and strengthen their own capacity to provide effective support to the communities.

Also institutional change is needed which allows for harnessing the partnership between communities, governments, NGOs and the private sector. The relationship should be transparent, based on mutual understanding and appreciation of the different ‘social’ missions of the institutions.

For a community to share management responsibilities to a greater degree, stakeholders should be allowed to learn about the system in all its aspects. Support strategies should create sufficient learning opportunities and start a process of dialogue for all involved. The challenge is how to make possible this continuous process, knowing that 'each place, each culture, each experience requires its own approach'.

Unit 4: Gender awareness

1. Outline of session

►► Objectives

- To clarify the concept of gender and its importance in water supply and sanitation projects
- To raise awareness on how to develop and apply a gender approach for operation and maintenance

►► Methodology

1. Introduction
2. Exercise on the concept of gender
3. Focused discussion on the relevance of a gender approach
4. Interactive presentation on developing an O&M project with a gender approach
5. Group exercise on development of a gender approach

►► Materials

- ✓ Overhead transparencies
- ✓ Overhead projector, screen or white wall
- ✓ Cards (thick paper)
- ✓ Flip chart

►► Handouts

- ✓ Exercise sheets
- ✓ Copies of transparencies and background information

2. Notes for the facilitator

Introduction

The purpose of this session is to bring into the open the differences between women and men, and to find solutions to problems of inequality based on mutual understanding. It involves identifying gender differences and seeing how they led to inequalities of power, which created obstacles for women's full participation in the management of water supply and sanitation programmes.

Some participants may be a little resistant in accepting gender equality because it goes against their own attitudes towards men or women. One suggestion for overcoming this resistance is to highlight examples in our daily lives where this issue has evolved within the last decade or two.

Exercise on the concept of gender

The facilitator distributes one red card (representing men) and one blue card (representing women) to each participant, and asks a series of questions relating to O&M

activities (see overhead sheet, page 182). For each activity, the group should indicate with the cards whether they think men or women are more likely to be involved in this activity.

At the end of the exercise, the facilitator asks the group to reflect on the issues and to comment on any differences between men and women they observed (e.g. difference in access to and control of resources, decision-making, working, etc.). The facilitator will then help the group to make a definition of what gender is (see overhead sheet, page 183).

Focused discussion on the relevance of a gender approach

The facilitator asks the group, “Why is a gender approach relevant?” Their answers will be written on the board. Disagreements may arise during the discussion, and the facilitator should try to let the participants express their views, while keeping control of the time. See overhead sheet (page 184) for some suggestions on this matter.

Interactive presentation on developing an O&M project with a gender approach

The facilitator can use the information contained in the overhead sheets or in the background information (see below) for an interactive presentation, but may find it opportune to invite a gender specialist to present his or her experiences in developing a project with a gender perspective.

Group exercise on development of a gender approach

The participants should be divided into three small groups to deal with: a) a sanitation project; b) a handpump project; c) a small piped system (or other project). Each subgroup is asked to develop the main points which are critical for the project, with the aim of having sustainable operation and maintenance within the gender perspective. The results are shared and discussed in a plenary session. Experience has shown that the participants like to keep a record of the work they have been doing, so it is important to organize secretarial support to help with this.

3. Overhead sheets: Sheet 1

Exercise: Gender specificity

For each question, the participants respond by raising a red card (men) or a blue card (women). If important differences arise within the group, the facilitator should discuss the matter and ask for comments.

- Who makes the rules and regulations concerning the use of the water point?
- Who ensures that these rules are observed by all users?
- Who keeps the water point and the surrounding area, including the drain, in a good and clean condition?
- Who carries out immediate repairs to any small damage or leaks to prevent major failures and more costly repairs?
- Who is responsible for regular maintenance (lubrication, cleaning of mechanical parts)?
- Who reports any major failures immediately to those who are responsible for big repairs?
- Who collects and keeps the money safely, while recording all income and expenditures?
- Who makes the necessary payments for maintenance and upkeep of the water point?
- Who reports to the community on how the money has been spent?
- Who takes decisions within the Water Committee?
- Who contributes to the construction of the water supply system?
- Who contributes to the construction of a latrine?
- Who maintains the latrines?
- Who transports and stores the water?
- Who educates the children on proper hygiene behaviour?

Overhead sheet 2

What is gender?



- Sex relates to the biological difference between a man and a woman
- Gender relates to the social difference between a man and a woman
- Gender does not relate only to women, but to both women and men
- The gender approach optimizes the roles and responsibilities of both men and women

Overhead sheet 3

What is the relevance of a gender approach?

- Users form an heterogeneous group
- Women have a keen and direct interest in water supply, sanitation and hygiene
- Women stay in the community
- Men and women, by sharing the responsibilities, decision-making and problem-solving, contribute to a higher efficiency of the system
- Women transfer behaviour patterns to their children
- The gender approach generates wider and more specific participation of the community in the project cycle
- The gender approach contributes to the development of women
- The gender approach contributes to sustainability.

Overhead sheet 4

Planning with a gender perspective

1. Participatory diagnosis of:

- the existing water supply and sanitation services within the community
- health status by gender
- work division in households
- accessibility, use and control of water
- problems and constraints
- technical expertise among men and women
- the cultural elements and beliefs linked to water and sanitation
- social participation in decision-making.

2. Consolidation of community organizations

- constitution of mixed committees
- active promotion of women in the committee
- discussion with the committee on problems relating to participation and decision-making in a gender perspective
- revision of the election process of community members in the committee.

3. Appropriate selection of technology

- technology adapted to the needs of men and women (washing, etc.)
- technology using the knowledge and skills of both men and women
- technology that can be maintained by men and women.

4. Operation and maintenance

- training for both men and women
- active and organized role in preventive maintenance.

4. Background information¹

4.1 Definitions

What is gender and what is a gender balance? Contrary to what is still stated in the literature, gender does not relate only to women, but to both women and men. As the Institute of Development Studies of the University of Sussex puts it, “The gender-based approach is distinct in that it focuses on women and men, rather than considering women in isolation.” In particular, a gender approach pays attention to:

- differences between women’s and men’s interests, even within the same household, and how they are manifested;
- the conventions and traditions determining men’s and women’s position in the family, community and society at large, whereby women are usually dominated by men;
- differences among women and among men, based on age, wealth, ethnic background and other factors;
- the way gender roles and relations change, often quite rapidly, as a result of economic forces, migration for work, and other social trends.

4.2 Historical background

The fact that a gender approach is still often taken to mean only changes affecting women, and not men, goes back to four decades ago. The first expression of concern for women and their involvement in development emerged in the 1960s. Women were recognized as a disadvantaged group, for whom special women’s components had to be developed. In general projects, such as water supply, women were seen mainly as the beneficiaries of the proposed improvements.

In the late 1970s and early 1980s, women began to be recognized as actors and managers in their own right, and it was demonstrated that involving women in planning, construction and management of, e.g. water supply and sanitation services, brought benefits for general development, for the projects, for the households, and for the women themselves.

In the second half of the 1980s and early 1990s it became clear that the effective involvement of women requires them to unite and develop strength and self-reliance. This enables them to give direction to their lives and circumstances and encourages men to look upon women’s participation not as competition, but as a natural right—the right for women to deal with and make decisions on material and non-material resources which are crucial to their lives. While women are the ones who do the physical work of transporting, digging, cleaning and caretaking, they have no say in the control of the resources on which their livelihood depends.

Carolyn Moser (1989) described four stages in the evolution of development programmes: the welfare approach, the equity or anti-poverty approach, the efficiency approach, and the empowerment approach. The *welfare approach* focuses exclusively on women’s reproductive roles. It identifies women exclusively as mothers, wives and housewives. It sees the problem and its solution in the women themselves: if the women change their domestic behaviour, better hygiene, health, nutrition, etc. will follow.

In contrast, the *anti-poverty* and *efficiency approaches* point out that besides being mothers, wives and housewives, women are also economic producers and actors in the public realm. During colonial and neo-colonial times these roles were not recognized

¹ Most of this background information has been extracted from: *Gender in water resources management, water supply and sanitation—Roles and realities revisited*, by Christine van Wijk-Sijbesma. The Hague, IRC, 1998 (Technical Paper Series No. 33-E).

and the position of women was low. This resulted in a loss of status, as well as a loss of income, and reduced the efficiency of projects.

The *empowerment approach* seeks to identify power, not in terms of domination, which carries the assumption that a gain for women implies a loss for men, but rather in terms of the rights of women, and of men, to make their choices in life and to influence the direction of change. The approach challenges women to seek a new self-consciousness and new positions in their countries' legal and civil codes, economies, institutions and management systems.

4.3 Elements for a gender analysis

For the formulation, assessment and review of policies, projects and programmes and documents, such as the present literature review, the following six questions may form the basis for the analysis of gender in water resources development and management:

1. In what way are men and women using the resource and for what purpose(s)?
2. How are the contributions to the development and management of water resources (e.g. in labour, time, payments, and in kind) divided between men and women?
3. Who makes the decisions and who controls their implementation at the various levels?
4. Who commands the project or programme resources, such as jobs and training?
5. Who gets the benefits and has control over these benefits, such as status, water, products produced with this water, and income resulting from these products, and who makes the decisions on how this income is used?
6. How are these attributes distributed among women and among men of different wealth, ages, and religious and ethnic divisions? In other words, do some women and men benefit more than others?

A gender approach analyses current gender divisions and strives for an equitable balance between men and women of different ages and marital and socioeconomic status, in terms of the following indicators:

- access to information
- amount of physical work
- division of contributions in time and cash
- degree of decision-making
- access to resources and benefits: water, training, jobs, income
- control over these resources and the benefits from them.

4.4 Ways to overcome constraints to women's participation

Activity	Mechanism
Project initiation	Programmes establish contacts with male leaders to get their understanding and support for the participation of women.
Information and dialogue	Programmes use information channels and materials that also reach women.
Meetings	Programmes encourage women to participate and to speak at project meetings by: <ul style="list-style-type: none"> ■ fixing a time and place convenient for women and men ■ informing women about the meeting and inviting them to attend ■ making appropriate seating arrangements (not women at the back) ■ facilitating women to speak (use of vernacular language, discussion breaks, choosing a spokeswoman, etc.) ■ having a separate meeting with women, where necessary.
Planning	Linking water and sanitation projects with economic and educational development programmes.
Decision-making	Programmes enable women to participate in the following: <ul style="list-style-type: none"> ■ appointment of caretakers and mechanics ■ appointment of committee members ■ design and location of facilities ■ local management arrangements ■ local financing system.
Representation	Women choose their own representatives based on trust, easy contact, leadership capacity, and feasibility (time and family permitting).
Management	Programmes build on women's traditional tasks, skills and knowledge for the following new roles in management (without in any way excluding men): <ul style="list-style-type: none"> ■ management of water, waste and soil use ■ maintenance and repair of water points ■ hygiene education with other women ■ construction of latrines and monitoring maintenance and use ■ management of funds.
Training	Training women for technical and managerial tasks. Making programme staff and management aware of the reasons for equal participation and offering training to both women and men.

4.5 Gender and operation and maintenance

As a result of decentralization to the lowest appropriate level, many of the operation, maintenance and repair tasks are now delegated to the communities. Owing to the strong influence of gender perceptions and relations, these tasks have been regarded as purely technical and a male prerogative.

Opinions that women cannot perform maintenance and repair tasks seem to be based more on stereotyped gender concepts than on any real inability. Confronting such gender stereotypes, Wijk (1985) quotes nine publications which demonstrate that women may well make better maintenance and repair workers than men. The reasons advanced are the direct concern and personal interest of women in their water supply; their regular visits to distribution points; the compatibility of preventive maintenance and user education with women's gender-specific tasks; the easier communication between female maintenance staff and female users; women's greater sensitivity to social pressure from other women to do a good job; the importance of health aspects; the lower career orientation and labour mobility of women; and training of women in modern technology in recognition of their age-old skills in management of their domestic water systems.

Recognizing the value of a gender approach, most programmes now involve women

in local maintenance. Here a distinction must be made between voluntary maintenance jobs ('caretaking') and paid jobs (mechanics or similar functions). The following patterns have been observed: a) both women and men are caretakers and both do the same work; b) a man and a woman work as a caretaking team; c) only women are caretakers, while the men have the paid jobs of mechanic, etc.; and d) both women and men are given paid jobs as mechanics, etc.

The more common situation is that women become voluntary caretakers of the waterpoints in their neighbourhoods. As such they have mainly environmental and preventive tasks: keeping the sites clean and dry, avoiding water pollution and wastage, reducing misuse and vandalism, especially from children, diagnosing and reporting problems. The work is mainly physical. Training, if given, tends to focus on health and hygiene, rather than on technical know-how for early diagnosis and preventive maintenance.

In the last decade, women have had better opportunities to be trained for maintenance jobs that go beyond cleaning and reporting, and to be paid. In particular, women handpump mechanics have become more prevalent. The effects of maintenance by women on the one hand, and by men on the other, on the condition and performance of the water system and on the workers themselves have not yet been extensively investigated.

4.6 Gender and management

In the past it was rare to see women working with men in organizing and managing their domestic water supply services. This is now rapidly changing. Female members of local management organizations are the result of appointments by local leaders or interventions by programme agencies. Alternatively, they have been chosen by the men and women in the communities themselves. It is reported that women are more effective than men.

Female participation in management has produced many effects on the women and men in the community. Recognition of women's management tasks and training for new tasks and skills have increased their status and self-confidence. Women in Visayas in the Philippines reported that their proposals on the time of meetings and on designs for water supply and latrines are increasingly treated with respect. They now believe that they can really contribute something for the good of the community and be 'partners in progress' and not 'for decorative purposes only'. Some believe they are no longer subordinate to the men. Male and female leaders welcome the role of women in development based on women's total capacities, though sometimes this is limited to traditional female roles.

Some agencies promote the management of water supplies exclusively by women and do not address male responsibilities and tasks. Sometimes, project agencies pay so much attention to women's as compared to men's involvement that the service comes to be seen as a women's project, for which only the women are responsible. In such cases, the projects cause women to carry the burden of a community water supply from which male household members also profit, regardless of the women's higher workload and fewer resources. The decision to do it alone may, however, stem from necessity or choice.

Unit 5: Cost recovery

1. Outline of session

►► Objectives

- To review the key principles which influence sustainable cost recovery
- To familiarize participants with financial arrangements, willingness to pay and financial management issues

►► Methodology

1. Introduction
2. Lecture on the seven key principles of cost recovery
3. Exercise on financial arrangements
4. Working in pairs and discussion on willingness to pay
5. Group exercise on sound financial management

►► Materials

- ✓ Overhead transparencies
- ✓ Overhead projector, screen or white wall
- ✓ Flip chart and markers
- ✓ Coloured cards (thick paper)

►► Handouts

- ✓ Exercise sheets
- ✓ Copies of transparencies and background information

2. Notes for the facilitator

Introduction

This session highlights the main principles that lead to sustainable cost recovery, which must be followed for the sustainable operation and maintenance of water supply and sanitation services. The participants are asked whether cost recovery has been a problem in their projects and, if so, to give examples.

The seven key principles influencing sustainable cost recovery

The facilitator, using the background information (see page 197) and overhead sheet (page 192), should describe the seven key principles of sustainable cost recovery in a short presentation.

Exercise on financial arrangements

Please refer to the overhead sheets (pages 193, 194). Each participant is given three cards (thick paper) of different colours: yellow to represent the central government,

green to represent the municipality, and blue to represent the community. Other colours can be added, if necessary. The facilitator puts up the overhead sheets and asks the participants to assign the operational and financial responsibility for each task by showing the appropriate card. If important differences or disagreements arise, the facilitator should discuss and clarify the positions. The facilitator should, at the end of the exercise, highlight the need to put into practice (e.g. with a contract) this division of responsibilities.

Working in pairs on willingness to pay

The participants group themselves in pairs, and each pair discusses (for 10 minutes) the factors that influence the users' willingness to pay. The facilitator then invites individual comments to be given freely, and makes clear any points that are not well understood by the group. All opinions are written down by the facilitator who completes the list with information provided in the overhead sheet (page 195) and in background information.

Group exercise on sound financial management

The facilitator divides the participants into two groups for an exercise on 1) water supply (handpumps) and 2) water supply (piped system). Each group is given the exercise sheet on sound financial management (page 196) and asked to fill in the Table. The results are presented in plenary and discussed. The facilitator can use the information contained in background information (see page 211).

3. Overhead and exercise sheets: Sheet 1

Seven key principles to sustainable cost recovery

1. Identifying the cost implications of the project's characteristics and the environment
2. Maximizing the willingness to pay
3. Clarifying financial responsibilities
4. Optimizing operation and maintenance costs
5. Setting an appropriate and equitable tariff structure
6. Developing an effective financial management system
7. Organizing access to alternative financial sources.

Exercise 1

Each participant is given three cards of different colours: yellow to represent the central government; green to represent the municipality; and blue to represent the community. (Other colours can be added, if necessary). The facilitator projects an overhead sheet, asking participants to assign the operational and financial responsibility for each task by voting with the cards. If there are important differences, the facilitator should start a discussion to clarify the positions.

O&M of borehole, diesel pump, storage and standpost system: who is responsible?

(adapted from WASH Technical Report No.93)

O&M tasks	Operational responsibility	Financial responsibility
Operate the engine daily, safely and efficiently		
Perform regular checks and adjustments (fuel, oil, filters, belts, etc.)		
Regularly replace the engine oil, filters and pump oil, if applicable		
Perform regular checks and adjustments on the alternator, starter, radiator, valves and injectors		
Periodically carry out a complete overhaul of the engine, pumps and associated equipment		
Check all pipelines, tanks, and valves for leaks and breaks, and repair them		
Monitor standpost use to encourage proper use		
Check all standposts for leaks, wear and tear, and repair if needed		
Flush all pipes periodically		
Clean the standpost concrete aprons and drainage area, and repair if needed		
Test the water for microbiological contamination; if present, locate and correct the source; disinfect		
Measure the water output periodically at the well head and standpost. Assess leakage and initiate leak detection and repairs		
Carry out rehabilitation of the engine/pump		
Record all operation and maintenance activities in the log book		
Check the stocks of fuel and oil, ensuring proper storage and security. Maintain a special fuel log		
Check the stocks of parts, tools, and supplies		
Establish historical records of all engines, pumps and other equipment		
Develop schedules for preventive maintenance and monitoring		
Conduct effective vehicle maintenance		

Exercise 2

O&M administrative and support activities for most water supply systems: who is responsible?

