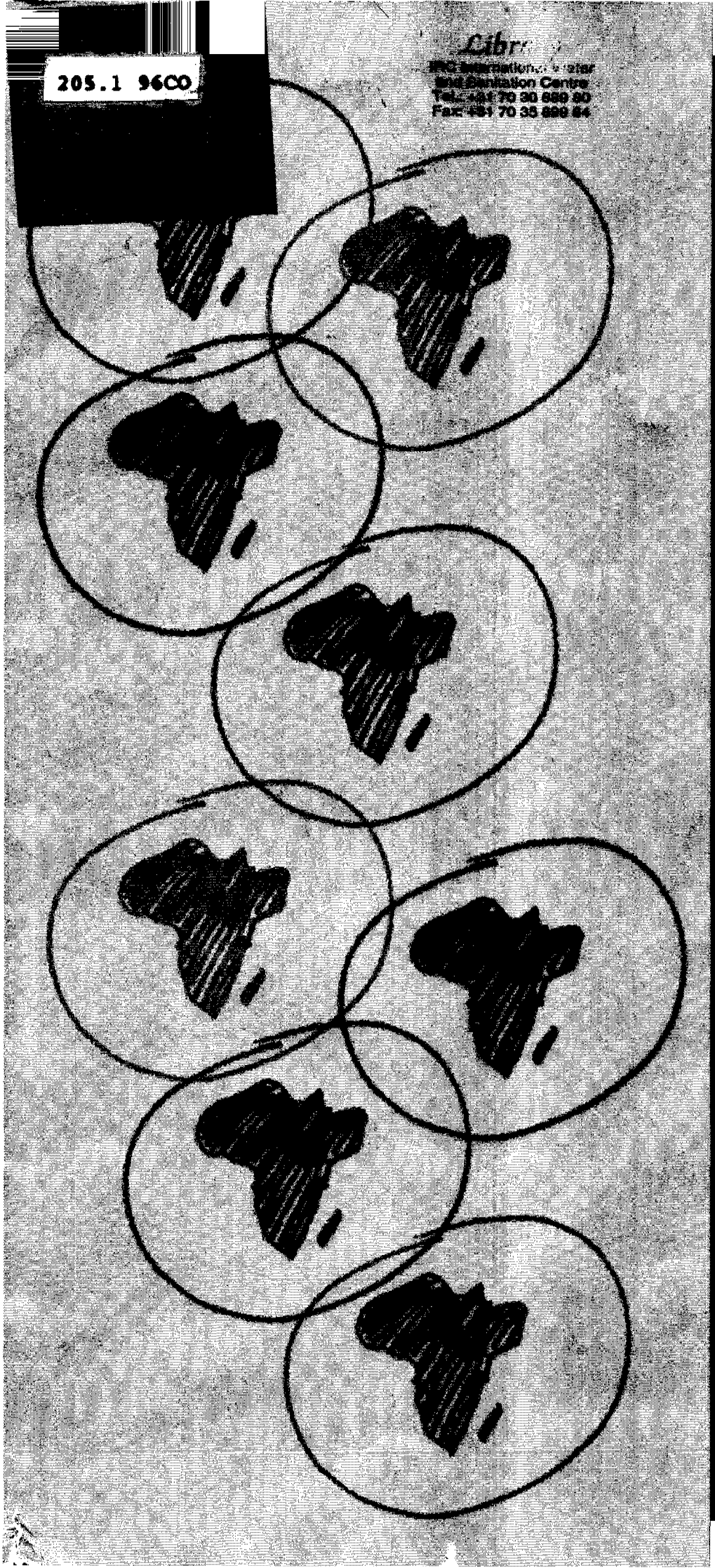

Community management of rural water supply and sanitation systems

Points for practitioners

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WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR AFRICA

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Foreword

This document is one of a series published by the World Health Organization, Regional Office for Africa, as part of its activity to promote the AFRICA 2000 Initiative for Water Supply and Sanitation which was launched by African health ministers during the 44th Session of the Regional Committee, held in Brazzaville on 8 September 1994. An important element in WHO's participation in the AFRICA 2000 Initiative is the promotion of community management pilot programmes in Africa.

The review presents a summary of the latest thinking on community management of rural water supply and sanitation systems by looking at the literature published so far on the subject. The general objective is to contribute to sustainability of rural water supply and sanitation systems.

The subjects reviewed here bring together the experiences of various countries in community management, with specific examples in boxes. Key issues and actions which governments and donors should take into account to create an enabling environment for community management are outlined and articulated. It is recommended that participatory methods should be used for actual implementation, as these constitute a process of building self-esteem and self-reliance in the community and ensure that decisions reflect community priorities.

Community management is a clear example of how people, organized together, can bring about improvement in their lives that would have been unattainable individually. Experience shows, however, that there is no definitive answer, and that the system must adapt according to the social, cultural and institutional background of any given population group. The fundamental element of community management is that the community is in charge of its water and sanitation facilities and all other actors play supportive roles.

This document has been produced in collaboration with the Institute of Water and Sanitation Development (IWSD), Harare, Zimbabwe. We wish to acknowledge and thank P. Taylor, G. Woelk, N.R. Mudeges and their collaborators who have contributed in this process for their professionalism and diligence.

Dr Ebrahim M. Samba
Regional Director
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List of acronyms

IDWSSD	International Drinking Water Supply and Sanitation Decade
IRC	IRC International Water and Sanitation Centre
NGO	Non-governmental organization
IWSD	Institute of Water and Sanitation Development
PHAST	Participatory Hygiene and Sanitation Transformation
PROWWESS	Promotion of the Role of Women in Water and Environmental Sanitation Services
UNDP	United Nations Development Programme
WHO	World Health Organization
WSC	Water and Sanitation Committee
WSDB	Water and Sanitation Development Board

1. Introduction

'Experience in many developing countries during and since the International Drinking Water Supply and Sanitation Decade (1981–1990) shows that even the best run water agencies cannot successfully implement, 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, staff, transport and budgets become overstretched, leading to broken down systems, dissatisfied consumers and demoralised agency personnel.

At the same time, evidence is accumulating that properly supported communities have both the ability and the willingness to manage their own water systems. Agency resources currently swallowed up in the provision and maintenance of inefficient services can thereby be diverted to a much more effective facilitating role, bringing greater cost-effectiveness and more widespread and sustainable benefits. Less demand for reconstruction or rehabilitation of broken down systems means more satisfying and more productive work on new schemes.'

(*Evans & Appleton, 1993*)

In the field of water and sanitation services, community management is currently seen as the approach most likely to overcome the problems experienced in most developing countries – poor access to services, poor maintenance of services and lack of government resources.

International fora have stressed a number of principles for good management, such as: management at the lowest appropriate level; the strengthening of local institutions; decentralization; and the promotional role of government. All of these lead towards the same result – the shifting of responsibility for day-to-day management of services away from governments and into the hands of communities or their local representatives.

This document has been prepared to help agencies and practitioners have a better understanding of what community management is and what are various pieces of the puzzle that must be addressed by each country when making the shift from provider to facilitator of community action. The information here should only be used as pointers, since social, cultural and governmental systems differ so significantly within Africa. Any community management programme must be appropriate not only to the country concerned but, most importantly, to the community concerned.

2. Why community management?

Towards a new approach

Government control

Developing countries in Africa came to independence with the understandable objective of improving the conditions for the poor and disadvantaged which characterize the developing world. These development efforts saw the increasing extension of state authority in areas which had traditionally been the preserve of local custom and control. Korten (1987) describes this process in Asia and it is one which easily transfers to Africa. In the attempt to modernize and rationalize resource management and to draw communities into larger national and global systems of development, states seriously overestimated their own ability to manage those same resources. The result has largely been weakened local capacity and a transfer of resources and power from local to national elites, with a national treasury burdened and unable to deliver the expected services to the community. Thus, rather than stimulating development, the process has created local dependency on state intervention and stifled local initiative.

In the 1970s and early 1980s there was a move towards community participation. This was seen as a means of boosting limited state resources by increasing the financial and labour contributions of communities, while at the same time acknowledging the need for some expression of interest by these

communities in the development being delivered to them. Unfortunately this approach did not address some of the more deep-seated problems of centrally managed development such as accountability far from the action, specialized local needs and underuse of existing local resources.

The need for new approaches

Growing populations, alongside raised expectations and accompanied by the state's limited ability to deliver development, have prompted a reconsideration of the relationship between the state and the community and a move towards local control. There is a need for new organizational structures and programmes that encourage local initiative, accountability, and self-regulation; for tools and systems that strengthen learning and allow for adaptation; and for greater reliance on private, rather than exclusively public, initiative (Korten, 1987).

Community-based resource management, in dynamic partnership with government, requires policy and institutional changes that run contrary to traditional power structures of government, which usually work from the top down. A more enlightened view, however, is that by building the capacity of communities to address their own basic needs, governments are freed to concentrate their power on changing or influencing more fundamental events. This view is already borne out in many developing countries undergoing economic structural adjustment programmes, where governments are being urged to concentrate on the planning, regulatory and legislative functions of government rather than implementing development (World Bank, 1989).

The International Drinking Water Supply and Sanitation Decade

In November 1980, when the General Assembly of the United Nations proclaimed the period 1981–1990 as the International Drinking Water Supply and Sanitation Decade (IDWSSD), the primary goal was to achieve full access to water supply and sanitation for all inhabitants of developing countries. Significant progress was made, with a dramatic increase in the number of people with access to safe water supply. However, at the end of the Decade the number of people unserved was still higher than at the beginning (see Table).

Many valuable lessons were learned during the course of the decade.

- A community-centred approach is more effective and sustainable than a technology-centred approach.
- Increased user involvement at all stages brings enormous benefits.
- Operation and maintenance are continuing and fundamental problems.
- Women, community leaders and other community groups should have key roles.
- Institutions should take account of the differences between rural and urban, higher and lower-income communities.
- Emphasis should be placed on promotion rather than provision.

Water supply in Africa (population in millions)

	1980		1990	
	Urban	Rural	Urban	Rural
Population	119.77	332.83	202.54	409.64
% Coverage	83	33	87	42
No. served	99.41	109.83	176.21	172.06
No. unserved	20.36	223.00	26.33	237.59

(Source: Christmas & de Rooy, 1991)

The crisis of sustainability

As a result of the IDWSSD activities, there are now many more facilities for water supply and sanitation. However, the focus on capital investment has left the ongoing expenditure by states on operation and maintenance lagging far behind (WHO, 1990). There have been reports of 40–60 per cent of facilities out of operation at any time due to lack of maintenance, although poor data make this difficult to verify. In many large cities poor operation and maintenance has led to reports that more than 50 per cent of the water produced ends up unaccounted for (WHO,1990). In the served areas of these cities wastage is high and tariffs are often subsidized, whereas the inhabitants of the urban fringe remain unserved and pay the market price for unsafe water from private vendors (Whittington et al., 1989).