(adapted from WASH Technical Report No. 93)

Administrative and support tasks	Operational responsibility	Financial responsibility
Conduct technical and socioeconomic participatory studies		
Analyse O&M tasks for use in planning and budgeting		
Prepare annual budgets and long-term financial estimates		
Select and appoint operators/contractors for O&M		
Develop and evaluate technical and management training for water system operators		
Provide ongoing technical training for operators		
Delegate task responsibilities, supervise and pay salaries		
Keep archives, inventories and log books		
Develop and evaluate financial and management training for community managers		
Provide ongoing financial and management training for community managers		
Collect water fees and manage revenues		
Make payments for purchases, loans and other obligations		
Respond to users' complaints		
Organize and conduct general meetings for discussions, elections, etc.		
Develop information and materials on hygiene education		
Organize community contributions for upgrading or extending the system		
Report urgent problems to the government agency		
Provide technical and management support to community managers		
Collect, analyse and monitor the results, and conduct follow-up support or training, if necessary		

Overhead sheet 2

Factors influencing willingness to pay

- Demand and participation from communities
- Service level
- Service standard
- Perceived benefits
- Relationship to production
- Level of income
- Price of water
- Relative costs
- Opportunity cost of time
- Characteristics of existing sources
- Reputation of service agency
- Community cohesion
- Policy environment
- Sociocultural factors
- Perception of ownership and responsibility
- Transparency of financial management
- Institutional support.

Exercise 3

Sound financial management

Financial management issues	Possible options
What costs to budget for?	
What sources of income to use?	
How to collect the money?	
When to collect the money?	
Who collects the money?	
Where to keep the money?	
How to register movements of expenditures and incomes?	
How to pay the mechanic or caretaker?	
Who administers the funds?	
What are the funds used for?	
Who orders payments?	
What type of financial control?	
How to monitor?	
What to do with bad payers? <i>This question should also be asked when public administrations do not pay.</i>	

4. Background information

“Lack of money” is often claimed to be a principal constraint to providing water and sanitation services. In many cases, the problem is not only the lack of money but also mismanagement of resources and a reluctance to pay for the service.

Some explanation is needed of the terms “efficiency”, “effectiveness” and “equity”. Financial management should be *efficient* in the same way that the ratio between inputs (revenues) and outputs (expenditures) should be satisfactory. *Effectiveness* measures the contribution of a project towards its objectives and results, and therefore cost-effectiveness measures the costs involved in order to reach a particular objective or result. *Equity* measures how the costs and benefits are distributed among beneficiaries, and how they are sustained over a prolonged period of time.

The present trend to decentralize operational, managerial and financial responsibilities at local level has dramatically increased the need to design and plan for water supply services which the communities can sustain financially. The effectiveness and credibility of both government sector strategies and development cooperation policies can be at stake if this issue is not addressed urgently.

“Water is an economic and social good, and this *service* has to be paid for, since it has costs”. Although this statement is now admitted by many countries, in a number of rural areas water is still considered to be nature’s gift or a free service provided by the government. It is therefore necessary to convince rural populations that a water supply *service* has costs. In addition, certain financial issues have to be addressed early in the project design, such as: Should all costs be covered? Who is financially responsible? How to organize financial arrangements?

In the light of major current trends and past trials, an efficient, effective, equitable and sustainable plan for cost recovery of a community water supply service is based on seven key factors which are mutually dependent:

1. Identifying the cost implications of the project
2. Maximizing the willingness to pay
3. Clarifying the financial responsibilities
4. Optimizing operating and maintenance costs
5. Setting an appropriate and equitable tariff structure
6. Developing an effective financial management system
7. Organizing access to alternative financial sources.

4.1 Identifying the implications of the project and the environment on cost recovery

The way the project has been set up, and its institutional and legal characteristics are elements that can have a direct implication on cost recovery, particularly with regard to the following:

- Technology selection
- Community aspects
- Management options
- Policies at local, regional and national levels
- Support to the community and/or the municipality
- Economic environment.

Technology selection

Appropriate technology selection is a key factor in sustainable cost recovery. The ratio between capital and recurrent costs can be the determining factor, in the way that a technology with higher capital costs could be chosen because of lower O&M costs. There-

fore, when communities select a technology for their water and sanitation service with external support, they must have clear information about the costs and charges. Communities should be aware of the financial implications of choosing a particular technology.

Community aspects

The demand by, and the participation of the community are key elements that influence the community's willingness to assume financial responsibility for the system. However, the issue of paying charges should also be examined. Other matters for consideration include the availability of materials and spare parts within the community; whether skilful artisans work in or close to the community and the price of their interventions; how the community is organized and how responsibilities are distributed between men and women.

Management options

The management system chosen for O&M can directly influence the way cost recovery will be organized. For instance, the water supply system can be managed by a village water committee, an inter-village association, a private person or firm operating under a contractual arrangement, the municipality operating directly or indirectly with its own staff or through community committees, or by a private organization. Each of these will have different interests and capacities, and will determine the rules for managing the finances accordingly.

Policies at local, regional and national levels

In some countries, the national sector's policy is to increase the share of private capital, which requires total recovery of the costs within the framework of the law. Tariffs set at national level can include subsidies for poorer people. In other countries, the government policy is for the community and the municipality to arrange the tariff structures and the level of cost recovery. The municipality, being the level nearest to the community, has the possibility of creating its own regulations and tariffs for public services like water supply and sanitation.

Support to the community or the municipality

In many cases, the communities will need training in book-keeping and financial management, and may have to discuss with the local authorities when major problems arise. They may need support from professionals coming from the private sector.

Economic environment

Some countries are now going through an important economic crisis with inflation, exchange rate fluctuations and other problems, which are likely to have an impact on any kind of cost recovery mechanism.

4.2 Maximizing the willingness to pay (WTP)

Factors influencing WTP

Willingness to pay, as an expression of the community's demand, is a strong prerequisite for the financial sustainability of a water supply system. WTP, which is a useful yardstick for assessing project feasibility, depends on a number of factors which are presented in the Table below.

COMMUNITY FACTORS

Demand and participation of communities

A project which is initiated on a community's request and demand, and in which the community has been involved from the beginning, is less likely to have problems with WTP.

Level of income

Income and WTP are related. However, it can happen that abilities to pay and WTP are not correlated. Indeed, water is such an essential good, that poor communities are sometimes paying a higher price.

Community cohesion

In rural areas in particular, cost recovery may be managed through voluntary contributions to a common fund. Cohesion within the community is essential, but cannot be taken for granted. Lack of trust or conflicts between members may reduce cooperation, irrespective of felt needs, and may also affect collection systems and tariffs.

Sociocultural factors

Sociocultural practices and traditions may influence WTP, particularly in certain locations. For example, where water is considered a sacred 'gift from God', there may be resistance to payment.

Perception of ownership and responsibility

Ownership or a high degree of community involvement in water supply services may facilitate WTP, because to be in control instils pride, encourages responsibility, and may result in increased WTP for the service. Also to be taken into account are a history of government involvement in water service provision and ineffective consultations in the past.

SERVICE FACTORS

Service level and standard

Communities are looking for a service that will respond to their desire for comfort and convenience. There is also evidence to suggest that low-income groups are prepared to pay significant amounts for basic service levels.

Price

The price level is likely to affect consumers' willingness to pay for an improved service, as against continuing with the existing supplies. A balance is required between establishing a price that both covers the costs and relates to what people are prepared to pay.

Relative costs

Consumers may compare the cost of a service to other services, e.g. schooling or power supplies as benchmarks for measuring the relative costs of water supply. If the relative costs are too high for water supply, WTP may be reduced.

Reputation of service agency

The credibility of a service agency will affect WTP. The service agency (public, private, or community institution) must be able to deliver the expected service.

Transparency of financial management

Transparency may be closely linked to the reputation of the service agency or local management organization and is often a matter of trust. Where user contributions are clearly accounted for, consumers will be motivated to continue these payments and WTP will not be affected.

FACTORS LINKED TO THE BENEFITS FROM IMPROVED SERVICE

Perceived benefits

WTP is dependent on the benefits to be gained; the extent to which these are perceived by consumers is important. Agencies and communities may not share the same perception of benefits; variations also exist within communities, often linked to who stands to gain more. An awareness of these subtle differences in consumer preferences is central to developing a sustainable programme.

Relationship to production

Where water use can be linked to productive activities or income-generating activities, e.g. garden irrigation or livestock watering, WTP is likely to be elevated. Again, the improved supply must be able to deliver this advantage to a greater extent than it did before.

Opportunity cost of time

This is the value attached to time, compared to its next best use, e.g. productive activities. The value attached to this time may influence WTP and the extent to which the improved source of supply may save time. The value attached to time may be perceived differently within communities, and within households (i.e. between men and women). The time spent daily and the physical effort in collecting water can influence the WTP.

Characteristics of existing sources

Where users consider their existing sources as acceptable, they are unlikely to be willing to pay for an improved service. Variables including perceived quality, reliability of supply, and distance from home will influence the WTP for an improved supply.

INSTITUTIONAL FACTORS

Policy environment

Policies of providing water in rural areas free of charge, or well below cost, may influence WTP since consumers may equate water services with public assistance. Although these policies are being revised, new policies may not be clearly communicated and applied consistently.

Adapted from P. Evans, *Paying the piper*. The Hague, IRC International Water and Sanitation Centre, 1992 (IRC Occasional Paper No. 18).

As can be seen in the above Table, WTP may have a strong affinity with a range of cultural, social and institutional factors that complicate the efforts to measure it. Decision-making by consumers may not follow rational economic norms and consumers may reveal their own, location-specific preferences in source selection.

Measuring the willingness to pay

Indirect measures

The above-mentioned factors can be assessed by means of socioeconomic surveys or monitored throughout a project. They will provide some trends in the willingness to pay, but are not always totally correlated.

Direct measures

One way to measure the willingness to pay at the start of a project is to assess the direct financial contribution of communities for the construction and investment of a water supply service or sanitation facility. This contribution could diminish over time. However, measuring WTP by the amount of money that people are paying for the construction and investment of a water supply system is not suitable because the community may be willing but unable to pay. Another direct way of measuring WTP is to calculate the percentage of payments received, to the total payments due. The lower the percentage, the lower the WTP. In this case, the results do not give any information about the reasons why people decide to contribute or not (high or low WTP). Direct measures have this problem.

Hypothetical behaviour studies

An alternative approach to estimation of benefits is to ask users what would be their choice of service available at a specified price. This is called the *contingent valuation* (CV) method, since user responses are contingent, or dependent, on predetermined conditions. Traditional water-demand models are used to estimate the benefits via a demand function for the supply from market data, and to derive from it an individual's maximum willingness to pay. Price and demand elasticity ratios can be determined. Lack of available data and non-rational economic behaviours in rural areas are severe constraints to this approach.

The *bidding game* method is a negotiation between the interviewer and respondent, moving within a range of potential prices for a water supply improvement until bidding settles at a final value. The summation of WTP bids for all the households served by a project is an estimate of the total benefits of a project and can be compared with the costs of the project to decide whether the investment is justified. Probability models derived from the bidding game describe the probability that a particular family will use a new water source. This method causes some problems because responses could be influenced in some way by the interviewer. The answers about WTP are always around the first price mentioned or starting point of the survey. The *referendum* method is more suitable because people act as they do in a market place (with a given price, they decide whether to buy or not).

Actual behaviour study

Actual behaviour studies assess the present payment behaviour of consumers, such as cash payment to vendors (which could indicate a good level of WTP), direct cost savings, indirect cost savings (calories, time, money). Time spent for collecting water and the effort and hardship to collect the water are often used as a measure of WTP. One problem is that the actual behaviour assessment requires a long period of study because it is difficult to know what people will do, and it requires considerable expertise.

Optimizing the relationship with users/consumers

Optimizing WTP requires a strong link with users and consumers. The link between users and the water enterprise (or water committee) relies on a proper information flow on both sides. Consumers have the right to know about the quality of service (pressure, quantity, tariffs structures, adjusting tariffs, financial aspects, contracts, etc.); and the enterprise (or water committee) has the obligation to resolve the user's complaints and keep them informed. The following questions are related to optimizing the relationship between users and the water enterprise:

- Does the enterprise have a mechanism to deal with consumer's complaints?
- Does the enterprise give complete information to users about the water service?
- How does the enterprise get to know the users' opinions about the level of service?
- Does the enterprise have indicators to measure the quality of the service provided to users? How are these indicators used?

4.3 Clarifying financial responsibilities

Who is responsible?

There is a tendency today to ask communities to contribute to the initial investment costs, as a way of strengthening their financial responsibility and future willingness to pay. This contribution can represent 5–20% of the total investment costs, which are composed of financial contributions as well as labour and available local materials. Cost-sharing can be arranged between the community and the local/national government agency in order to cover the full cost. This arrangement will have to be formalized in a contract in which all parties have obligations. Financial responsibilities are very often linked with operational responsibilities, as shown in the Table below:¹

O&M OF HANDPUMPS: WHO IS RESPONSIBLE?

(adapted from WASH Report No. 93)

O&M tasks	Operational responsibility	Financial responsibility
Monitor handpump use and encourage proper use	Community	Community
Check all nuts and bolts, and tighten if necessary	Community	Community
Check and adjust pump handle and stuffing box	Community	Community
Grease or oil all hinge pins, bearings, or sliding parts	Community	Community
Clean the pump, well head, concrete apron, and drainage area	Community	Community
Check well head, concrete apron, drainage area, repair cracks	Community	Community
Measure output per stroke and compare with expected output	Community	Community
Disassemble the pump, check drop pipe, cylinder, leathers, and foot valve. Check corrosion and wear. Repair or replace if necessary.	Community and local mechanic	Community
Conduct other well, handpump or apron repairs if necessary	Community and local mechanic	Community
Repaint handpump periodically, as necessary	Community	Community
Conduct water test for microbiological contamination	Government	Government
In case of contamination, locate and correct source of contamination, and disinfect	Mechanic or government agency	Community and government
Conduct water-level check and well-yield test. Adjust cylinder setting if necessary	Government agency	Government

¹ Adapted from: S. Fry. *Helping communities manage their finance—a manual for extension personnel working in rural or peri-urban communities*. Arlington, VA, WASH Project of the U.S. Agency for International Development, 1993 (WASH Technical Report No. 93).

Record all operation and maintenance activities in notebook	Community	Community
Manage a stock of spare parts, tools and supplies on site	Community, local mechanic, private sector and government	
Replace entire handpump when fully worn	Local mechanic, private sector or government agency	Community and government

O&M OF GRAVITY DISTRIBUTION SYSTEM: WHO IS RESPONSIBLE?

(adapted from WASH Report No. 93)

O&M tasks	Operational responsibility	Financial responsibility
Ensure protection of spring	Community	Community
Check spring box for leaks and cracks, and repair if necessary	Community	Community
Check all pipelines and valves for leaks or breaks, and repair	Community and private contractor	Community
Monitor standpost use to encourage proper use	Community	Community
Check all standposts for leaks, wear and tear, and make repairs	Community and private contractor	Community
Flush all pipelines periodically	Community	Community
Clean standpost concrete apron(s) and drainage area(s)	Community	Community
Check standpost concrete and drainage area, and repair if needed	Community	Community
Conduct repairs on spring box, lines, and standpost if necessary	Community and private contractor	Community or government
Conduct water test for microbiological contamination	Government	Government
In case of contamination, locate and correct the problem and disinfect lines	Private contractor or government	Community and government
Measure water output periodically, at spring and standpost, and assess leakage	Community and private contractor/ government	Community and government
In case of high leakage, initiate leak detection and repair	Community and private contractor/ government	Community and government
Record all operations and maintenance activities in log book	Community	Community
Manage a stock of parts, tools, and supplies	Community, local mechanic, private sector and government	
Rehabilitate spring box/pipelines/standposts	Local mechanic, private sector, government	Community and government

O&M OF BOREHOLE, DIESEL PUMP, STORAGE AND STANDPOST SYSTEM: WHO IS RESPONSIBLE?

(adapted from WASH Report No. 93)

O&M tasks	Operational responsibility	Financial responsibility
Operate engine daily, safely and efficiently	Community	Community
Perform regular checks and adjustments (fuel, oil, filters, belts)	Community	Community
Regularly replace engine oil, filters and pump oil if applicable	Community	Community
Perform regular checks and adjustments on alternator, starter, radiator, valves and injectors	Community, private contractor, government agency	Community or government
Periodically conduct complete overhaul of engine, pumps and associated equipment	Community, private contractor, agency	Community or government

Check all pipelines, tanks, valves for leaks/breaks, and repair	Community	Community
Monitor standpost use to encourage proper use	Community	Community
Check all standposts for leaks, wear and tear, and repair if needed	Community	Community
Flush all pipes periodically	Community	Community
Clean standpost concrete aprons and drainage area, and repair	Community	Community
Conduct water test for microbiological contamination; locate and correct source of contamination; disinfect	Government	Government
Measure water output periodically, at well head and standpost. Assess leakage and initiate leak detection, and repair if needed	Community, contractor	Community and government
Conduct well engine/pump rehabilitation	Contractor and government	Community and government
Record all operation and maintenance activities in log book	Community	Community
Manage a stock of fuel and oil, ensuring proper storage and security Maintain special fuel log	Community	Community
Manage stock of parts, tools, and supplies	Community, local mechanic, private sector and government	
Establish historical records of all engines, pumps, etc.	Government	Government
Develop schedules for preventive maintenance and monitoring	Community and government	Community and government
Conduct effective vehicle maintenance	Government	Government

O&M ADMINISTRATIVE & SUPPORT ACTIVITIES FOR MOST WATER SUPPLY SYSTEMS: WHO IS RESPONSIBLE?