Another problem has been caused, paradoxically, by the offer of free water. The provision of basic water services as a right is a laudable objective for governments. But even a basic level of service may not be achievable with the government resources available in most countries. The result is that community innovation, self-help and motivation are crippled by competition from a free – but unfulfilled – government service.

On the other hand, even where users are expected to pay, they are often unwilling to pay for an unreliable and unsatisfactory service. This creates a vicious cycle, with the level of service dropping due to shortage of money, and less revenue coming in due to dissatisfaction with the service (WHO, 1990).

Operation and maintenance issues

The poor operation and maintenance of water supply and sanitation facilities is now seen as a key issue. Factors contributing to poor performance have been identified (WHO,1990) as follows.

- Inadequate data on operation and maintenance.
- Insufficient and inefficient use of funds.
- Poor management of facilities.
- Inappropriate system design.
- The low profile accorded to operation and maintenance.
- Inadequate policies and legal frameworks, and overlapping responsibilities.
- Political interference.

For the 1990's

At the end of the IDWSSD, one of the four guiding principles to arise from the Decade review meeting in New Delhi in 1990 was for:

'Community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes' (*New Delhi Statement, 1990*).

This view was endorsed by the deliberations at the Dublin Water Conference and the Earth Summit in Rio de Janeiro in 1992.

It was emphasized that access to water and sanitation is not simply a technical issue; it is a crucial component of social and economic development. Sustainable and socially acceptable services can be extended by using appropriate technologies, adopting community management and enhancing human resources.

Benefits and constraints

Benefits of community management may be summarized as follows.

- Greater sustainability which, in turn, leads to other benefits for the users, such as improved water, better health and time-saving.
- Improved community identification with the system, leading to greater willingness to pay for it, to accept changes to practices and to make further improvements.
- More likely to result in programmes suitable to real needs. The top-down approach is of necessity prescriptive, and often unable to adapt to local realities.
- Increased potential for achievement when external and local resources are pooled. Communities have large amounts of resources which remain untapped in traditional government-implemented development (McCommon et al., 1990; Korten, 1987).

On the other hand, a number of constraints to the community management approach have been identified.

- A fear by agencies that a community's own capacity to manage may be limited.
- The project may take longer.
- Strong communities, managing their own development, may be perceived as a threat by the traditional political hierarchy.
- Communities themselves may not always see a reason to shift from a situation where government has been the provider, especially those that have been fortunate enough to receive a service and have it maintained.

3. What is community management?

Definition of terms and features

Commmunity management means that the beneficiaries of water supply and sanitation services have **responsibility**, **authority** and **control** over the development of their services:

- **Responsibility** The community takes ownership of the system, with all its attendant obligations.
- **Authority** The community has the legitimate right to make decisions about the system.
- **Control** The community has the power to implement its decisions regarding the system.

In other words, the community is able to control, or at least to strongly influence, the development of its water and sanitation system (McCommon et al., 1990). Because it also has the authority and responsibility for operation and maintenance, this will be more effective and efficient, leading in turn to improved sustainability (*McGarry, 1991*).

The 'community' in this context, refers to a group of people with a common interest in the system. Most commonly this would be the users of the system. Even within this description of the community, it is important to realize that some community members, such as women, are more interested than others in improving water supplies.

Features of community management

The features of community management are similar to those one associates with terms such as community development and community participation.

- Assistance to each individual community is designed and managed as a distinct project, with its own specifications and timetable, based on the agreed needs and commitment of the community.
- The emphasis is on community control and management of the resource. Every aspect of the project is geared to this outcome, including legal confirmation of ownership and legal recognition of the community's organizational structure as an autonomous body with legal rights.
- The actual design of the project does not take place until the beneficiaries have had an input and is not implemented until accepted by an association of the beneficiaries.
- Within the agency involved in implementing a project, incentive systems for workers are structured so as to strengthen accountability to the user community.
- Agencies work to support local management groups.

Government and community management

Community management should not be thought of as a choice between a top-down or a bottom-up approach. Rather, it is the establishment of a management system in which full collaboration between government and community is essential, and in which neither is the dominant partner. Both should have clearly defined but separate roles and each understand and accept the role of the other. If this clarity is not achieved then community management may be impossible to implement effectively (McGarry, 1991; Korten, 1987). The community may receive support from government or other agencies in the form of subsidies, technical support and so on, but it must be the community itself that actually owns the system, makes the decisions on when to call for this support, and exercises control over access to the system.

In the context of water and sanitation, community management involves a shift from government control to community control. However, it is essential to recognize that the first requirement is the capacity and will of the government, at both local and national levels, to support the endeavours of the local people.

Where is community management appropriate?

The types of technology used in water and sanitation programmes vary from the very simple, designed for community operation and maintenance, to the very complex, requiring highly qualified technical and managerial expertise. In some cases community management may not be appropriate due

to the complexity of the system, but accountability could be improved by user representation on management or advisory committees.

Moreover, the social, cultural and economic conditions vary from country to country and within countries, affecting the feasibility of implementing a community management project. In some cases pilot programmes may be necessary in order to convince policy-makers of the benefits of a change in strategy.

At present, community management is being introduced quite widely in Africa, with varying degrees of commitment from governments. Some see it as a way of resolving the sustainability issue and are therefore focusing on community management in operations and maintenance *while continuing* the traditional top-down development approach. Others are increasingly taking the planning process closer to communities through the use of new participatory methods. The difficulty here lies in the longer initial period required for planning and mobilizing resources, first within the government and then within the community.

Who is in control?

Any attempt to promote community management must address the question of control. McCommon et al. (1990) define community management, as we have, as responsibility, authority and control. However, the examples given in their discussion paper rarely come close to this description. For example: 'ADP [an NGO in Guatemala] has also made sanitation a *rigid requirement* of every water project *it builds*: the community *must* build pit latrines before work on the water system begins' (p.21; our emphasis). It is evident here where the control lies. It is essential, therefore, to make a clear distinction between community participation (where the government or other institution may have control) and community management (where the community definitely has control).

Elements for success

The experience drawn from community management projects already undertaken, points to a number of factors that have contributed to their success(Livingstone, 1993; Brown, 1993; and Briscoe & de Ferranti, 1988).

- Establishing that there is a demand for water supply and sanitation, and that any new service will be better than the existing one.
- Evaluating the community's ability to organize itself and setting up an appropriate, effective and representative organization to manage the system.
- Defining the roles and responsibilities of the government and the community. In particular the government must demonstrate a strong commitment to the process by fulfilling its obligations. The government agency involved should act as a supporter of the community, not as owner and manager of the water supply, through the limited but vital tasks of motivation, training and technical assistance.
- Making appropriate financial arrangements. This will involve assessing the community's willingness to make contributions as well as its ability to pay.
- Developing human resources at all levels. Those acting as the interface between communities and government should be trained workers whose primary skills are organizing and motivating groups of people.

Two examples of community management

Two examples of successful community management projects are described in Boxes 2 and 3.

A project in Burkina Faso

'Village-level management of hand pump-based community water supplies is a key feature of a rural water supply project covering two provinces in Burkina Faso (Yatenda in the North and Como in the South-West). Cost estimates from Yatenda indicate maintenance costs of about $US0.05 per capita per year, and monitoring by the hand pump project for two years showed that 85% of the pumps were working at any given time.

'The maintenance cost of the hand pumps compares with an estimate of US$0.65 per capita per year for the cost of fetching water by traditional means (bucket and rope) from Yatenda's typical well depth of 20m.

➨ 'Financed by the European Development Fund (EDF), the rural water supply project began early. The communities were directly involved in the decision-making process – choosing between dug wells without hand pumps and drilled or dug wells with hand pumps, and taking part in the selection of well sites. Contributions were made towards financing of well superstructures, and villagers met the cost of hand pump installation and maintenance.

'Before any well construction started, the villagers were told about the technical aspects of potential water supply improvements, the advantages and disadvantages of water points equipped with hand pumps, and the commitments they would be expected to fulfil in terms of financial contributions and maintenance duties.

'The project helped in the organization of water point committees with seven members, including 2 women and 2 pump caretakers, and the members were given training appropriate to their responsibilities.

'At the provincial level, enough area mechanics were trained to service the pumps on the basis of one mechanic to every 10 pumps. The mechanics themselves were nominated by the villagers, and were generally already involved in some type of mechanical work (bicycle/motorcycle repair, etc). The project also helped to set up a distribution network for spare parts.

'Responsibility for project execution was given to national staff, and local well drillers were contracted to rehabilitate and deepen old dug wells using hand-operated cable-tool rigs.

'Pump selection too was made with village level maintenance in mind, and, after competitive tender, the foot-operated Vergnet pump was selected and 465 pumps installed in the first phase. The Vergnet is relatively light; the pump cylinder can be pulled from the well without lifting equipment and wearing parts can easily be replaced by trained area mechanics.

'Under the management of the water point committees, routine maintenance is carried out by the pump caretakers, and the area mechanics perform major repairs. Spare parts prices are controlled, while the area mechanics negotiate fees for their services with the water point committees. The caretakers are generally unpaid, though in some instances they may receive cash or labour assistance in cultivating their fields.

'The water point committees collect money for hand pump maintenance and typically have a reserve of about US$100 held in a cash box. The system is working well, and costs are affordable by the people directly involved and caretakers, area mechanics, local spare parts dealers are ready and able to take on the necessary responsibilities.'

(*Brown, 1993*)

BOX 3

An example from Southeast Asia

'The Northeast Thailand project, funded by the U.S. Agency for International Development, was initiated to improve the health of rural people by providing safe alternatives to contamineted water obtained from unprotected traditional sources. The northeast was a priority for government investment because it is one of the poorest areas in the country. So, when the first project was designed in the early 1960s, it was assumed that villagers could and would pay little for an improved supply. Accordingly, the target was to provide protected water at minimal cost. Since ground water is abundant in the region, the technology chosen was hand pumps.

'Five years later the project was evaluated. Most of the hand pumps were not working, and the people's water use habits were largely unchanged. Consistent with conventional assumptions, the failure was attributed to a technology that was too difficult for the villagers to maintain and the inability of poor villagers to pay for improved water supplies.

'In a follow-up phase, motor pumps provided piped water at community standpipes. Again, the project failed. Five years after implementation, 50% of the systems were not working at all, and another ➨

➨ 25% operated only intermittently. The problem was again initially put down to complex technology, weak institutions and an inability to pay.