(adapted from WASH Report No. 93)

Administrative and support tasks	Operational responsibility	Financial responsibility
Conduct technical and socioeconomic participatory studies	Government and community	Government
Analyse O&M tasks for use in planning and budgeting	Government and community	Government
Prepare annual budgets and long-term financial estimates	Community and government	Community and the government
Select and appoint operators/contractors for O&M	Community and technical adviser	Community
Develop and evaluate technical and management training for water system operators	Government and community	Government
Provide ongoing technical training for operators	Government and community	Government and the community
Delegate task responsibilities, supervise and pay salaries	Community	Community
Keep archives, inventories and log books	Community	Community
Develop and evaluate financial and management training for community managers	Government and community	Government and community
Provide ongoing financial and management training for community managers	Government and Community	Government and community
Collect water fees and manage revenues	Community	Community
Make payments for purchases, loans and other obligations	Community	Community
Respond to users' complaints	Community	Community
Organize and conduct general meetings for discussions, elections, etc.	Community	Community
Develop information and materials on hygiene education	Government and community	Government
Organize community contributions for upgrading or extending the system	Community	Community

Report urgent problems to government agency	Community	Community
Provide technical and management support to community managers	Private sector or government	Private sector or government
Collect, analyse, monitor results, and conduct follow-up support or training if necessary	Community and government	Community and government

4.4 Optimizing operation and maintenance costs

Costs need to be identified, estimated and analysed, and communities should be informed about them in order to be fully aware of the implications in choosing a particular technology.

What are the costs?

Investment costs (Capital)

- Pre-feasibility study, project design, social work
- Equipment, materials, parts and tools
- Construction costs
- Human resource development, training
- Institutional capacity building
- Sometimes capital costs include the metering and connection costs and the return of the investment

Recurrent costs (operation and maintenance)*

- Materials (consumable chemicals, energy, tools, spare parts and equipment)
- Works personnel (operation, maintenance, routine preventive maintenance, routine repairs, unanticipated repairs, construction for minor rehabilitation)
- Management personnel (planning, supervision, financial management, administration, monitoring)
- Follow-up (training support, technical assistance, institutional strengthening, monitoring and evaluation)
- Financial costs (interest, amortization, depreciation, exchange rate variations, inflation)
- Environmental costs (water source protection and conservation, wastewater treatment)
- Other costs (transport, services paid to a private contractor) (unaccounted-for water, both due to leakage in system and bad administration, and vandalism; they become a cost to the community if not prevented)

Future investment costs

- Construction for major rehabilitation, replacement, extension

* Recurrent expenditures comprise *fixed* costs such as annualized financing costs or water source protection fees, and variable recurrent costs according to output and other factors such as physical conditions.

How to estimate O&M costs

There are usually no difficulties in estimating investment costs. However, the case is different for recurrent costs. Using the experience from other similar projects, although useful, can be misleading because the recurrent costs vary widely from one project to another, in terms of what has been included in their calculation. Basic recurrent costs can be measured in the following way:

Basic recurrent costs estimation

1. List all O&M activities needed, and their frequency.
2. According to each activity, list all human resources, materials, spare parts, energy, tools and equipment required.
3. Estimate the quantity or volume needed for each requirement.
4. Define the activity cost.
5. Sum up all costs of all activities.

This basic recurrent costs estimation does not include such elements as depreciation, replacement costs, initial capital reimbursement, training costs, environmental protection costs, etc. Depending on the strategy and policy of the project, these additional costs may have to be added.

Minimizing costs

An important aspect of costs analysis is how to optimize or reduce O&M costs. Costs can be significantly reduced in the following ways:

- choosing a technology with inexpensive spare parts and/or inexpensive operating costs
- reducing the transport costs to go and buy spare parts and chemicals (making spare parts more accessible and available)
- reducing dependence on chemical use (alternative water treatment technology for instance, such as multi-stage filtration system)
- reducing dependence on fuel or electric consumption (solar energy, gravity)
- firmly installing a maintenance culture within the community and professional staff
- organizing preventive maintenance activities where users are also involved
- installing systematic leakage control
- applying economies of scale for larger systems (reduces costs for the consumer)
- applying a control for unaccounted-for water (because of both leakage and bad management)
- installing proper administrative and financial control mechanisms.

Identifying the benefits of water supply projects

Benefits associated with a project intervention refer to a wide range of outcomes like:

1. *Health*: reduction in water-washed diseases, reduction in water-borne diseases, fewer days of work and school lost due to illness, less money spent on medical care.
2. *Social*: may stimulate the community to take up other, unrelated projects in environmental health, time gains, position of women.
3. *Economic and financial*: cash saving (new system replaces water vending and delivers water at the lowest cost), improvements in agriculture, external sources attracted into the village.
4. *Institutional*: institutions will be created or strengthened by reorganization of agency structures.

4.5 Setting an appropriate and equitable tariff structure

Strategies for costs recovery

Optimum allocation of resources

Tariffs are used primarily to recover costs and achieve financial sustainability, but also for efficient allocation of scarce sector resources, equitable income and benefits distribution, and fiscal viability.

Equity

Designing a tariff requires that one keeps in mind equity, affordability and willingness to pay. Equity in the sense that all members of the community, rich/poor, men/women, have equal access to the benefits of the improved water supply service. O&M costs can only be recovered from users if they are both able and willing to pay for a water supply. It is generally admitted that people should not have to pay more than 3–5% of their income for water and sanitation services (affordability criteria). A higher percentage of income expended on water will mean other important needs may not be fully met. Great care is therefore required when setting users' tariffs and contributions.

Regulation of demand

Water tariffs can be designed to regulate the demand for water, based on the assumption

OVERVIEW OF VARIOUS COST ANALYSIS TOOLS AND OF THEIR RELEVANCE TO COMMUNITY-BASED FINANCIAL MANAGEMENT		
Cost analysis tools	Applications in the project cycle	Complexity
<p>Cost recording Registration of expenditures in books. If costs are grouped by category, it is possible to do more accurate analysis.</p>	Monitoring	Simple
<p>Cost comparisons Comparing the costs, e.g. of facilities, life-span of materials, construction, different project alternatives.</p>	Planning—Monitoring—Evaluation	Simple
<p>Cost-benefit analysis Expressed as a ratio of costs versus the outcomes in terms of benefits, quantified in monetary terms. This can be difficult to calculate, especially when trying to quantify benefits such as health improvements.</p>	Planning—Evaluation	Very complex
<p>Cost-effectiveness analysis Expressed as the ratio of the costs (quantified) versus the effects (not necessarily quantified in monetary terms). The definition of effectiveness and effects can be difficult and is often subjective.</p>	Implementation—Monitoring—Evaluation	Complex
<p>Cost utility analysis Expressed as the ratio of costs versus outcomes (not necessarily in monetary terms), while the outcomes are ranked. This is similar to the perceived cost-benefit analysis (ratio) where the group of users, often divided into men and women, rich/poor, or different ethnic groups, identify the level of benefits and costs for themselves from a system or project. From their own perspective, they answer the question: Are the benefits greater than the costs?</p>	Planning—Evaluation	Complex
<p>Least cost analysis Uses estimation methods to measure the costs of an alternative or different possible outcome.</p>	Planning	Complex
<p>Marginal cost analysis Deals with the cost of additional outputs or inputs in a project or programme. Marginal refers to additional to what is already done. A typical question is: Will the additional inputs result in sufficient additional outputs?</p>	Planning	Complex
<p>Sensitivity analysis Deals with estimating the expected outcome of the project according to different scenarios.</p>	Planning	Moderately complex

that consumers have rational behaviour, and that the higher the price, the lower the consumption (called price elasticity). However, this “rational” behaviour is possible when there are substitutes, or alternative goods for water. What is the alternative to water? Certainly not Coca-Cola or beer. Price elasticity is very low in low-income areas, meaning that people will need to acquire water whatever the price. However, in higher income areas, price elasticity can be higher, and consumption patterns can be influenced by price differentiation.

Agreements on costs to be recovered

While setting up a tariff structure, one should specify what costs need to be covered, since some costs might be covered by other financial mechanisms (see below), or determine which other organizations and institutions are responsible. Should wastewater treatment and sanitation be included in the tariff? Should the tariff only cover short-term O&M costs? Should the tariff cover the estimated unaccounted-for water? The answer to these questions will depend on the policies and strategies of the government and the arrangements between the community and the municipality for costs recovery.

Who manages the tariffs?

It is also important to specify to whom the tariff will be paid, as it can be paid to a water committee, an operator, or to the local authority. Or is water vending the most appropriate option to be considered? Water re-vending might double or triple the original price, as happens in some low-income urban areas where there are no other alternatives to safe drinking-water supply than water sold by re-vendors. Setting up a tariff should be done with and by the community, as it will allow the community to bear the full responsibility of applying the decisions made and as it will be better accepted since the community knows why this tariff was fixed as it is. However, project and support staff should assist the community in the calculation of financial feasibility of a tariff design and user charges. It is inevitable that overtime tariff levels and structure have to be revised as a result of demand patterns, changing costs structure, inflation, and the need for increased funds for major expansion. Delays in adjustments can have serious consequences for financial sustainability. It is therefore appropriate to review the tariff levels and structure at least once a year for piped schemes and once every two years for others. However, water rates are often a local political issue, and political considerations may overrule financial balances.

Gender considerations

Gender differences and inequalities affect water resource management:

- access and control over resources (men and women have unequal access and control over water and other resources including land, time and credit);
- household responsibilities (women shoulder more work than men in the home, including managing domestic water supplies);
- productive use of water;
- priorities for development and management of water resources;
- bargaining power and decision-making (including participation in community-based organizations and governing structures).

User classification

User class designations will depend on the complexity of the service provided and on any special administrative or legal requirements. Each utility decides on the number and designation of user classes, but almost every utility will have the following categories: a) residential; b) commercial; c) industrial; d) institutional; e) government; f) wholesale.

Should water be metered or not?

For water metering	Against water metering
Regular income	High installation costs
Equity	Meters need maintenance and repairs
Reduction of water waste	Vandalism
Only one parameter: cost per m ³	Long delays in payment
Technical control of the system	Heavy administrative procedures for billing
Accounting made easier	Needs personnel for meter reading

Options for charges

There are different options for regular charges: non-metered flat rates; non-metered graded rates, block rates, metered rates, and mixed system rates.¹

Non-metered flat rates

In a flat rate system, each user household pays a fixed amount of money, regardless of the volume of water used. In its simplest form, the total amount of money needed for the upkeep of the improved water supply system is divided equally over the number of households using the system. Payment may be per month, per season, or per year, depending on what is most convenient for the users of the service. Flat rates are easy to organize with private taps or group connections. In these cases it is clear who is the user and who is not. Families, who live at a distance or who have their own water source may object having to pay the same amount as those who live close to the tap. Adjustments should be made accordingly. Major disadvantages of non-metered flat rates are: a) they are not equitable in the sense that low-income households pay the same amount as the better-off, whatever the consumption; and b) they do not discourage waste of water. They are, however, easy to administer.

Non-metered graded rates

Users and households are classified into several categories, based on estimated differences in water use and income. The advantage of non-metered graded rates is that they take into account the consumption level and payment capacity of users, and therefore could reach a more equitable tariff structure. It is also a way to account for rough estimations of consumption volume, without investing in a metering system. The introduction of graded rates is easiest when clear and valid indicators of water use and income level can be found (land, herds, size of house). An alternative system to graded rates is to raise a levy on cash crops on top of already existing rates, which will be used for the maintenance of the water supply system. However, disputes may arise over the basis for grading, as some people may feel they have not been favoured.

Block rates

Apart from a basic rate which is fixed with reference to affordability by the poor, other consumers are charged according to the volume consumed, e.g. 0–10 m³; 10–20 m³, etc. It is sometimes argued that the block rates should be declining because of possible economies of scale. It is doubtful, however, that there are such significant economies of scale per consumer basis. Considering the growth in services needed in developing countries, the most appropriate policy is an increasing block structure, with progressively increasing tariffs.

¹ Adapted from: C. van Wijk. *What price water?* The Hague, IRC International Water and Sanitation Centre, 1989 (IRC Occasional Paper Series No. 10).

Metered rates

While graded rates based on social and financial indicators have the advantage that they avoid the introduction of complex metered connections, water meters enable the charges to be made according to the actual volume consumed. If properly enforced, metering induces users to avoid wasting water, which may help reduce long-term costs or unaccounted-for water losses. Individual household meters are not only expensive to install, they also need to be read regularly, which adds to the work of the administration. Staff will have to read the meters, send out bills and accept payments. Metering therefore requires sufficient administrative and management capacities. The added cost of installing and operating meters, as well as billing and collection may outweigh the benefits of the system, notably in rural areas. In practice, often a proxy is used, such as pipe diameter, number of connections, or the container size (where purchased from vendors). A major constraint to user participation in piped systems with metered connections is the high connection fee which water agencies charge to individual households wishing to install a private tap. One way to alleviate this problem is to spread the connection fee over a period of time, which can then be included with the monthly water bill.

Mixed system

Another option to cover the recurrent costs of a community water scheme is to combine paid private connections with free public standposts. When there are enough private connections, it becomes possible for their payments to cover the cost of public taps for the lowest income groups. However, households which can afford to take a house connection may not always do so, when there are enough free standposts. There should be increasing public awareness about this system, with information to promote private tap connections.

Establishing a tariff**Defining the scope of a tariff****Definitions¹**

Operation, maintenance and administration costs = functioning costs (f. c.)

Approximation of replacement and extension costs = 25% of functioning costs

Funds for the recovery of investment costs = RIC

$$\text{Minimum tariff} = \frac{\text{Functioning costs per month}}{\text{Number of households}}$$

When such a tariff is chosen, it is important to consider with the community how to cover the other costs. Various options are possible (see page 212: alternative financing).

$$\text{Real cost tariff} = \frac{\text{Functioning costs} + \text{repl. \& ext. costs}}{\text{Number of households}} = \frac{(1.25 \times \text{f.c.})/\text{month}}{\text{No. of households}}$$

$$\text{Total cost tariff} = \frac{(1.25 \times \text{f.c.}) + \text{recovery of invest. costs}}{\text{Number of households}} = \frac{(1.25 \times \text{f.c.}) + \text{RIC}}{\text{No. of households}}$$

$$\text{Efficient tariff} = \frac{(1.25 \times \text{f.c.}) + \text{RIC} + \text{depreciation (including provision for risks and inflation)}}{\text{Number of households}}$$

¹ Adapted from course material: *Gestión para la sostenibilidad en programas de agua potable y saneamiento* [Management for sustainability of water supply and sanitation programmes]. CINARA and IRC, unpublished material, 1994–97.

Example of tariff setting for a piped scheme in a rural area

The system serves 600 families with an average of 5 persons per family.

Pumped piped system with a simple chlorinator. Treatment costs could be reduced by using a multi-stage filtration technique. It is proposed to recover all costs, and to constitute a fund that will help to cover major repairs or replacements. The system includes:

Equipment	Life cycle (LC)	Yearly O&M costs, as % of the initial investment cost	Initial investment cost in pesos (IV)
Drilled well	20	1%	Already in place
Distribution pipes (PVC)	15	2%	50,000
Reservoir	25	1%	110,000
Supply pipes (PVC)	15	1%	60,000
Distribution network	15	1%	50,000
Chlorinator	10	1%	10,000
Electro-mechanical equipment	15	5%	160,000
Special parts	15	1%	10,000
Total			450,000

Facts:

Engine: 41 HP, functioning 12 hours per day, debit 10 l.p.s.
 Lubricants: 2 litres/month, price \$ 14.00 per litre
 Sodium hypochlorite: 0.5 mg/litre, price \$ 9.00 per kg
 Price of energy
 From 1 to 5000 KW \$ 0.14601/KW
 From 5001 to 15,000 KW \$ 0.17455/KW
 From 15,001 to 35,000 KW \$ 0.19267/KW
 Additional KW \$ 0.21394
 Daily salary of operator: \$ 30.00
 Daily salary of assistant: \$ 22.00
 Daily salary of accountant: \$ 35.00
 1 HP = 0.746 KW

Tariff setting

Cost item	Formula	Calculation	Result in pesos (rounded)
Amortization per month	$\Sigma (IV/LC)/12$	$[50,000/15 + 110,000/25 + 60,000/15 + 50,000/15 + 12,000/10 + 160,000/15]/12$	900
Energy costs per month	$[HP \times 0.746] \times \text{hours per day} \times 30 \text{ days} \times \text{price per KW}$	$41 \times 0.746 \times 12 \times 30$ $(5,000 \times 0.14601) + (6,011 \times 0.17455)$	11,011 1,780
Lubricants costs/month	2 litres/month x price/litre	2 x 14	28
Treatment costs/month	$[\text{Debit} \times 3,600 \text{ s.} \times \text{hours per day} \times 30 \text{ days}] / [0.5 \text{ mg./lit.} \times 1,000,000] \times \text{costs per kg}$	$[10 \times 3,600 \times 12 \times 30] / [0.5 \times 1,000,000] \times 9$	233
Personnel costs/month	Salary/day x 30 days	$(30 + 22 + 35.00) \times 30$	2,610
Maintenance costs	$\Sigma (IV \times \text{maintenance \%}) / 12$	$[50,000 \times 2\% + 110,000 \times 1\% + 60,000 \times 1\% + 50,000 \times 1\% + 10,000 \times 1\% + 160,000 \times 5\%] / 12$	942
Total O&M costs/month	Sum of all above costs (amortization + energy + lubricants + treatment + personnel + maintenance)	$(900 + 1,780 + 28 + 233 + 2,160 + 942)$	6,043
Contingency fund	10% of the monthly O&M costs	$6,043 \times 10\%$	604
Total costs per month	Sum O&M costs + contingency costs	$6,043 + 570$	6,647
Tariff/family/month	Total costs per month/No. families	6,647/600	11.07

In this case, the tariff will be 11.7 pesos (or 12 pesos) per month per capita. It should be noted that these costs are only based on an average month. It can be that for certain months, the costs will be higher than for other months. All unspent funds should be saved for the future. The same methodology can be applied for handpumps, although much more simple. A decision has to be made beforehand on how to recover investment and replacement costs, as well as unforeseen costs. In this case, the decision was made to include amortization and a contingency fund.