'Gradually, however, it became apparent that the main problem was not the capabilities of the villagers, but the fact that the service being offered was not what they wanted. They did not want hand pumps, which were not considered any significant improvement over the commonly used rope and bucket. Standpipes were no closer than their traditional sources and so offered no obvious benefits. Only water piped to yardtaps could meet the people's aspirations, as the time saved collecting water and the apparent high quality of the service were thought to be worth paying for.

'Potential problems in providing this higher level of service were clear: the systems would be more complex and more difficult to manage and maintain, and the price to be paid for the water would be high – even more per litre than people paid in Bangkok. Project staff were surprised when villagers responded that they could and would pay the amounts required, that diesel fuel could be purchased and pumps maintained, and that trained people would run the systems if they were adequately paid and were supported by local government water officials.

'The level of service was changed. Yardtaps were allowed, with the users paying the full costs of connection. Five years later, the verdict was in: 90% of the systems were functioning reliably; 80% of the people were served by yardtaps; large economic benefits were perceived, such as time savings, gardening and livestock raising; pumps, treatment works and distribution systems were maintained; and locally adapted financing systems had been developed with metres installed and regular payments sufficient to cover operation and maintenance costs, major repairs and some depreciation. Not only had the systems been maintained, but because the service was so popular, many systems had extended distribution lines to previously unserved areas.'

(*Briscoe & de Ferranti, 1988*)

4. Achieving community management

Creating a policy framework

In order to establish an environment in which community management can flourish, governments, agencies, donors and communities will need to introduce substantial policy changes. Key ones are:

- **Planning, ownership and control** These will be transferred to the communities, but how will this be achieved? For example, a community may take full control of a simple system, but may only be represented in the management of a more complex one.
- **Legislation** The transfer of ownership to communities may require legislation in some circumstances; in some countries formal associations with constitutions have legal status; in others, legislation may be required for water committees to be able to operate, and in others, community social pressures and norms may be adequate for effective management.
- **Cost recovery** This point is often addressed by asking: 'How much should the community pay for and how?' Under community management, the question would be: 'How much support can government give to the community?' In this way, the community is fully informed as to its own commitments and will decide itself how to manage the financial aspects of the system.
- **The support system** What role will the government or private sector agency play in support? This is a critical factor requiring clear policy, especially as it usually involves a change of role for existing government agencies.
- **Construction** Active government involvement in construction, operation and maintenance can inhibit job creation in rural areas and lead to low efficiency and high costs. The policy of government should be to transfer these responsibilities to the private sector.

In other words, integrating the community management approach into the institutions of government requires the creation of a

legislative, administrative and financial policy framework to support it. In addition, retraining of personnel along with new job descriptions within government institutions are required if they are to adapt to their new role.

Defining roles and responsibilities

A fundamental element of community management is that the community is in charge of its water and sanitation facilities, including operations and maintenance, and all other actors play supportive roles.

Using local rules to manage water use

According to IRC (1993), water use in the northern areas of Pakistan is subject to traditional rules which, although not written down, are strictly adhered to. Village water committees in projects supported by the Aga Khan Rural Support Programme are able to raise additional funds to pay operation and maintenance costs by imposing fines for the breaching of these rules, including the wasting of water by leaving taps running or using drinking water for agricultural purposes.

Working with the law

'Although Agua del Pueblo seeks to promote maximum autonomy in decision-making in the communities where it works in Guatemala, it is also very conscious of the need to work within a recognised national legal framework. Care is taken to explain properly to communities their rights and obligations in water system management in relation to current national policies and laws.

'A basic principle in Agua del Pueblo supported projects is financial sustainability. This is a crucial precondition for assistance, reinforced by the signing of legally binding contracts between communities and Agua del Pueblo at an early stage of project development.'
(IRC, 1993)

The experience of the Public Standpost Water Supplies Project of IRC highlights the importance of clearly defined roles. The project was intended to maximize the involvement of the community and in several of the demonstration countries this was successful. In Malawi, however, there were reports of maintenance difficulties as communities expected technical repairs to be done by external technicians (Kwaule, 1989). The thrust of the lesson here is that roles and responsibilities were not clearly defined and understood from the start.

The main actors and their roles are (Briscoe & de Ferranti, 1988):

- **Public sector** Policy maker, promoter, educator, regulator, financier or financial intermediary.
- **Community** Owner, builder, manager and operator.
- **Private sector** Provider of special skills, materials and services to the community.

The public sector

Promotion, mobilization and education are important responsibilities for government in order to help communities to recognize the importance of safe water and adequate sanitation as well as to promote agreed management policies. Government will have the major data base on water and is responsible for planning and allocation of water resources. It will therefore advise on water sources, technical questions and managerial aspects in order to improve the community's capacity to implement water and sanitation projects.

The regulatory role is also a major one for government. Allocation of water rights and control of water pollution and water quality are key regulatory functions.

Financial support for both infrastructure development and operation and maintenance may come from government, donors or private banks. The government role is to ensure equity and to assist in development. This can be achieved through the judicious application of subsidies, grants and loans. Government support must be seen as supplementary to community resources, however, and government should ensure that the requirements of donors do not undermine the principles of community management.

Support services have traditionally been provided by government. While these may in some circumstances be more efficiently provided by the private sector, government must still ensure that the service is actually in place.

Although an essential component of community management is the transfer of responsibility and control to the community, this does not necessarily leave the government or external agency with little or no role in project development, decision-making and system operation. Government generally has regulatory powers, but in addition it may assist communities with decision-making where community experience or resources are lacking (McCommon et al., 1990).

The community

Briscoe & de Ferranti (1988) state that it is the users who must decide on the type of improvements to be made, pay most of the costs, and be responsible for maintaining the facilities they have chosen and built. Government and external agencies must establish the environment in which communities can do this.

However, communities may need to be orientated to take on their new responsibilities. Not all communities may wish to do so, especially those who have been 'favoured' in the past by better service than normal from government. In addition, where a community is expected to take over existing facilities, it may not want facilities which are costly, inconvenient or inappropriate to community needs (which is hardly surprising if it was not consulted effectively at installation). Communities may also opt to have facilities managed by their representatives within a civic or local government structure, especially where the system is relatively complex.

Working with communities

Achieving community management requires a systematized approach to communities and reliable back-up and support after decisions are made. The training of extension workers to work effectively with communities is crucial. They need to know both participatory methods which will successfully involve all members of society (especially women and disadvantaged groups), as well as the mechanics of bookkeeping and operations and maintenance.

Much research and development of participatory methods has taken place in the water and sanitation sector since 1985 through the PROWWESS/UNDP project which produced *Tools for Community Participation* (Srinivasan, 1990), and later through the WHO/UNDP World Bank PHAST Initiative. In addition, many NGOs have experience in participatory methods. Especially popular is *Participatory Rural Appraisal* (Chambers, 1994).

Agencies should seek professionals in participatory methods to train their staff. Such consultants can be found in training institutions, at universities, within international organizations and in consulting firms.

In addition, WHO is producing a field manual in participatory methods for community management. The manual will lead the extension worker and community through a step by step process from problem identification and analysis, through to changes in behaviours and infrastructure to monitoring and evaluation.

Community organization

Communities, by their very nature, are structured to provide leadership, conduct social and religious activities, and attend to legal, property and economic matters affecting their members (Roark et al., 1993). Traditional water sources and waste disposal sites are also controlled through this structure. The extent and sophistication of the community management of traditional water sources varies according to water scarcity and population density as well as to social norms. Even where government has assumed responsibility for the management of facilities, there exists some degree of community management, focusing usually on water use, especially in arid areas and in crowded communities.

Communities are complex structures. McCommon et al. (1990) identify at least four different types of managing/governing institutions: traditional (chiefs, family heads); appointed (selected local representatives); elected local representatives; informal (community organizations such as religious groups, special interest groups, health committees).

It must be remembered that community decisions may not actually be representative of the community, due to authoritarian leadership, dominant elites, influential individuals

(political, business, religious) and the exclusion of some community members (such as women). Community management may also be influenced by these factors. A project may be weakened if the community leadership assumes control without fully involving or informing the rest of the community (Terrant, in Korten, 1987).

Water committees

The commonest organizational structure for community-managed water systems is the water committee. Often water committees also take on responsibility for ensuring sanitation improvements as well.

A water committee may be established to manage a water source or water system, depending on organizational requirements and the social diversity of the community.

For example, in the urban community management programme in Ghana, after one year of considering the options, the project, government and community opted to set up Water and Sanitation Development Boards (WSDBs), formally constituted and linked to the district government structure. WSDBs averaged 12 members, usually with four to six being women, elected or appointed by the various traditional, political, social, residential and economic groups (Livingstone, 1993).

In all cases, it is the community that should decide what structures it will use to undertake its management tasks. But whatever option is selected, it should be recognized as legitimate in the eyes of the community, it should be able to carry out its tasks of maintaining the water supply and it should not be in conflict with other forms of local organization (IRC, 1993). It may be linked into broader organizational structures if necessary.

The performance of the committee, particularly its financial honesty and openness, has a marked influence on community commitment to the water system and hence on users' willingness to contribute to its upkeep (IRC, 1993). Conflicts and disagreements between committees and communities, and between different committees, can break out owing to poor communication or poor management and, in the early stages, support systems need to be in place to address such issues. Eventually the community experience should develop to the level where it will act as the major source of support for other communities following the same route towards management of their water and sanitation services (Yanore, 1990).

A key role of the government or other external agency is to help the community to acquire the skills it needs to set up an appropriate organizational structure. Skills in leadership, accounting, record-keeping and mechanics will be required and assistance may be necessary to overcome problems of representation. As development of the community management system proceeds, less regular consultation with the community may be required as the organization and the leadership become more adept at carrying out the management functions using the powers delegated to them by the community. Eventually, the system should resemble the pattern found in the rural areas of some developed countries, where water and sanitation systems are owned by the community but managed by a small professional staff (Tamm, 1991).

Support services and training

Support services for community-managed water and sanitation projects rarely get

Water and sanitation committees and the wider world

'Making links with wider representative structures in the community and beyond has been an important factor in establishing effective water and sanitation committees (WSCs) in Uganda. In the South West Integrated Programme, supported by UNICEF, all WSCs are formally linked to the structure of Resistance Councils (RCs) which form the institutional focus for grassroots democracy in the country. RCs are established at cell or village level, and work upwards to the National Resistance Council (NRC) through RCs at parish, sub-county, county and district levels. Formally attaching WSCs to RCs gives them official recognition and legitimacy, without unduly affecting their day-to-day running. Without this legitimacy and recognition, it would be virtually impossible for them to do their job.'