Through volumetric and efficiency pricing

A more precise way of signalling the true cost of supply to consumers is pricing based on volumetric use. Marginal cost (MC) or efficiency pricing measures the cost of each additional (marginal) unit of water to a household. It is most clearly seen in volumetric prices measured by household meters. A rational consumer response would be to demand additional water only as long as their demand or willingness to pay exceeded the marginal cost of supply. When the average cost schedule begins to rise over a period of time, each incremental or marginal unit of water supply becomes increasingly more costly to produce. Over the longer term, the marginal cost price will yield more revenue than the average cost price, and indeed is at a maximum where it intersects the demand curve.

4.6 Developing an effective financial management system

Basic aspects of a financial management system

Many communities and, in certain remote areas, also municipalities lack skills in financial management which would allow them to organize, implement and control a cost recovery system in an efficient way. The Tables below summarize the basic aspects of a financial management system which has to be implemented by a Water Committee, and the possible options:

Budgeting

Financial management issues	Possible options
What cost to budget for?	<ul style="list-style-type: none"> ■ Remuneration ■ Tools and spare parts ■ Small repairs only ■ All repairs ■ Extension, rehabilitation ■ Fuel, power supply, etc. ■ Depreciation ■ Etc.
What sources of income to use?	<ul style="list-style-type: none"> ■ Regular user payments (monthly, sale per unit) ■ Village funds ■ Voluntary contributions ■ Credit schemes ■ Government subsidy
How to pay the mechanic or caretaker?	<ul style="list-style-type: none"> ■ Per job ■ Per month (fix + % of sales) ■ Per year after harvest ■ In cash/kind

Organization of financial flows

Financial management issues	Possible options
How to collect the money?	<ul style="list-style-type: none"> ■ Billing ■ Collection at water point ■ Fund-raising when breakdown ■ Taking money from a fund
When to collect the money?	<ul style="list-style-type: none"> ■ Per service provided ■ Monthly ■ After harvest ■ Beginning of financial year
Who collects the money?	<ul style="list-style-type: none"> ■ Caretaker ■ Operator ■ User group ■ Village Water Committee ■ Community leaders

Where to keep the money?	<ul style="list-style-type: none"> ■ In a safe ■ In the village account ■ In a bank account ■ In a development fund
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Financial administration

Financial management issues	Possible options
How to register movements of expenditures and incomes?	<ul style="list-style-type: none"> ■ Log book ■ Daily journal ■ Book-keeping ■ Bank statements
Who administers the funds?	<ul style="list-style-type: none"> ■ Committee Treasurer (man or woman) ■ A village accountant ■ Bank accountant
What are funds used for?	<ul style="list-style-type: none"> ■ Payment of expenditures related to O&M of water point ■ Generating bank interest ■ Use for other development projects
Who orders payments?	<ul style="list-style-type: none"> ■ Operator ■ Treasurer ■ Water Committee ■ Village leaders ■ Assembly of users

Financial control and monitoring

Financial management issues	Possible options
What type of financial control?	<ul style="list-style-type: none"> Receipts from book-keeping Regular meetings of Water Committee Double signature for disbursement of funds Feedback to users Checking with meter reading Checking with bank statements Registered auditors
How to monitor?	<ul style="list-style-type: none"> Use of log book Make a quarterly review and overview of the situation on expenditures, incomes, and % of people who do not pay
What to do with bad payers? <i>This problem is particularly crucial for "influential" members of society and public institutions</i>	<ul style="list-style-type: none"> Analysis of reasons for non-payment Improvement of service Improvement of relationship with the users Campaign on benefits of good payers Rescheduling of debt Sanctions

4.7 Organizing access to alternative financial sources

It is important to plan and decide on financial mechanisms that would cover all costs, if these cannot be covered by user's fees, and especially when there are big repairs or replacements to pay for. Access to alternative sources of financing is therefore important. These sources include having access to credit facilities, establishing a fund, subsidies, and cost-sharing arrangements with the authorities. The following Table gives an overview of different financing mechanisms other than tariffs and rates.

Tapping on finances within communities

Voluntary funds

Found in communities with seasonal income and a tradition for fund-raising to help construction and big repairs. People can contribute according to their ability to pay, but the contributions may not be linked to water use and are difficult to control.

General community revenue

Found in communities with their own sources of income, which pays for construction and extensions. There may be disputes on the priorities in utilizing these resources.

Revolving funds

Starting capital may come from a government donation or by the issue of shares to individual households. On the basis of this capital, loans are given to individual households or groups. Upon repayment, new loans are given to other members or groups.

Private or cooperative funds

Cooperative funds

Water supply is initiated and financed through a production cooperative or village revolving fund, which pays for construction and expansion.

Water vending

Through water kiosks, concession sales, coin-operated taps, water carrying systems or community-based distribution systems. Users buy water from these distribution points. The distributors pay a fee to the main water supplier.

Private sector involvement

The private sector can invest some of its own capital in a water scheme. However, it will look for something in return which can justify its investment, such as future contracts or ownership.

Subsidies from local/national government

Taxation (municipal resources)

Municipalities can collect the necessary funds through local taxes. Payment can be linked to income level, but charges may not reflect the level of water consumption. This option presents limited scope for community involvement in decision-making and financial system management.

Cross-subsidy

One way to make the service equitable and affordable for all is to subsidize the poor by imposing surcharges on high-income consumers. Another example of a cross-subsidy is between sectors within the same community or municipality.

Government subsidies

The central government and local authorities allocate part of their budget to operation and maintenance activities. Subsidies can also be given to reduce the price of spare parts and chemicals, and to make technical personnel available free to communities on request.

Credit—loan mechanisms

Loan through a bank

A bank allocates a loan to a Water Committee. However, most banks have a poor small credit policy for rural communities. Communities cannot always produce the necessary guarantees. The Grameen Bank, in Bangladesh, is proposing a new bank approach to respond to the needs of the rural areas.

Micro-credit schemes

Communities organize, through local associations, micro-credit schemes where individuals and groups can borrow money with a predetermined and agreed rate of interest. These schemes are adapted to community needs and realities, but there is a limit to their lending capacity.

Social and development funds

Many developing countries have created special funds which give access to money for social and development purposes, with an interest rate which can be much lower than that in the financial market. However, access to these funds is open only to local authorities and municipalities, and not necessarily to communities. It is therefore important that communities and municipalities work in partnership. Access to these funds can be eased through the payment of a regular fee, which will provide the possibility of obtaining a loan in case of necessity.

Grants

Donations (twin villages)

Donations can come through individuals (former inhabitants of a village who now live in a city or abroad). In some cases, villages are twinned with other villages and cities in other countries, and grants have been allocated through this mechanism in the past.

Unit 6: Monitoring for effectiveness

1. Outline of session

►► Objectives

- To distinguish between:
 - a) monitoring and evaluation
 - b) monitoring for efficiency and monitoring for effectiveness
- To raise awareness on the principles of participatory monitoring
- To review data collection methods
- To review indicators and practice methodology for defining indicators

►► Methodology

1. Introduction
2. Game on definitions
3. Interactive presentation on monitoring principles and monitoring system
4. Review of data collection methodology
5. Demonstration in plenary of methodology for defining indicators and a monitoring system
6. Group exercises on indicators and monitoring system
7. Conclusion

►► Materials

- ✓ Overhead transparencies
- ✓ Overhead projector, screen or white wall
- ✓ Flip chart and markers
- ✓ Coloured cards (thick paper)
- ✓ Graphic

►► Handouts

- ✓ Exercise sheets
- ✓ Copies of transparencies and background information

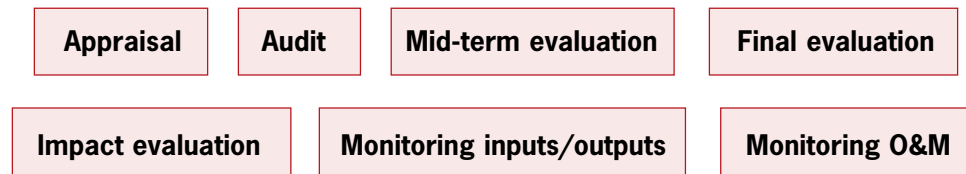
2. Notes for the facilitator

Introduction

Monitoring is a key factor for sustainable operation and maintenance. However, it is seldom practised in an efficient way, if at all. Monitoring is mostly practised during the construction phase in order to control progress and expenditures, and rarely after this phase. This session deals with monitoring operation and maintenance after the construction phase. It could be useful at this stage to ask the participants for their experience in monitoring, and about the problems they faced during monitoring.

Game on definitions

The facilitator recalls the importance of having a clear understanding of the differences between monitoring, evaluation, audit, and appraisal. It is proposed to use the graphic of the project cycle (see page 217). The facilitator prepares, in advance, a graphic of the project cycle on the board without writing down all the various elements linked to monitoring, audit, evaluation and appraisal. He will also prepare the following cards:



The facilitator explains that the object of the game is to place the cards in the appropriate place in the project cycle, and to try to define for each card: 1) What is it? 2) What is it for? 3) How is it done? 4) When is it done?

For this purpose the facilitator prepares a Table with 8 columns and 5 rows on a large sheet, as shown below:

	Appraisal	Audit	Mid-term evaluation	Final evaluation	Impact evaluation	Monitoring input/output	Monitoring O&M
What is it?							
What is it for?							
How is it done?							
When is it done?							

Finally, the facilitator distributes an A4 paper with the main key words which will help the participants to fill in the Table (see exercise sheet on page 218).

The game. The facilitator starts with the first card “appraisal”, and asks someone in the group to come and place it on the graphic, drawing an arrow if necessary (see overhead sheet on page 217). The group then helps the participant in responding to each question, using the key words provided in the A4 paper. If the participants want to add words, they should feel free to do so, as long as they explain to the group why. The other cards are treated and defined in the same way.

Hints. The facilitator ends the game by explaining that this course is concerned with monitoring for O&M, i.e. monitoring for effectiveness, as opposed to monitoring for efficiency which is about monitoring inputs/outputs. Definitions included in the background information (page 228) could help the facilitator when preparing for this session.

Interactive presentation on monitoring principles and monitoring system

It is proposed to start with the key principles of monitoring, as described in the overhead sheet (page 219), and for each point clarify with an example either from the group or from the facilitator.

It is then proposed to have an explanation of information flows as shown in the overhead sheets, showing clearly who profits from the monitoring system, who will take action, and what is the time lapse between an incident and the actual solving of the problem. The facilitator should end the discussion on information flows by asking the participants which information allows for greater effectiveness.

The overhead sheet on “seven steps for planning a monitoring system” (page 223) provides an overview on how to develop a plan for a monitoring system (see page 224). The group will then focus on two main aspects: a) sources of information for collecting data, and especially b) determination of indicators.

Review of data collection methodology

The facilitator distributes copies of “Sources of information” (pages 221, 222) to all the participants, then asks them to pair up and review the document. The aim of the exercise is to highlight the tools and methodology which the participants are familiar with or which need some further clarification. An initial clarification can start with each pair of participants discussing for 15 minutes. They are then asked which tools they know and which ones need some clarification. The clarification can be done by any of the participants as well as by the facilitator. It is essential for the facilitator to have an understanding of the tools presented, even though he or she might not have practised them all.

Demonstration of the determination of indicators

The facilitator starts by considering the definition of an indicator (see page 225), and then proceeds with the methodology, explaining the format:

Theme	Characteristics	Variables	Selection

See background information (page 229) and a demonstration of the use of this methodology (see pages 226, 227).

Group exercises on indicators and monitoring system

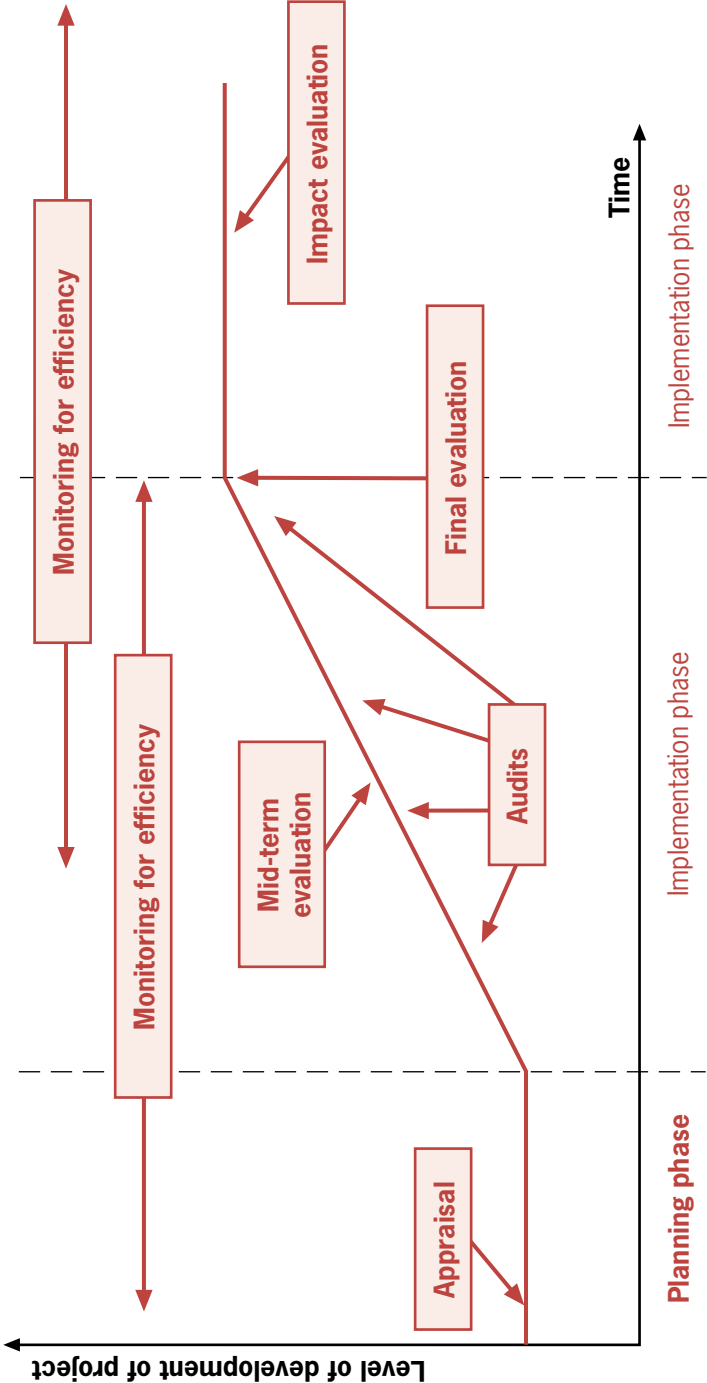
The participants are divided into small groups of four to five and are asked to select one of the key objectives from the objective tree. They will then determine a series of indicators using the above format for selecting indicators and then proceed to setting up a monitoring system (see page 224). Each group can present the result of its work.

Conclusion

At the end of this session the facilitator will hand over a series of indicators, which have been developed in several projects, as references.

3. Overhead and exercise sheets: Sheet 1

Project cycle



Exercise sheet 1

Game on definitions

Select the most appropriate definition for each term to be defined (some definitions can be used twice or redefined if needed), in order to fill in the Table which is proposed in the notes for the facilitator (see page 215).

Issue	Possible definition
What is it?	<ul style="list-style-type: none"> ● Assessment of a situation ● Occasional assessment of the development of a project ● Continuous review of activities ● Occasional analysis and use of resources ● Continuous and systematic review of functioning of system ● Occasional assessment and analysis of the effects of the project ● Occasional assessment of the achievement of objectives
What is it for?	<ul style="list-style-type: none"> ● To take decisions on improvement of project performance ● To revise the objectives of the project ● To control achievement of targets and results ● To control the performance and efficiency of the project ● To control the achievement of objectives ● To control use of resources ● To design future activities ● To prepare a second phase of a project
How is it done?	<ul style="list-style-type: none"> ● Auto-evaluations, internal process ● External process ● Field studies and participatory investigation ● Analysis of project reports ● Inherent management tool ● Participatory process involving communities and other actors ● Check of book-keeping and accounts
When is it done?	<ul style="list-style-type: none"> ● After project implementation (one year or more) ● During the whole implementation of the project, starting at the planning phase ● During the life of the project (after implementation, but it could start earlier) ● Sometime during project implementation ● Before the project starts (planning stage) ● Half-way during implementation ● Some time before finalizing implementation of the project

Overhead sheet 2

Key principles of monitoring¹

- Monitoring should be based and planned on a solid knowledge of objectives and activities
- Information should be used (solve a problem, answer a question, improve the project, adapt activities)
- Monitoring information should be collected and acted upon at the lowest level possible
- Monitoring should be focused and simple (limit number of indicators, length and cost of data collection)
- Monitoring should be based on a careful definition of indicators (they should really be adapted to the project)
- Monitoring should combine qualitative and quantitative information
- Monitoring should ensure checks and balances, (validity and reliability of information)
- Monitoring should become an in-built integrated activity and not a separate activity

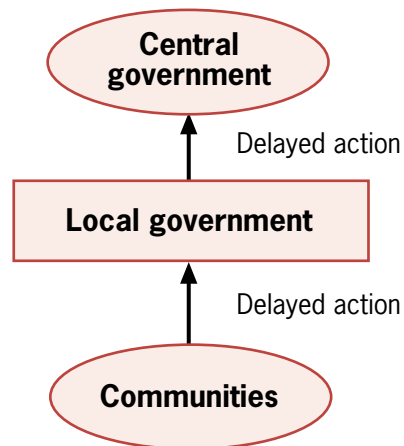
¹ Adapted from unpublished course material: K. Shordt. *Monitoring for effectiveness*. The Hague, IRC, 1997/98.

Overhead sheet 3

Information flow

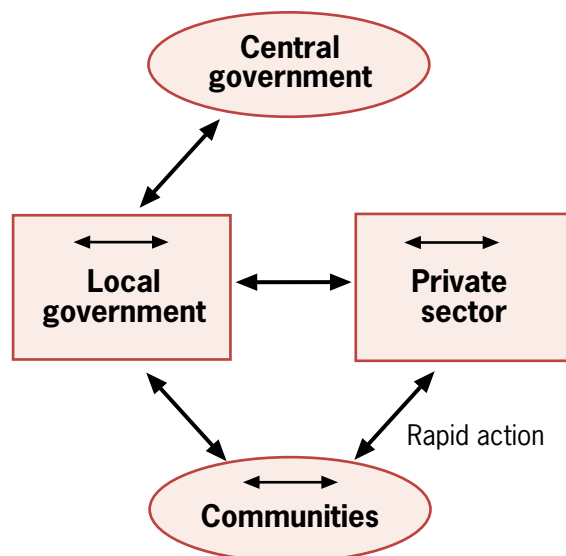
Centralized

Information is collected, and feedback is poor. There can be very long delays in taking appropriate action. Collection is often done by a special team, which can be costly.



Participatory and integrated government

Information flows to the actors who have a direct interest in it, and who can take action. Monitoring is part of regular activities of each group. Costs are reduced, and efficiency increased.



Exercise sheet 2

Sources of information

Sources

Book-keeping records, accounts, audit

Used to monitor purchase, payments, contracts
Data in books need to be compared with vouchers, purchase orders and receipts

Advantages/disadvantages

Advantages: fast and already in use
Disadvantages: limited information, information needs to be processed and aggregated, not always easily available

Log books

Used to keep record of travels
Usually more about total distance than number and type of villages visited

Advantages: already in common use in project activities

Disadvantages: limited information

Check-lists

Used to measure conformity to standard
Needs to be formulated in concrete, unambiguous words; needs pre-testing

Advantages: quick and easy to use

Disadvantages: rough, inflexible, list of items not always appropriate

Community minutes

Used to keep records of community meetings
Needs to be done thoroughly

Advantages: provides information on attendance and periodicity of meetings

Disadvantages: information limited to issues dealt with in the meeting

Monitoring sheets

Used to check issues which change over a period of time
Needs to be made user-friendly

Advantages: shows progress over time, can be used for many purposes

Disadvantages: can be misused or under-analysed

Periodic reports

Used by project staff to report on progress of activities
Data collected according to project format

Advantages: good source of information while the project is on

Disadvantages: information analysed and processed according to project objectives

Direct observation

Used to appreciate general conditions of setting or to appreciate behavioural change
Needs to be structured and organized

Advantages: direct information and good training tool

Disadvantages: results often disregarded, not enough statistical weight

Semi-structured interviews

Used for short interviews
Needs preparation of informal questions beforehand

Advantages: when done in depth, good information

Disadvantages: needs trained interviewer, qualitative information often not used

Sources	Advantages/disadvantages
<p>Focused group discussions Used for discussions in segment groups, or discussions on a specific theme Needs to be prepared beforehand</p>	<p>Advantages: possibility to analyse problems and solutions in depth Disadvantages: needs skills and training to succeed, not always conclusive</p>
<p>Questionnaires, survey Used to collect specific information Needs to be kept short; needs pre-testing</p>	<p>Advantages: specific, precise, cheap and fast way to collect data Disadvantages: often poor quality, to be used with caution</p>
<p>Workshops Used to gather community members or other stakeholders Needs to be well structured and organized; needs facilitation</p>	<p>Advantages: useful to specify or modify information Disadvantages: information might need to be validated</p>
<p>Stratified sampling Using above methods, by level of service, type of facility, socioeconomic level, user/non-user</p>	<p>Advantages: improves quality of data Disadvantages: sometimes inconclusive, results not always used</p>
<p>Ranking; pocket chart voting Used for quantifying preferences Can easily be adapted to local circumstances</p>	<p>Advantages: gives valid data, good educational tool Disadvantages: needs experience on how to use it, needs time</p>
<p>Venn diagram Used to learn about relationships among various groups, institutions</p>	<p>Advantages: Good probe of performance of various partners Disadvantages: subjective</p>
<p>Mapping Useful to correlate variables, and to analyse problems within the community</p>	<p>Advantages: excellent for planning, education and advocacy Disadvantages: complex to analyse if done on a large scale</p>

Overhead sheet 4

Seven steps for planning a monitoring system¹

1. Identify key issues, concerns, questions or demands which will become the focus of monitoring
2. Determine indicators
3. Determine strategies for collecting, analysing and reporting data
4. Determine the use of the information and how action will be taken
5. Determine information flow, checks and verification of information
6. Test monitoring system
7. Provide training or orientation to groups involved

¹ Adapted from unpublished course material: K. Shordt. *Monitoring for effectiveness*. The Hague, IRC, 1997/98.

Overhead sheet 6

Characteristics of an indicator

- Definition of a quality (what?)
- Definition of a measure (how much?)
- Definition of a target group (who?)
- Definition of a time horizon (when?)
- Definition of a place (where?)

Example: All water points will be located within a radius of 200 metres of at least 8 settlements, by December 2000, in the region of Kebri.

In addition, an indicator must be:

- **Relevant**
(the indicator measures what is needed, and it is related to the objectives)
- **Sensitive**
(the indicator responds to variations and changes)
- **Simple**
(the community and other actors are able to understand it; and the data will be easy to act upon; limitation of number of indicators)
- **Feasible**
(easy to collect information; possible to act upon; not costly)

Exercise sheet 3

Determination of indicators (1)

Issue	Characteristics	Variables	Selection
<p>Issue to be monitored</p> <p>What do I want to know?</p> <p>What is the result I am expecting?</p>	<p>List of the major relevant characteristics of the issue to be monitored</p> <p>This corresponds to a description of the issue</p>	<p>For each characteristic, determination of quantifiable variables. In some cases it can be qualitative variables</p>	<p>Selection of variables, according to the following set of criteria:</p> <ul style="list-style-type: none"> ● relevance ● sensitivity ● simplicity ● feasibility

Once the indicators are selected, understood and accepted by the various stakeholders, they need to be quantified and tested.

Determination of indicators (2): an example from a small piped system

Issue	Characteristics	Variables	Selection
Community management improved	Efficient service	<ul style="list-style-type: none"> — No. of hours of functioning/day — % of public taps functioning — Delay between damage and repair — Billed water/Produced water 	<ul style="list-style-type: none"> ● No. of hours of functioning per day ● Frequency of meetings and attendance (men/women) ● Composition of Committee (men/women) ● % of users not paying
	Community organization active	<ul style="list-style-type: none"> — Frequency of meetings — No. of participants/total population 	
	Costs recovered	<ul style="list-style-type: none"> — Expenditures/Income — % of users not paying — Costs per month/monthly tariff — Periodicity of payments — Balance in bank account 	
	Participation of community	<ul style="list-style-type: none"> — No. of decisions taken in General Assembly — No. of women with responsibilities/ — No. of posts with responsibilities — Rotation of leadership — Presence of community in meetings 	
Technical and managerial capacity	<ul style="list-style-type: none"> — No. of training workshops/year — No. and type of participants in the workshops — Level of knowledge 		

4. Background information

4.1 Monitoring in perspective¹

Until recently, monitoring and evaluation were focused on finance, implementation and construction targets and were viewed as the routine collection of data in project operations. In general, evaluation assesses the development of a project for the purpose of making decisions on funding and drawing useful lessons. In 1983, the World Health Organization developed the Minimum Evaluation Procedure (MEP) which focused on the functioning and utilization of water and sanitation facilities and on hygiene education. The MEP emphasizes cheap, simple and quick methods. It developed 17 measurable indicators and added a new dimension to monitoring and evaluation by focusing on the project's functioning and utilization of outputs. Gradually, issues such as relevance, efficiency, effectiveness and sustainability were added.

Since then, there have been several significant developments in monitoring and evaluation, e.g. more groups and actors are concerned with monitoring activities; there is an interest in monitoring behavioural change; the process of monitoring has changed from a central "monolithic" type to participatory monitoring; monitoring should become integrated in regular activities; and there is an emphasis on the timely use of the results of monitoring.

4.2 Definitions

►► Appraisal

What is it?	Assessment of a situation
What is it for?	Design or implementation of future activities
How is it done?	Field studies; participatory appraisals
When is it done?	Planning phase of a project

►► Audit

What is it?	Occasional analysis of use of resources (inputs)
What is it for?	Control of use of resources and achievement of results
How is it done?	Check of expenditures and income, using accounts/books
When is it done?	End of fiscal year or end of project phase

►► Monitoring

What is it?	Continuous and systematic review of activities, processes, use of inputs, and realization of outputs
What is it for?	Control of achievement of targets and results fixed by a plan (performance, efficiency) and decisions about activities Control of achievement of objectives (effectiveness)
How is it done?	Integrated and inherent management tool, through determination of indicators, collection/analysis of data Monitoring efficiency: through project activity reports Monitoring effectiveness: participatory process
When is it done?	Monitoring efficiency: during project planning and project implementation Monitoring effectiveness: at end of project implementation and during project life

¹ Adapted from: IRC unpublished course material, *Monitoring for effectiveness*. The Hague, IRC, 1997/98.

► Evaluation

What is it?	Occasional assessment of the development of a project
What is it for?	To take decisions on improvement of project performance, or modifications of project activities and objectives, or continuation or end of project
How is it done?	Auto-evaluations, external evaluations, participatory evaluations
When is it done?	Mid-term evaluations, final evaluations, impact evaluations (after project implementation)

4.3 Indicators

An indicator is a variable which can be measured (quantity) or appreciated (quality or trend), and which can show changes in a given phenomenon and the achievement of a result or an objective.

An indicator has several characteristics including:

- Definition of a quality (what?)
- Definition of a measure (how much?)
- Definition of a target group (who?)
- Definition of a time horizon (when?)
- Definition of a place (where?)

Example: All water points will be located within a radius of 200 metres of at least 8 settlements, by December 2000, in the region of Kebri.

In addition, an indicator must be:

- **Relevant** (it measures what is needed, and is related to the objectives)
- **Sensitive** (it responds to variations and changes)
- **Simple** (the community and other actors can understand it; the data will be easy to act upon; there is a limit to the number of indicators)
- **Feasible** (information can be collected easily, not costly).

These last four specific characteristics can serve as selection criteria for the determination of indicators.

There are several ways to determine indicators. In many cases, indicators are selected from a document and applied to a project without knowing if they correspond exactly to what is needed and if they are appropriate.

It is possible to determine indicators which correspond exactly to what the project or the community wants to measure. The following steps are recommended:

Step 1: Clarification of the issue to be monitored

The issue to be monitored normally corresponds to one of the results or objectives which the project is trying to reach. It has to respond to a question: What do I want to know?

Step 2: Description of characteristics

An inventory is made of the major relevant characteristics which correspond to the issue to be monitored. In some ways, it is the same as describing the issue.

Step 3: Identification of variables

For each characteristic, one will try to identify quantifiable variables (time, percentage, ratio, price). It can be that the variable is more of a qualitative nature.

Step 4: Selection of indicators

Variables are then analysed through a selection process, with the following criteria (as seen above): relevance, sensitivity, simplicity, feasibility.

The determination of indicators can be carried out with the community, or with other stakeholders who have a direct interest in monitoring. The indicators are then formulated and tested. The test could reveal that the indicator is too difficult to measure, or that it does not have much relevance.

At community level, very simple and basic indicators can be formulated, which concern the functioning and use of the system, as well as its management. The community has a direct interest in monitoring, since it is the community that has to act and will benefit from an efficient system.

4.4 Examples of indicators

Example from the MEP (Minimum Evaluation Procedure) of WHO

1. *Measuring functioning of systems*

Indicators for water supply:

- Water quantity (litres/person/day)
- Water quality (*E.coli*, concentration of fluorides and other chemicals)
- Reliability (frequency and duration of breakdowns)
- Convenience (distance)

Indicators for sanitation:

- Proportion of households having an improved latrine
- Hygienic state of latrines (% of clean latrines/number visited)
- Reliability of installations (qualitative: % in good state/number visited)

Indicators for hygiene:

- Understanding the language of the messages (% of people speaking the language)
- Understanding the content of the messages (proportions of those with good, medium, low understanding)
- Access to the messages (number of people reached by TV or radio, etc.)

2. *Measuring use of systems*

Indicators for water supply:

- Proportion of households using the system
- Volume of water used, by destination

Indicators for sanitation:

- Proportion of users using the improved latrines

Indicators for hygiene:

- Behaviour in terms of water storage
- Cleaning of hands after defecation
- Knowledge of oral rehydration

Example from: D. Narayan. *Participatory evaluation: tools for managing change*. Washington, DC, World Bank, 1993 (World Bank Technical Paper No. 207)

1. *Sustainability*

Reliability of the system:

- Quality of water at source
- Number of facilities in working order
- Adequate maintenance (low frequency of breakdowns, quick repairs, low downtime of facilities)

Human capacity development:

- Management abilities (who decides? men/women)
- Knowledge and skills (understanding by men/women for improvement of the system; proportion of technical skills available)
- Confidence (rating scales on self-perception, leadership, initiative and sense of efficacy)

Local institutional capacity:

- Autonomy (who defines the rules? who controls the finances?)
- Supportive leadership (style of management, working methodology)
- Systems for learning and problem-solving (systems in place to resolve conflict, and corrective actions)

Cost-sharing and unit costs:

- Community contribution
- Agency contribution
- Unit costs

Collaboration among organizations:

- Planning (collaboration, participatory planning)
- Activities (collaboration)

2. *Effective use*

Optimal use:

- Number and characteristics of users
- Quantity of water used (all purposes)
- Time taken to use facilities
- Management of water resources (protection)

Hygienic use:

- Water quality at home
- Water transport and storage practices
- Home practices to improve water quality
- Site and home cleanliness
- Personal hygiene practices

Consistent use:

- Pattern of daily use
- Pattern of seasonal use

3. *Replicability*

Community's ability to expand the services:

- Additional water or latrine facilities built
- Number of upgraded facilities
- New development activities initiated

Transferability of agency strategies:

- Proportion and role of specialized personnel
- Established institutional framework
- Budget size and sheltering
- Documented administrative or implementation procedures
- Other special conditions

Example from: A. Cotton. *Tools for the assessment of operation and maintenance status of water supplies*. WHO and O&M Working Group of the Water Supply and Sanitation Collaborative Council (in preparation)

— Management system:	System in existence and being followed
— Functioning supply points:	$\frac{\text{Number in working order}}{\text{Total number}} \times 100$
— Reliability	$\frac{\text{Functioning time}}{\text{Total elapsed time}} \times 100$
— Spare parts accessibility:	Mean time for arrival of identified spares/materials
— Cost:	Average O&M cost per user
— Operating revenue:	$\frac{\text{Operating revenue}}{\text{Population served}} \times 100$
— Cost recovery:	$\frac{\text{Receipts + subsidies}}{\text{Average O\&M costs}} \times 100$
— VLOM personnel:	$\frac{\text{No. of systems with functioning committees}}{\text{Total number of systems}}$
— Supply continuity:	$\frac{\text{Average number of hours of daily supply}}{24}$
— Flow rating:	$\frac{\text{Present discharge}}{\text{Discharge at handing over of scheme}}$
— Pressure rating:	$\frac{\text{Present pressure}}{\text{Discharge at handing over of scheme}}$
— Water quality:	% samples > target number of <i>E. coli</i> per 100 ml
— Training (VLOM):	No. of VLOM (village-level O&M) personnel (men and women) trained per community
— Materials and spare parts:	No. of repairs not done due to lack of spare parts No. of orders of materials not fulfilled No. of items out of stock No. of spare part requisitions per water supply/year

Example from: *Technology transfer in water supply and sanitation—A learning experience from Colombia*. The Hague, IRC/CINARA, 1997 (Technical Paper 32-E).

Indicators for the evaluation of water supply systems

Theme	Indicator	Desired level
1. Coverage	$\frac{\text{No. of connected households}}{\text{Total no. of households}}$	100%
2. Available quantity	$\frac{\text{Max. flow in the system}}{\text{Min. flow in the source}}$	<50%
2.1 Production	$\frac{\text{Actual flow in the system}}{\text{Design flow}}$	<100%
2.2 Quantity of use	$\frac{\text{Supply quantity per user}}{\text{Design capacity per user}}$	<100%
3. Continuity	Number of supply hours per day	24 hours
3.1 Continuity in the source	Reduction over time	No reduction
4. Quality	Turbidity Residual chlorine in distribution net	<5 NTU 0.3–0.6 mg/l
5. Use of other water sources	$\frac{\text{No. of persons using other sources}}{\text{No. of persons interviewed}}$	0%
5.1 Efficient water use	$\frac{\text{No. of houses with leaking taps}}{\text{No. of houses visited}}$	0%
6. Management capacity	$\frac{\text{No. of indebted users}}{\text{Total no. of users}}$	<5%
	Supervision of the operator	Yes
6.1 O&M capacity	Trained operator with work tools	Yes
6.2 Representation of women	$\frac{\text{No. of trained women in the committee}}{\text{No. of trained committee members}}$	50%
7. Cost	$\frac{\text{Monthly revenue}}{\text{Monthly expenditures}}$	>1
7.1 Tariffs	$\frac{\text{Monthly tariff}}{\text{Monthly family income}}$	<3%

Unit 7: Working and planning with communities

1. Outline of session

► Objectives

- To review the tools and processes for working with communities
- To identify the most appropriate tools for different phases of the project cycle

► Methodology

1. Introductory note
2. Focused discussion and interactive presentation
3. Review of tools
4. Exercise linking tools with the project cycle

► Materials

- ✓ Overhead transparencies
- ✓ Overhead projector, screen or white wall
- ✓ Flip chart and markers

► Handouts

- ✓ Copies of transparencies and background information
- ✓ Exercise sheet

2. Notes for the facilitator

Introduction

Community participation and community management are increasingly being accepted in developing countries, but there is very often a lack of expertise on how to apply and implement them. This session reviews the basic approach and attitudes for promoting and developing community management, based on lessons summarized by IRC after a four-year investigation on the role of communities in six countries in the management of their water supply systems. The session also gives an overview of the various tools for working and planning with communities. To describe the tools in detail and to practise using them would require another 1–2 weeks. Finally, the participants will select the tools and processes which are most appropriate to different phases of the project cycle.