(IRC, 1993)

specific attention yet are probably one of the most important factors governing success or failure.

The communities' access to technical and financial advice, technical skills for repairs, spares supply systems and management training are all crucial components. The implementation of a project is generally accompanied by an input of skills and training, but as projects move into the maintenance phase external support is usually reduced. Potential weaknesses appearing in the operation and maintenance system often do not receive the attention they deserve, resulting in systems falling into disrepair.

Roark et al. (1993) point to the availability of spare parts as a recurring problem. It is not always correct to assume that supply and demand will make spares available in rural areas. Governments have traditionally had problems in organizing the availability of spare parts and too often systems fail for this reason.

Financial support may also be necessary for infrastructural development or for critical items in the operation and maintenance system, such as expensive spare parts or major rehabilitation.

Significant changes in attitude and organization within the water agencies are required to make community management work. Water agencies should play a key supportive role to communities by: offering technical advice, especially on options; training repair mechanics; facilitating the development of a new operation and maintenance system; ensuring the availability of spares; and, where appropriate, monitoring the success of the system and responding to problems. Over time water agencies may develop the role of contractor to the community, as in the private sector, or they may leave the contracting to the private sector and assume the governmental role of technical advisor and regulator.

In order to carry out these support tasks, government water agencies must be adequately financed and employ trained and qualified staff.

Extension workers

The objective of extension staff training is to empower the community to be self-reliant. This self-reliance is best achieved through participatory methods for problem solving.

Yacoob (1990) emphasizes the importance of training extension workers themselves to be trainers of the community. It is particularly important to begin with the extension workers, as these are the people who first have to accept their change in role, and then have to mobilize communities for community management. Not only do they require training in the skills that the community itself will need (for example in leadership, accounting and mechanics). They also need training in the participatory techniques they themselves will use to help communities plan, evaluate, resolve conflicts, choose technology and set up an organizational structure.

Yacoob also suggests that the extension workers visit communities on a regular schedule. This may be necessary in the first stages of community management, but it is unlikely to be either affordable by government or necessary in the longer term as the community itself develops greater experience and expertise.

Village-level mechanics

It is worth making a particular point about the training of village-level mechanics, which is a subject with a variety of solutions. It is unlikely that training mechanics for each water point would be feasible and IRC (1993) suggests that long-term voluntary labour is unsustainable and should be avoided. Experience seems to show that repairs should be carried out not by the water committee but by arrangement with private mechanics. Water committees should be trained in preventive maintenance – to reduce the need to call on the more expensive private mechanic – but the more time-consuming and costly technical training of mechanics should be directed at creating new job opportunities in the competitive private sector within rural communities.

Some examples of training

In Sudan training was given to community staff in clerical skills, maintenance, operations, record-keeping and revenue collection, but the government agency maintained its own clerk, operator and two guards at each water yard. Subcommittees were trained in hygiene education and sanitation improvements (Livingstone, 1993).

All Water and Sanitation Development Board members in Ghana received management training in finance, technical areas,

administration, water utilization, hygiene and sanitation and were encouraged to conduct public education campaigns.

The IRC Public Standpost Water Supplies Project trained caretakers, village treasurers, teachers, district government employees and field assistants (Parwoto & Kwaule, 1988).

Making technology choices

Very often, neither government, donors nor non-governmental organizations have a clear idea of what the real costs of improved water supply and sanitation will actually be (Evans, 1992). However, the actual costs must be known if communities are to make a rational choice about what they want to pay for installation and for operation and maintenance, since a basic principle of community management is that the community gets the service that it really wants and is able and willing to pay for. Extension staff will require training to provide communities not only with technical advice but also with the financial implications of all the options, if they are to make an informed decision. Figure 1 below shows a model for decision-making.

In some cases, communities will be expected to take over existing systems in which they may have had little say in design, service level or siting. It must be expected that communities will finally exercise their choice and either maintain the system, or not, according to their own value judgements about convenience, level of service and technology, compared to the cost of maintenance. This may be a difficult fact for government to accept and is likely to be used as an indicator of the 'failure' of community management. In reality, it reflects the real failure of the previous planning system.

User-friendly technology

The focus on making technology user friendly and suitable for village-level operation and maintenance has made an important contribution to sustainability. The capacity of local communities to maintain their systems is in any case often underestimated. The level of maintenance is more a question of training support, spares availability and management, rather than ability. We use technology in our daily lives which we do not understand or are *unable to repair – the important point is* access to expertise. Communities may not have the expertise to manage the more complex systems but, when offering advice on the choice of technology, it is important to ensure there will be access to the necessary skills.