Focused discussion and interactive presentation

The facilitator asks the group about their experiences in working and planning with communities, and then gives some good and not so successful examples. Overhead sheets, together with background information on processes and approaches, are provided.

Review of tools

An overview of the tools is given in the overhead sheets (pages 240–242), which can be distributed to the group. The participants, in pairs, will review all the tools for about 15 minutes, identifying those which they know from the others. Each pair will then briefly describe their experiences and indicate the tools they know nothing about.

The facilitator should be acquainted with all the tools described below. If possible, a social worker could be invited to describe his or her work in applying these tools, and the participants could comment on the tools which they have used. The facilitator could test selected tools in the class. Common tools for such tests are Social mapping, Venn diagram, Pocket chart (see overhead sheets and background information).

Exercise linking tools with the project cycle

The participants, working in pairs, will be asked to propose which tool is suitable for what type of situation in the project cycle. In the meantime, the facilitator prepares on the board a graphic describing the project cycle. After the pairs have finished their preparation (15 minutes), they will be asked to indicate where each tool is to be placed in the project cycle and for what it can be used best (see background information).

3. Overhead sheets: Sheet 1

Limiting factors for the participation of the community

- Poor credibility
- Lack of self-confidence
- Resistance to change
- Fear of the financial consequences which a new project would bring
- Pessimism as a result of having had to accept the present situation for so long
- Lack of experience in dealing with institutions
- Poor knowledge of problem-solving and planning methodologies
- Nervousness to speak in public
- Fear of intervening in the presence of an outsider

Overhead sheet 2

Limiting factors for the participation of local authorities

- Not knowing how to integrate the social aspects with the technical aspects
- Lack of communication channels between the municipality and the community
- Poor perception of community problems
- No priority for rural communities
- Lack of knowledge on participatory planning
- Insufficient staff trained for rural water supply and sanitation
- Infrequent visits to the community
- Dominating attitude

Overhead sheet 3

How to stimulate community management

- **Involvement of communities in the project cycle**

Involve the users from the very start of the project cycle:

Users in the driving seat—Awareness—Diagnosis—Planning—Prioritizing—Experimentation—Monitoring repeatedly (providing training where needed)—Follow-up

- **Approach**

Responding to demand

Partnership between the authorities and the community

Changing from implementer to facilitator

Coordinated, multisectoral, integrated approach

Decentralization: going closer to the customer

Making use of local knowledge and management skills

Speaking the language and knowing the culture

Working with a participatory approach

- **Attitudes**

Build trust

Patience (give enough time)

Listen and observe

Promote dialogue among all actors

Be aware of gender issues

Provide feedback

Be able to work with participatory techniques

Overhead sheet 4

Seven steps to community planning¹

1. Problem identification
2. Problem analysis
3. Planning for solutions
4. Selecting options
5. Planning for activities
6. Planning for monitoring and evaluation
7. Participatory evaluation

¹ From: *PHAST step-by-step guide: A participatory approach for the control of diarrhoeal disease*. PHAST (Participatory Hygiene and Sanitation Transformation), SIDA, UNDP-World Bank, WHO, Geneva, 1998.

Overhead sheet 5

Overview of tools for planning and working with the community

Working and planning tools	Brief description	Advantages/disadvantages
PRA (Participatory Rural Appraisal)	Process used in development programmes to help rural communities to organize their knowledge, identify and prioritize local development needs, and develop long-term action plans; consists in preliminary visits, participatory data collection exercises, participatory analysis and planning	Advantages: full participation of communities right from the start; plans reflect a field reality; establishment of good working relationships and communication lines between authorities and the community Disadvantages: one has to be familiar with participatory techniques; takes time
Mind mapping	Thought processes are brought together in a spontaneous, associative way, resulting in a “map” of landmarks which are classified and organized into a branching arrangement	Advantages: open, expandable; good for vision development, very versatile Disadvantages: global overview, emphasizes linear relationships
SWOT (Successes Weaknesses Opportunities Threats)	Simple, flexible, versatile working tool for situation analysis in groups; it records the positive and negative experiences of participants, as well as their assessment of obstacles and potentials in a given situation	Advantages: easy, can be understood in an intercultural setting; no special materials needed Disadvantages: does not offer concrete solutions, only possibilities
Brainstorming	Group puts forward as many suggestions as possible about a set theme; the ideas are sorted, analysed, evaluated, and classified under “Immediately feasible” or “Needs further development”	Advantages: easy, quick; stimulates intuitive and spontaneous thinking Disadvantages: few suggestions are actually used; effort needed is often underestimated
Scenario-writing	Design of alternative views for the future, labelled as “probable”, “optimistic” and “pessimistic” options; start with a situation analysis, then prognosis analysis and the programme phase	Advantages: suitable for complex, long-term problems; widens the planning horizons Disadvantages: time-intensive; needs good information base

Working and planning tools	Brief description	Advantages/disadvantages
OOPP (Objective Oriented Project Planning)	Systematic planning method based on teamwork and visualization, and logical analysis; it includes an analysis of participation, problems analysis, objective analysis, choice of alternatives, and a project planning matrix	Advantages: promotes mutual understanding of problems; clarifies cause-and-effect relationships; enables participation of professionals together with beneficiaries; only parts of it can be used, such as problem analysis Disadvantages: Reality only accessible through rational thinking; requires a good facilitator
Morphological box	Systematic search for alternative solutions. Possible solutions are broken down into elements and the most important characteristic of each element is identified. All these are arranged in a "morphological" box. Combinations of various elements are made by drawing lines to link them	Advantages: suitable for clearly defined problems where combinations and variations are important Disadvantages: less suitable for problems which require a high degree of analysis
Utility value analysis	The situation is presented with various alternatives. Criteria are developed for the acceptance of the project. Each criterion is weighted (W), e.g. 1 to 10, with an alternative for each criterion (A). The utility value will be $W \times A$. A final comparative evaluation is carried out for decision-making	Advantages: qualitative and quantitative assessment of a situation, versatile in its application Disadvantages: assessment and weighting figures should be documented; can be difficult for communities to understand
Task chart	Used for organizing work procedures, including the staff's functions	Advantages: organizational chart, good basis for job description Disadvantages: only operational plan, depends on previous analysis
Bar chart (Gantt chart)	Used for the chronological planning of tasks, with individual working steps listed on an activity axis	Advantages: graphic and simple Disadvantages: relies on previous analysis, interconnections difficult
Flow chart	Description of sequence of activities and a structured process in the form of an algorithm	Advantages: simple and easy, suitable for routine planning Disadvantages: relies on previous analysis, suitable for a single process

Working and planning tools	Brief description	Advantages/disadvantages
Action research	The above tools can be used, including a review of experiences in the field in a participatory way and over a period of time	Advantages: close to reality, integrates social change dimension, learning by experience Disadvantages: time-consuming, needs acceptance of participatory results
Mapping of community	Drawing of a simple map of the community, developed by both women's and men's groups, showing boundaries, water sources, housing infrastructure, roads, etc.	Advantages: provides a vision of the community by the community, and updates information Disadvantages: more an information collection tool than a planning tool
Village history	This results from discussions with the communities and shows, on a time line, the local, national and international events which are important for the community	Advantages: provides information about the community's past experience and problems Disadvantages: needs several sources of information for validity
Transect walk	This results from a walk with community members and describes the natural environment and areas of use, with particular problems or possible opportunities	Advantages: direct information on surroundings observed and shared with community members Disadvantages: requires subsequent further analysis
Trend lines	Provides a brief summary of trends on specific issues (health, water availability, etc.), as a result of small group discussions	Advantages: graphic, visual Disadvantages: provides only very general, global information
Problem ranking	Shows key problems identified by the community, with the order of priority for having them solved	Advantages: participatory analysis of values and priorities Disadvantages: does not analyse the causes
Venn diagram	Represents groups or institutions in the form of circles (the bigger the circle, the bigger the role). The positions of the circles relative to one another show the type of relationship between the groups and the institutions	Advantages: good visualization and understanding of how groups relate to one another Disadvantages: subjective and provides only limited information
Pocket chart (voting)	Voting on drawings representing specific situations or alternatives	Advantages: democratic, expresses desires Disadvantages: requires materials and experience

4. Background information

4.1 In general

Working and planning with communities

One of the first tasks for a manager or a managerial group with community responsibilities is to understand and assess the present situation. This can be done in different ways, e.g. by reading reports and studies on particular projects, holding a series of professional staff meetings to get the staff's perceptions, and making field visits to see the situation.

Experience has shown that a good plan is based on a participatory assessment or evaluation of the situation, which reflects the realities in the field and can be a way of involving communities, right from the start, in their future responsibilities. People do not always have the same perceptions and views, because they may belong to different cultures or have different priorities in their working or living environments. Participatory planning is based on a common understanding of the problem, and is simple, democratic and motivating. It allows professionals at different levels, from different departments or sectors, as well as community members and users to reach a common consensus on a situation.

Several working tools can be used for this participatory approach. The overhead sheets provide an overview of some of these tools, and additional information can be found in the supporting documents. However, a methodology is proposed below, based on four years' experience with communities in six countries on their role in the management of water supply services.

4.2 The Participatory Action Development (PAD) approach¹

Participatory Action Development (PAD) is a methodology for improving community management of rural water supplies, in which all the actors involved contribute both to the creative thinking that goes into the undertaking, and to the action that is the subject of the development work. PAD aims to learn from the past and to find solutions to concrete problems and conflicts in the management of rural water supplies by communities. At the same time, PAD can help organizations to discover how they can best support communities in their efforts to improve the management of rural water supplies.

The methodology also aims to respond to the urgent need of communities to improve their skills for managing public services, thus operationalizing what is known as the 'demand responsive approach'. The key characteristics of this approach, developed during the Community Water Supply and Sanitation Conference in May 1998 (organized by the World Bank/UNDP–World Bank Water and Sanitation Program), are presented in the box below.

Key characteristics of the demand-responsive approach

- (a) Community members can make informed choices about: whether to participate in the project; technological and service level options based on their willingness to pay and on the principle that more expensive systems cost more; when and how their services are delivered; how funds are managed and accounted for; and how their services are operated and maintained.
- (b) The government plays a facilitating role, sets clear national policies and strategies, encourages broad stakeholder consultations, and facilitates capacity-building and learning.
- (c) An enabling environment is created for the participation of a wide range of providers of goods, services and technical assistance to communities, including the private sector and NGOs.
- (d) An adequate flow of information is provided to the community, and procedures are adopted that will facilitate collective decisions within the community and between the community and other actors (social intermediation).

Source: Community Water Supply and Sanitation Conference, World Bank/UNDP–World Bank Water and Sanitation Program, Washington DC, USA, May 1998.

¹ Extracts from: M. Lammerink et al. *Facilitating community discovery: getting to know about community management*. The Hague, IRC, 1998 (Community Managers for Tomorrow Series, No. 4).

PAD enables communities, together with the staff of the support organization, to participate throughout the development process, starting from the initial design of an intervention, through data gathering and analysis, to the presentation of the final results and discussion of the implications of their actions. Communities are actively engaged in the quest for information and ideas to guide their future actions.

It is not always possible or necessary to work closely with an entire community. A small group can be formed to work as direct partners with the staff in the support organization, and to provide feedback to the whole community when required. Members of the small group are both community members and local development workers, so that dialogue between the professionals in the support organization and the people at the grassroots level is a key feature of the process. PAD is a learning process for community members and the staff in the support organization, enabling both sides to learn from their experiences in a socially desirable action.

PAD offers an effective and powerful strategy for carrying out the type of interdisciplinary work that is needed to assist communities to take the lead in their own development. It is a real demand-responsive approach, resulting in improved community management of rural water supplies. It also allows for a better understanding of the strengths and weaknesses of community management, because through the methods and tools used, it takes a holistic view of management practices and problems. PAD can be rapidly adjusted to local conditions in different countries. In particular, by providing feedback to the community it can stay close to reality.

The PAD methodology places strong emphasis on methods for assessment of participatory and gender-sensitive appraisal and needs. It uses both qualitative and quantitative methods for collecting data on system performance and service, such as distribution, breakdown rates, costing, demographics, local organization, and the socioeconomic characteristics of served and unserved households. In doing so, PAD builds on earlier appraisal methodologies such as Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA).

PAD involves three major phases:

- *Diagnosing*: the staff prepare for the job, communities are selected, and problems and problem-solving strategies are identified.
- *Experimenting*: problem-solving strategies, methods and tools are tested and evaluated.
- *Sustaining the process*: the findings are shared and disseminated, and the work that needs to be done to sustain the development process is planned and coordinated.

4.3 Diagnosis¹

Getting prepared for PAD

The support organization must first prepare itself for the application of PAD. To identify what needs to be done to get prepared, the support organization must ask a number of questions, such as: Does PAD fit within the mandate of our organization? Is our organization sufficiently flexible to cope with support requirements which may vary in terms of the time required, the necessary resources and the intensity of support? Can we put together a multidisciplinary and gender-balanced support team which will allow us to address social as well as technical issues, and men as well as women? Do the staff have previous experience with PAD? Are they capable of facilitating development processes rather than merely implementing water and sanitation projects? Do the team members trust each other sufficiently to be able to collaborate and learn from each other? What

¹ Extracts from: M. Lammerink et al. *Facilitating community discovery*, op. cit.

do we know about community management experiences elsewhere in the country? The composition and the experiences of staff within the organization will determine the extent to which efforts are to be undertaken in order to 'get prepared' for PAD. In choosing to apply a PAD approach, the organization will move away from merely implementing water supply and sanitation projects, to facilitating development processes.

Training the support team

Planning and training workshops should be part of the preparatory phase. During such workshops the project team of the support organization can exchange the preliminary findings from the country assessment, agree on an analytical framework, develop a common support approach, develop a methodology and criteria for the selection of project communities, and identify appropriate participatory and gender-specific methods and tools for carrying out the performance and situation assessments with community members. Learning to work with such participatory methods and tools for community diagnosis, and to creatively use a basket of tools should also be part of these workshops. Implementation plans, including indications of how gender aspects will be addressed, can be prepared and the team can draft material to brief the support organization on the approach and its implications.

The planning and training workshops can be facilitated by staff from organizations with experience with the PAD approach who can offer training activities and facilities. Such organizations exist in at least six countries in Asia, Latin America and Africa, and they are growing in number.

Selecting the communities

Part of the task of the planning and training workshop is to develop a methodology and a set of criteria for the selection of communities to work with. First, it must be decided whether to select only the communities that requested support, or also include those with whom the support organization finds it important to work. It is certainly preferable to work with communities who have asked for support, but some more remote communities may be unaware that they too could apply. Support organizations may therefore have to take the initiative in approaching the latter.

Some of the criteria for selecting communities with whom to apply the PAD approach may be similar to those used for general community selection. These criteria include: whether the people have expressed a need for improvement, the accessibility of the community, the people's willingness to invest time and effort in a project applying the PAD approach, the level of equity and equality within the community, and the outcomes of previous management efforts in that community. In accordance with their own development philosophy, support organizations may also include criteria such as geographical location, socioeconomic conditions, presence of underprivileged groups within the community, and political stability.

4.4 The process of community diagnosis

The question of whether a community diagnosis is to be carried out in a participatory way can be looked at from two perspectives: pragmatic and ethical. Pragmatic considerations include how much time is available for the diagnosis, the skills of the staff, how many communities are to be included, as well as the type of information and how detailed and reliable that information needs to be. Ethical considerations include whether the community members want a diagnosis; if so, who will decide which areas should be explored, who will make the observations, who will conduct interviews and with whom, and who will determine how the information will be used?

Community diagnosis seeks to gather information which will be used as the basis for planning and implementing development activities, and to prepare the people for action. The assessment will include issues such as the roles of men and women in local management, the effects of gender on the efficiency and use of water supplies, environmental concerns such as water source protection and watershed management, and issues of cost recovery and community-based financial management. The outcome of a community diagnosis gives some insight into problems with a negative effect on the management of the water supply system, provides local knowledge and resources available to improve the existing situation, and indicates strategies to resolve these problems. Community diagnosis has a number of distinguishing elements:

- building and maintaining rapport;
- establishing a local PAD team;
- collecting general and factual information;
- determining the range of topics of interest for further exploration;
- screening indigenous knowledge and existing management practices for possible application in water supply management;
- collecting detailed information on identified topics: problems, potentials and available resources;
- prioritizing problems, identifying the root causes of problems, and establishing selection criteria;
- identifying and selecting potential solutions and possible problem-solving strategies;
- providing feedback to the community.

Although community diagnosis is often seen as a step in development, with a clear beginning and an end, experience has shown that it is a continuous, repeated process since newly revealed facts trigger new questions that require investigation. Once action to improve a problem situation has begun, the community will probably run into unexplored areas that require further investigation.

4.5 Tools—Fact sheets

Participatory Rural Appraisal (PRA)—Mind mapping—Successes—Weaknesses—Opportunities—Threats (SWOT)—Creativity workshop—Scenario writing—Morphological box—Utility value analysis—Task chart—Bar chart (Gantt chart)—Flow charts—Historical line—Mapping—Venn Diagram—Community walk—Pocket chart—Priority ranking. Fact sheets on these tools appear in the following pages (247–263).

FACT SHEET

Participatory Rural Appraisal (PRA)¹**Application possibilities in the planning cycle**

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●	●●●	●●	—	—	●	●●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Similar/related approaches

Rapid Rural Appraisal (RRA); Farmers First; Participative Learning Methods (PALM); Approach Development; Action Research

Brief description

The PRA approach enables a rapid and inexpensive assessment of the most important features of the living conditions of an urban or rural population. The assessment is done primarily by an interdisciplinary team (including at least one sociologist) and takes place in the field. PRA is designed as an ongoing learning process for both local as well as external participants. A conscious attempt is made to avoid misrepresentations with regard to staff selection, timing, season, route, etc. Tailor-made tools, some of which are developed locally at the time, are used, such as: a) semi-structured interviews, b) historical profile, c) ranking of values, d) seasonal charts, e) pocket chart, f) participatory problem analysis, g) joint field visits, f) direct observations.

Advantages

- Related to both problems and potentials
- Promotes competence and reinforces independence
- Appropriate for rural setting
- Compares and takes into account different opinions
- Evaluates local know-how and technology together with the communities
- Builds trust and understanding within the community
- No special methodological knowledge required by local participants
- Tools can be applied in a flexible fashion (encourages creativity).

Limitations

- Leads to a considerable amount of collected information (not always used)
- Raises expectations in the community
- Findings need to be elaborated further for practical implementation
- Situation-specific and thus difficult to compare from one place to another
- Can require a lot of time
- Requires knowledge of participatory techniques, openness.

¹ Reference document: McCracken/Pretty/Conway. *Introduction to RRA for agricultural development*. IIED, 3 Endsleigh Street, London WC1H 0DD, England (1988). In: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Mind mapping¹

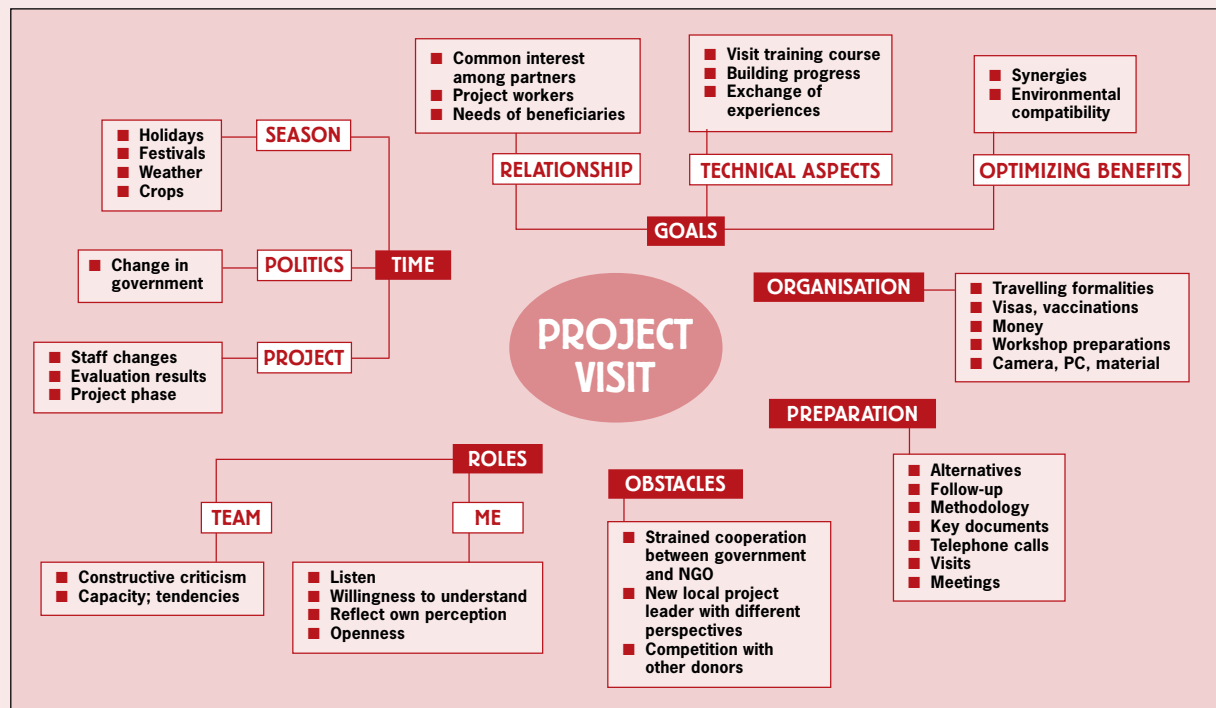
Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	●	—	●	—	—	—

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

Mind mapping facilitates the overview on a central theme. Thought processes are brought together in a spontaneous-associative way and identified with key words or symbols. In this way a chosen theme is assessed from different perspectives and a “map of landmarks” emerges. The landmarks are classified and organized into a branching arrangement, thus enabling classification into further branches.



Advantages

- Open, expandable
- Provides an overview at a glance
- Very versatile.

Limitations

- Rough analysis and overview
- Emphasizes linear relationships.

¹ Reference document: Buzan T. *Kopftraining, Anleitung zum Kreativen Denken*. Munich (1990). In: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Successes–Weaknesses–Opportunities–Threats (SWOT)¹

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	—	●	●	—	●●●	●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

SWOT is a simple, flexible and versatile working tool for situational analysis in groups. It has the advantage that it can easily be understood in an intercultural setting. It records the positive and negative experiences (successes and weaknesses) of the present situation, as well as anticipates the future opportunities and obstacles (threats) that are most likely to arise in a given situation.

Review of present situation	Anticipation of future situation
<p>Successes Positive experiences</p>	<p>Opportunities Assessment of potentials</p>
<p>Weaknesses Negative experiences</p>	<p>Threats Anticipation of obstacles</p>

Advantages

- Simple (partners can quickly apply the method themselves)
- The joint review provides clarity on different opinions
- Enables the participation of socially weaker parties on an equal basis
- No special material is needed.

Limitations

- SWOT does not offer any solutions; it merely serves to provide clarification and to structure opinions
- The moderator (facilitator) should have basic knowledge of visualization methods.

¹ Adapted from: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Creativity workshop¹

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●	●●●	●●●	—	●●●	●	●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

This workshop method provides an organizational framework for the participatory examination of problem situations and joint problem-solving. The participants are divided into large groups and the workshop takes place in five steps over one or two working days. The five steps consist of the following:

- 1. Preparatory phase:** Tuning in; setting a pleasant atmosphere; participants get to know each other, exchange motives; needs and goals are formulated, procedures and working techniques determined (visualization with sheets of paper or cards).
- 2. Criticism phase:** Problems are presented, criticism expressed; exaggeration is allowed; selection of themes from the critical contributions, re-formulation of critical themes into goals.
- 3. Utopian phase:** Build a creative atmosphere; criticism is not allowed; present dreams, utopian visions and ideal solutions without thinking of the limitations set by reality (brainstorming); selection of the most interesting visions.
- 4. Realization phase:** The results are examined and studied more closely; priorities are set; select a proposal; first steps for an implementation plan are decided upon.
- 5. Permanent workshop** (in smaller core groups): The proposal chosen in the realization phase is expanded and refined; project designs emerge; only designs which are feasible with regard to subject and reality (opposition, constraints, resource requirements, etc.) are considered; project goal is set.

Advantages

- Procedures are democratically determined by the participants
- Exaggeration is not limited, but encouraged so as to trigger creative associations
- The concept combines a playful approach with analysis.

Limitations

- Workshop leaders must be experienced and well versed in a repertoire of possible working techniques so that specific results can be achieved; each phase requires clear and specific rules; in order to avoid both euphoria and resignation, it must be made clear at the beginning which criteria will be used to evaluate and prioritize the criticism and utopian suggestions; this method is not suitable for socially differentiated groups.

¹ Adapted from: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Scenario writing¹

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●	●●●	—	—	—	—	—

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

Scenario techniques are used in the design of alternative views for the future. They are particularly suitable for dealing with long-term problems whose solutions depend on many variables (e.g. energy issues, development of transportation, promotion of training, etc.).

In the case of difficult questions, the drawing up of scenarios undergoes numerous steps. Firstly, the task is defined in simplified terms and the scope of investigation is set. Then the environment and its influencing factors are assessed with regard to possible future developments: the anticipated history is written in advance.

As a rule, “probable”, “optimistic” and “pessimistic” alternatives are drawn up, which form the possible scenarios in the search for specific solutions. The sequence of steps is not strictly predetermined. Different planning and working techniques may be used according to their suitability.

Suggested steps:

- Situation analysis: delineation of problems, relationship with the environment, initial situation
- Prognosis phase: alternative trends, possible future events, situational crossroads, selection criteria
- Programme phase: development of scenarios, alternative strategies, programmes.

Advantages

- Suitable for complex, long-term problems
- Widens the planning horizon
- Promotes development-oriented thinking.

Limitations

- Time-intensive
- Demanding with regard to information requirements and interdisciplinary proficiency
- Open to manipulation.

¹ Adapted from: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Morphological box¹

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
—	—	●●●	—	—	—	—

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

The morphological box enables the systematic search for alternative solutions for a clearly defined problem. Possible solutions are broken up into elements and the most important characteristics of each element are identified (possibly by brainstorming). These elements and their characteristics are then arranged in a morphological box. This facilitates assessing and combining solutions and their characteristics until the most suitable variation(s) is found.

Example: Plot irrigation

Elements	Characteristics		
	1	2	3
Source	River	Ground water	Rain water tank
Pump	Diesel	Hand	Electric
Distribution	Canal	Pipes	Pipes and canal
Payment of water	Per unit volume	Per unit time	Flat rate
Organization	Individual	Committee	Municipality

Alternative 1

Advantages

- Suitable for clearly defined problems where an overview of solution combinations and variations is important.

Limitations

- Less suitable for complex problems requiring a high degree of analysis
- Assessment of alternatives may need much effort and time.

¹ Adapted from: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Utility value analysis¹

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
—	—	●●●	—	—	—	—

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

Utility value analysis enables the evaluation, assessment and selection of different options for introducing change. This involves decision-making which depends on factors which are both quantitative and objective, as well as qualitative and subjective. By using utility value analysis, the situation is presented in a transparent way and the evaluation criteria of all the participants are clearly disclosed. Utility value analysis involves the following steps:

1. Setting limits to the task (objectives, situation analysis, identification of shortcomings)
2. Presentation of alternative solutions
3. Development of assessment criteria
4. Weighing of each criteria (P)
5. Assessment of alternatives, (E; criteria E varies from 1 to 10)
6. Calculation of the utility value (E x P)
7. Comparative evaluation (horizontal, individual criteria; vertical, overall impression) and decision-making.

Example: Choosing the site for the project office of a development project

Assessment criteria	Weighing P	Solution 1 (outside project zone)		Solution 2 (in project area)	
		E	E x P	E	E x P
Accessibility for villagers	30	3	90	10	300
Travelling effort for staff	15	3	45	7	105
Premises	10	5	50	2	20
Partner contacts	20	6	120	3	60
Policy agreements	10	5	50	1	10
Attractiveness	15	6	90	3	45
Total	100		445		540

Advantages

- Complex problem formulations are made accessible to all participants
- Human and intuitive components of assessments are emphasized at the same level as objectives
- The risk of wrong decisions by individuals is reduced
- Criteria and their weighing can be used as a monitoring basis.

Limitations

- Assessment and weighing figures should be documented so that they are comprehensible to outsiders. If important decision-makers are not present, the results have less value.

¹ Reference document: Voelkner J. *Planungsmethoden in Verwaltung und Wirtschaft*. Regensburg-Berlin-Bonn (1992), in: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Task chart¹

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
—	—	—	—	●●●	—	—

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

Task charts are used to organize work procedures. The functions of the staff at every step are indicated diagrammatically in the chart. In its simplest form, the compiling of an annual report can be depicted as follows:

Tasks Activities	Project leader	Planning Consultant	Section Head	Technical assistant	Administrator	Community
Review experiences	Plan./ Dec.	Plan./ Dec.	Plan./ Impl.	Impl.	— Impl.	Dec./
Organization Arrange Report	Dec.	Dec./ Impl.	Impl.	Impl.	Info.	—
Editing	Plan./ Impl.	Plan./ Impl.	Impl.	Impl.	Impl./ Contr.	—
Approval	Coord.	—	Coord.	—	—	—

Plan. = planning
Contr. = control

Dec. = decision-making
Info. = information

Impl. = implementation
Coord. = coordination

Bold letters indicate the main responsibility; ordinary letters indicate lesser responsibility or co-responsibility.

Advantages

- The organizational sequence becomes transparent
- Encourages allocation of responsibility
- Provides a good basis for job descriptions.

Limitations

- Graphical over-simplification

¹ From: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Bar chart (Gantt chart)¹

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
—	—	—	●	●●●	●	—

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

Gantt bar charts are used for the chronological planning of tasks. Individual working steps are listed on the activity axis of the chart. The duration of the activities is indicated on the time axis by bars.

Example: Programme evaluation

Activities	Duration (days)	Implementation time span (months)										
		1	2	3	4	5	6	7	8	9	10	
Preparation	8	█										
Field investigation	20			█								
Analysis of results	5					█						
Preparation of Workshop	3					█						
Workshop	4						█					
Follow-up	Ongoing								█			

Advantages

- Graphic and simple
- Wide selection of PC programmes.

Limitations

- Updating can be difficult
- Interconnections between activities may not be easily recognizable.

¹ From: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Flow charts¹

Application possibilities in the planning cycle

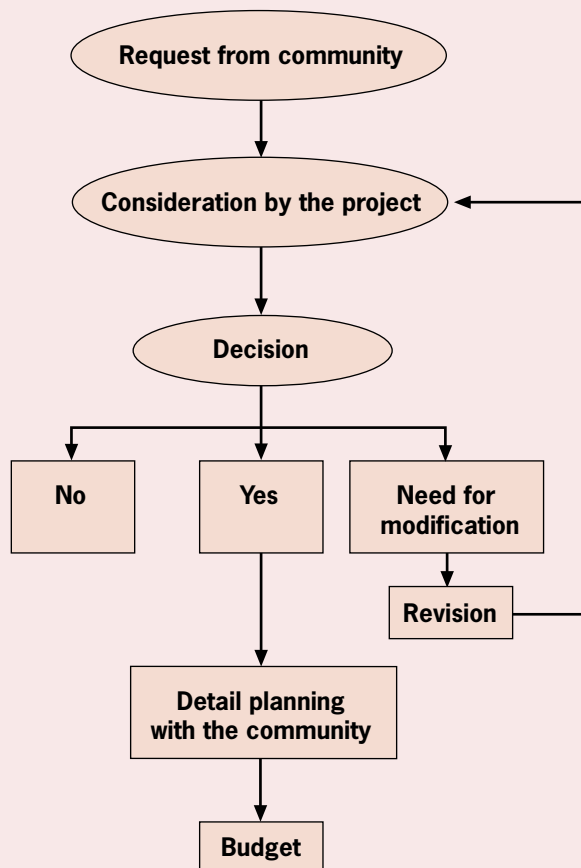
Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
—	—	—	●	●●●	—	—

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

The sequence of the activities of a process is structured in a transparent way in a flow chart. The steps of each activity are represented by symbols such as “Start”, “Develop”, “Check”, “Decision”, etc.

Example:
Request to
rehabilitate water
supply system



Advantages

- Simple, easily learnt
- Suitable for planning and control of routine tasks.

Limitations

- Suitable only for specific processes
- Unsuitable for time-related planning.

¹ From: *Cooperation planning—A working aid for beginners and for more experienced planners*. Swiss Development Cooperation, Evaluation Service, CH-3003 Berne, Switzerland (1993).

FACT SHEET

Historical line

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	●	—	—	—	—	●●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

This tool consists in collecting the most important historical events and facts of the community in a chronological way. It is especially used to highlight the history of the community, the life of community organizations, the history of water supply, and the chronology of a project.

It is carried out through a series of questions on a specific theme and a pre-established check-list which is discussed with the community. One could use a large sheet of paper, or a board which is divided vertically into two parts: the left part to record time, and the right for recording the events or facts.

Example

Spring 1994	—	First visit of provincial staff
Summer 1995	—	Visit of community at provincial headquarters
September 1995	—	Second visit of staff and start of investigations
January 1996	—	Start of construction of well and installation of pump, as well as training of community
May 1996	—	Handing-over ceremony
December 1996	—	First breakdown
February 1997	—	Repair by specialized team
December 1998	—	Second breakdown

Advantages

- Helps to get a common understanding of a series of events and their relationship in time
- Very good for starting a problem analysis together with the community
- Simple and easy to use.

Limitations

- Provides mainly a chronological vision of events. Communities do not always have a precise sense of time. Questions have to be well prepared before starting the exercise. Allow all members to express themselves.

FACT SHEET

Mapping

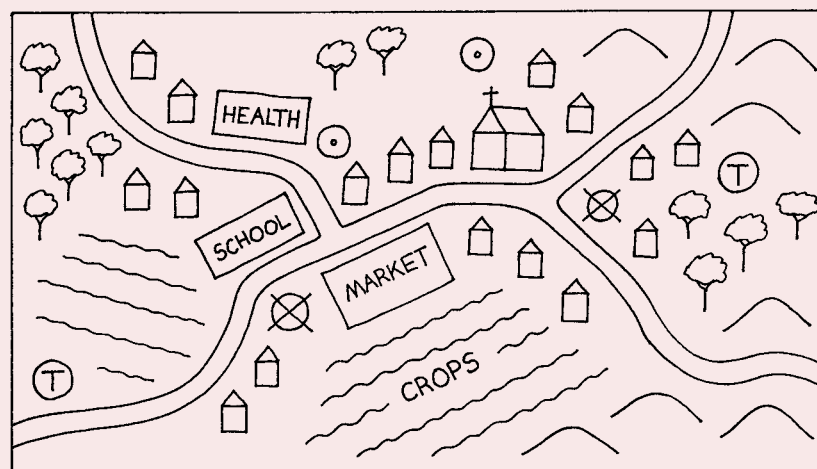
Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	●	—	—	—	—	●●●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

The purpose of mapping is to gather information about a community by having its members create their own village map. It is also used to record information about existing problems and to perceive the value given by community members to certain situations. Community members could draw the map on a sheet of paper, a board or even the soil, and highlight the following points: main location of settlements and distribution of population including main topography; identification of health centre, schools, shops, market, church (or other place of worship); location of water points, zones of infection, or problems with the water source and distribution; location of latrines or garbage disposal; specification of points which have continuous or seasonal variations in the type of water, or in functioning; location of the population with the lowest willingness to pay; identification of the economic activities of men and women.



- Improved water point in order
- ⊗ Improved water point in poor order
- Ⓣ Traditional source

Advantages

- Provides a common understanding about a village setting and its problems
- Is very participatory and communities enjoy this work
- Simple and easy to understand.

Limitations

- Information might need to be validated in terms of geographical precision
- Tool needs to be complemented by a problem analysis
- Requires time.

FACT SHEET

Venn Diagram

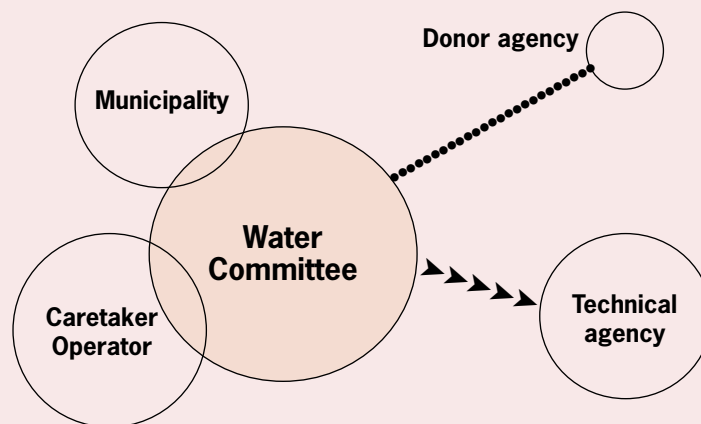
Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	●	—	—	—	—	●●●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

The Venn Diagram is a graphic representation which provides a global vision of institutional and social relationships within and outside a community. It uses circles to represent institutions or groups of people. The size of the circles represents the importance of the role of these institutions or groups of people (small circle = little importance; medium circle = medium importance; large circle = major importance). The distance between the circles indicates the relationship between institutions and groups of people (intersection = collaboration, coordination; touching circles = contacts; circles apart = distant relationships which increase with the distance between circles). An additional qualification can be given by lines or arrows between the circles (▶▶▶ = conflict; ●●●●● = intermittent relationships, etc.).



Advantages

- Provides a rapid and concrete vision of interrelationships and importance of various actors
- Shows potential problems, and constitutes a basis for further analysis
- Should be carried out with different groups at different times.

Limitations

- Very subjective; the results will vary considerably if carried out by community members, or by the agency
- Information resulting from the discussion must also be recorded.

FACT SHEET

Community walk

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	●	—	—	—	—	●●●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

A community walk consists in observing community conditions in order to appreciate a situation or to see if goals have been met, while walking through a community. A community walk can also consist in small visits to families, with informal discussions about water supply, sanitation, and hygiene, while appreciating the general in-house situation. The community walk should be done in small groups, as large groups attract too much attention. Each group records what it sees, and should be planned at the time of the day when water and sanitation activities are most relevant. Here is a list of major relevant points to be observed:

- General environmental condition
- Type and state of settlements
- State and functioning of water source, distribution and supply
- Cleanliness around water points
- Hygiene practices for the transport and storage of water
- State and functioning of private and public latrines
- Evacuation of used water
- Garbage disposal

Advantages

- Direct observation and contact with reality for project staff.

Limitations

- Needs time
- Information collected should be well organized, otherwise there is a risk that the information will not be used
- All information should be recorded in writing, because not everything can be remembered.

FACT SHEET

Pocket chart

Application possibilities in the planning cycle

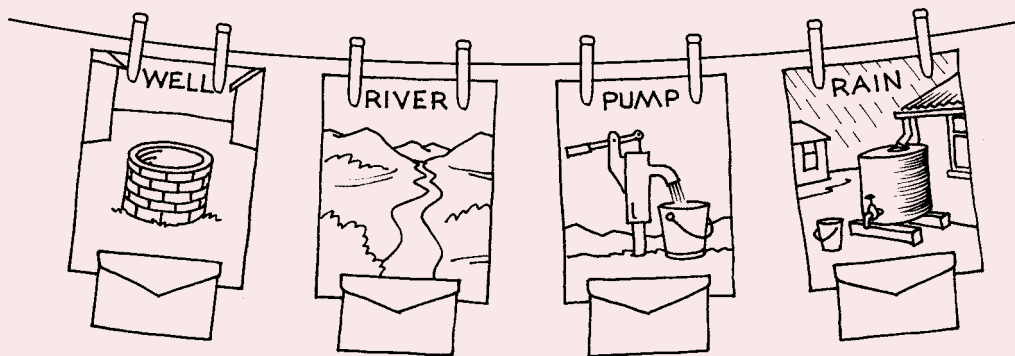
Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	●	—	—	—	—	●●●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

The pocket chart is a very effective method to collect information about people's perceptions, habits, desires and will. It provides quantitatively valid information by a system of voting, and further allows holding discussions with community members. The method can be divided into three phases—Phase one: preparation of the tools and explanation to the community. Phase two: vote. Phase three: discussions.

Simple version



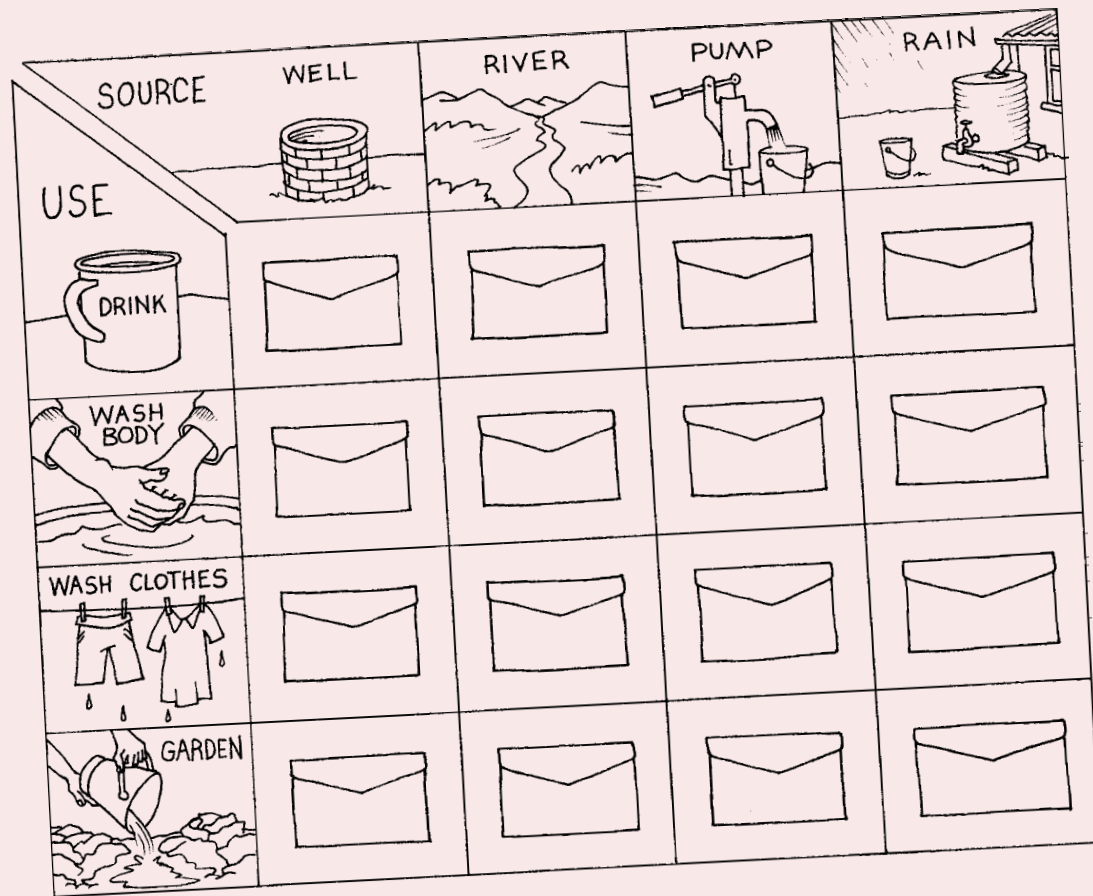
Drawings are prepared in advance, preferably by local artists, to which are attached envelopes. In the case of water supply, each drawing represents a possible water supply option (or sanitation option or hygiene behaviour, etc. for other cases). Women are given small pieces of pink (or red) paper (or round stones), while men are given pieces of blue paper. The facilitator asks the group a first question: "Where do you collect water regularly now?" Community members go and vote, by putting their piece of paper in the selected envelope. Voting should preferably be done separately, as one person can influence another. Results are then shared with the group, and discussions are held, asking the community about their comments and explanations on the results. A second question could be: "Where would you like to go to get your water?" and follows the same procedure.

Advantages

- Provides statistical information
- Very participatory tool; problems can be discussed immediately.

Limitations

- Acquaintance with the method
- Community members may not be able to identify themselves with the drawings.

Matrix version

A matrix is prepared on a large piece of paper, with drawings made locally. Community members are given four small pieces of coloured paper (as above). The facilitator can ask: "Where does the water you drink come from? Where does the water you wash your body with come from? Where does the water you wash your clothes with come from? Where does the water you water your garden with come from?" The results must be shared and discussed. Another series of questions can be linked to the water source, the community's plans for its use in the future, and for what purpose.

Advantages

- Same as above

Limitations

- Same as above. Also, limitations in the understanding of certain communities about the use of the matrix. The matrix might seem complicated with too many envelopes. If the situation arises, it is possible to ask community members to vote row by row.

FACT SHEET

Priority ranking

Application possibilities in the planning cycle

Vision	Possibilities for change	Way, approach	Concept, strategy	Operational plan	Plan adjustments	Monitoring, evaluation
●●●	●	—	●	—	—	●●●

— least appropriate; ● some appropriateness; ●● appropriate; ●●● very appropriate.

Brief description

In a number of circumstances, choices have to be made, or priorities have to be defined and set. This tool is a decision-making tool, which uses a matrix format.

A set of issues, which can be activities or problems, are clearly defined. Then, for example, participants are asked to choose individually (or in small groups) three issues out of the total and to prioritize them according to criteria which were previously approved. Choosing in groups can help to discuss the issues more in detail before prioritizing them. The table below shows two possible ways to determine a priority: (a) through percentage, (b) through mean average.

Example: Determination of priorities on use of water for water improvement project (n = 10 people or groups participating)

Possible use of water	No. of people or groups who chose this use (x)	% of people/groups who selected this issue (x/n %)	Priority given to this use (y)	Mean average for priority given (y/n)
Drinking	10	100	1,2,1,2,1,1,1,2,1,1	1.3
Cooking	9	90	2,1,2,3,2,3,2,3,2,4	2.4
Washing body	5	50	4,5,2,3,4,3,3,3,4,5	3.6
Washing clothes	6	60	4,4,5,3,2,4,3,5,4,4	3.8
Cleaning the environment	2	20	5,5,5,5,5,5,5,5,4,5	4.9
Gardening	7	70	2,3,2,3,2,3,2,3,2,3	2.5
Brewery	3	30	5,4,5,4,5,5,5,5,4,5	4.7
Other (to be specified)	2	20	4,5,5,5,5,5,5,4,5,5	4.8

According to the percentage and the mean average, the first three priorities selected are: drinking, cooking and gardening. If there is any doubt, the matter should be discussed within the group.

Advantages

- Helps to make a decision democratically
- Concrete and can be quantified.

Limitations

- Participants may not agree on criteria for selection and prioritization
- Use of matrix could be complex in certain communities.

Unit 8: Field visit

1. Outline of session

►► Objectives

- To assess the operation and maintenance status of water supply and sanitation facilities within a community
- To analyse the field visit results

►► Methodology

1. Field visit
2. Analysis in the classroom

►► Materials

- ✓ Transport for the visit
- ✓ A small notebook for each participant
- ✓ Suitable clothing for field work
- ✓ Flip chart and markers for class work

►► Handouts

- ✓ Information about the community
- ✓ Exercise sheet

2. Notes for the facilitator

Preparation

The purpose of the field visit is to give the participants an opportunity to look at the operation and maintenance arrangements in a particular community. The actual programme will depend on the distance to be travelled for the visit, the size of the local community and the extent of their cooperation with the organizers of the course. The participants may have to be divided into small groups to work more efficiently and to reduce inconveniences to the community.

The communities should be contacted well in advance to fix the date and timing of the visit and to ensure that the local committee and some users will be ready to receive the participants. The community should be fully briefed on the visit and its objectives and given details of the programme that will be followed. Arrangements have to be made for transport and refreshments during the visit.

If a community is large enough to accept the full group, then only one community need be contacted for the visit. But if the group of participants is very large, it may be necessary to allocate smaller groups to different communities. In this case, more effort and time will be needed to make the preparations so that all the visits will be well organized. The participants in the small groups will have the chance of comparing the different communities visited in the same locality. This exercise may reveal different aspects of O&M, which will be of value to the participants.

The visits should be made in the morning. This will be followed by a general meeting in the afternoon where all the groups will meet the district staff of the government agency responsible for water and sanitation. The participants will be able to meet separately the users, local operators and caretakers, community leaders and government staff. Within each community visited, the participants in their groups will observe and interview each of the above actors, if possible on their own, to avoid influencing each other's responses.

Choosing a morning visit will increase the value of the field visit as a whole. This is because many of the activities associated with rural water supply take place early in the morning. For example, women traditionally collect water before or at sunrise. And operators open the valves, start the pumps, dose the tanks with chlorine, etc. at the start of the day in order to have sufficient water for early collection. The next peak of water collection may be in the late afternoon/early evening, which will be too late for the field visit. Arrangements have to be made to ensure an early arrival in the community or communities selected for the visit, so that participants should prepare themselves for an early start!

Proposed programme for the field visit

1. Arrival to start the field visit
2. Discussion for 1¹/₂ hours with the representatives of the Water Committee
3. Visit to a water supply treatment plant or pumps, and meeting with the caretaker and operator (1 hour)
4. Division in smaller groups (by geographical area, for example)
5. Each group goes for a walk within the community, making general observations (environmental sanitation), visiting users in their homes, asking them questions about the water supply, visiting the latrines and observing their state of hygiene (1 hour).

Analysis of the field results

Once back in the classroom on the same day, or the next day, each small group will do a SWOT analysis (see pages 249, 267), and then report back in a plenary session. The final results can be sent to the community with a letter of thanks.

3. Exercise sheets: Exercise sheet 1

Check-list for field visit

1. Environmental aspects

Protection and preservation of the water source and water point
Quantity and quality of the water
Wastewater management
Environmental sanitation

2. Community aspects

Structure and functioning of the community organization
Participation of women
Ownership feeling
Satisfaction of users
Management capacity of the committee
Technical capacity within the community

3. Technical aspects

Complexity of operation and maintenance of the system
Spare parts availability
Training received by the operator
Dependency on chemicals and fuel
Preventive maintenance
Tools
Water quality control

4. Institutional factors

Technical assistance
Monitoring and follow-up
Relationship with the municipality and other actors

5. Financial factors

Tariff, and what does the tariff cover?
How are other costs financed?
Non-payments, and sanctions
Willingness to pay
Financial management
Use of funds

6. Processes

How was the project introduced?
How did the community participate?

7. Observations

Domestic hygiene and hygienic state of latrines
Environmental sanitation in general

Exercise sheet 2

Field visit analysis

Field visit results will be analysed by the SWOT (Successes—Weaknesses—Opportunities—Threats) method.

1. Analysis of the present situation

What are the **successes** in terms of operation and maintenance (see check-list)?

What are the **weaknesses** in terms of operation and maintenance (see check-list)?

2. Analysis of the future situation

On the basis of the successes and weaknesses of the present situation, what are the **opportunities**/potentialities to improve the O&M situation?

On the basis of the present situation, and the general context, what are the possible **threats** or obstacles which the community will have to face?

4. Background information

4.1 Recording observations

It is not possible to remember everything, especially when making observations in a short period of time. The observations during a field visit should therefore be recorded in a notebook. The recording of observations lessens the pressure to make an interpretation before all the facts are known. Observations should be recorded first, interpretations can be made later.

The person making the observation can influence the situation being observed. For example, participants must often be aware that their presence in the village influences the behaviour of the people. The fact that the field visit was organized in advance may lead the community to make a special effort to clean the well surroundings. As visitors attract attention, people may act to satisfy the visitor rather than in their natural manner. Participants should remember this when making their observations and drawing conclusions.

4.2 Interviews

Two types of interviews can be used in information collection.

Free interviews

In a free interview, the topic is introduced but the discussion and subject details are left to the respondent to decide. In this way the interviewer gets a good idea of what the respondent thinks is important, not what the interviewer has decided is important. However, the interviewer has to be a good listener and questioner. Questions have to motivate the respondent and must be followed by carefully worded further questions, which do not reflect any bias the interviewer may have. This type of interview is for field workers who have considerable experience in their work and in interviewing.

Focused interviews

For a focused interview, a list of items is prepared and the respondent is asked to provide information on each one. A checklist will help to ensure that all items are covered **and** that the interviewer is not diverted away from the essential information required.

In the course of a focused interview it may happen that the respondent may give information or want to discuss an issue which is not on the list. It is important to give respondents the opportunity to contribute their own thoughts; this can be done at the end of the interview after going through the checklist first.

In the short time of an interview, it may not be possible to collect accurate quantitative data. Questions requiring answers on the numbers of this or that may be included in a focused interview, but the participants should be realistic about the answers they will get. They should not expect that community members and caretakers will be able to give quantitative information immediately. As records may be private, the participants should ask to see any log books and record sheets only if the people seem willing to show them.

Participants should be careful in choosing the persons they interview. They may ask a user how often the system breaks down and the caretaker about any difficulties in maintenance activities. It is sometimes instructive to put the same questions to different persons. For example, to the question, "How often has the system broken down?", the caretaker's answer may give the impression of a job well done, while the user's answer may highlight the problems in the hope of getting an improvement.

Aids to effective interviewing

The following suggestions will help the interviewer in the collection of information:

- **Prepare a checklist.** As with focused interviews, prepare a checklist of items relating to the information required. The list does not have to be detailed but serves as a guide. Use key words as a way to remember the main points and particularly important pieces of information.
- **Introduce yourself.** Participants may feel under pressure to gather as much information as they can in a short period of time. They should not rush in with a long list of questions, but first introduce themselves and briefly explain the object of the field visit. It is important to allay the community's fears and indicate how the information will be used. If there is a feeling, for example, that the answers may result in higher water bills, the community's attitude will naturally be cautious.
- **Move from general to specific.** It is recommended to start with more general questions and then move to specific questions. General questions help to set the context for the more specific questions. This will help to avoid misunderstandings about the purpose of the interview.