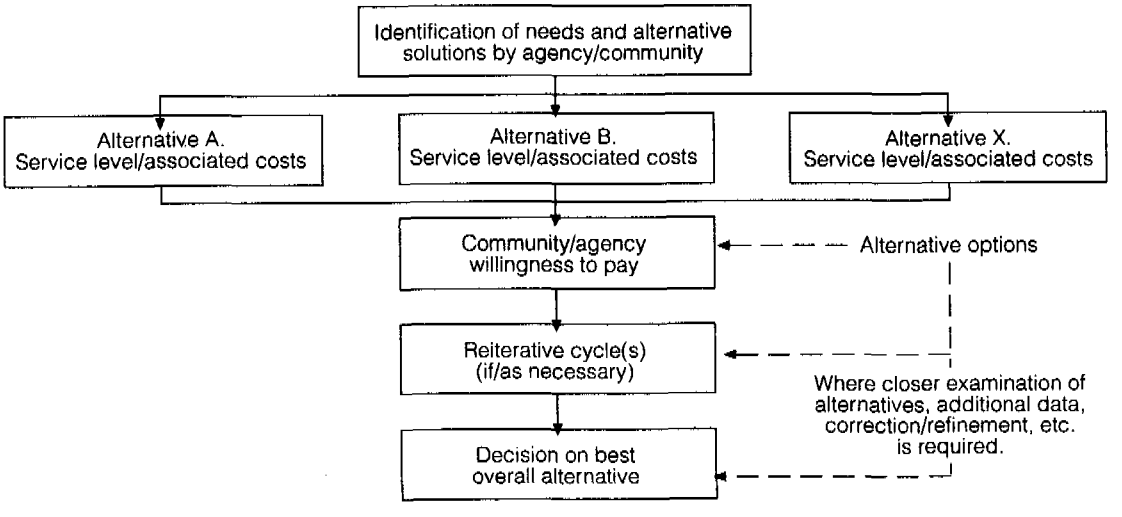
Wherever possible the standardization and/or local manufacture of equipment and spare parts can significantly improve the likelihood of successful maintenance.

Some examples of technology choice are given in Boxes 7 and 8.

Monitoring and evaluating

Self-reliance is an important goal of community management. Self-evaluation and

Figure 1. Community-Based Decision-Making Model (WHO, 1989)



Some examples of community choice

'Communities in the Sudan had little input into the choice of technology for rehabilitation of water supplies whereas in Ghana they did. Water and Sanitation Development Boards were encouraged to examine and evaluate the suitability and acceptability of the options and most included a mix of mechanised and non-mechanised supplies. In particular, water service levels were chosen in relation to the consumers willingness and ability to pay for the chosen service.

'Sanitation was not a component of the Ghana programme and in Sudan the lack of government experience in sanitation led to communities themselves taking the lead role in designing appropriate latrine superstructures and promoting the concept of improved sanitation throughout the community. In several cases latrine construction was subsidised from water revenues.'

(Livingstone, 1993)

problem-solving are seen as useful ways to strengthen self-reliance within the community. The development of monitoring and evaluating systems, therefore, should be an essential part of any project.

Up to now, however, evaluation has been viewed as an activity of the agency implementing the programme rather than of the community. In community management, the facilities are owned, managed and controlled by the community, so monitoring and evaluating systems must be developed for use by the community. The temptation to burden the community with collection of data for external use should be avoided.

Participatory evaluation by the community makes evaluations more relevant and many of the lessons learnt remain with the community for resulting action. Two good examples of the benefits of evaluation are given in Boxes 9 and 10 on page 14. Communities need to develop their own indicators for monitoring progress and evaluating performance.

Indicators for monitoring and evaluation must be usable by the community, and stem from the community perspective. It is likely that community concerns on monitoring will focus on management and performance indicators such as financial records, frequency of breakdown, numbers of users, water quality and coverage of sanitation facilities. It is also likely that an identified problem may be needed before the community considers undertaking an evaluation process.

Visits to neighbouring communities to compare experiences results in a sharing of ideas in a similar way to conventional evaluations and can be an important mechanism for both motivation of the community and refinement of the system.

VLOM pumps pave the way for success

'In 1980 UNICEF funded a national inventory of boreholes in Uganda and found that, out of a national stock of 5 089, only 25% were working. An extensive rehabilitation programme was undertaken, but three years later the percentage of working pumps had only increased to 32.2%. The failure of a centralized maintenance system made the need for community management very clear.

'A precondition for this was the use of a village level operation and maintenance (VLOM) hand pump. The India Mark II was identified as a suitable choice and a national policy decision taken to make this the technology of choice throughout the country.

'Pilot projects were developed, working closely with communities through inter-ministerial teams of extension workers. In the UNICEF assisted South West Integrated Programme (SWIP) community maintenance has cut breakdown rates by more than half, with more than 70% of hand pumps now in operation at any time. When gravity systems and spring protection systems are included, community managed schemes have been found to be 80% operational, with down times due to major breakdowns averaging between seven and ten days.'

(IRC, 1993)

Kibwezi evaluation brings rapid results

'In the Kibwezi Water Project in Kenya, a community Wells Committee initiated an evaluation of a water programme which had been underway for about six years. Because the community had been closely involved with the project from the start, they were able to devise their own ways of identifying problems and combatting them.

'With help from the African Medical and Research Foundation, the Wells Committee undertook a sanitary survey of wells and also tested the quality of water in people's homes. Committee members quickly learned how to use bacterial dipslides to test for water pollution. The visual evidence (bacteria growing on the dipslides are visible to the naked eye) made a lasting impression on householders, and greatly helped their understanding of disease transmission.

'Photographs also played a big part in the project evaluation, helping to identify pollution sources and prompting rapid corrective actions by community members.

'A very high degree of interest was stimulated by the evaluation surveys, and by the Committee regularly reporting results back to users. The Committee's plan of action included repairing well linings, education of community members, increased chlorination, and further examination of the condition, colour and translucency of jerry cans.

'Significantly, the user interest was converted into individual and collective efforts to replicate the water supply systems by building extra wells.'

(*UNDP, 1990*)

Financing

Community management emphasizes the necessity and desirability for the community to assume an increased financial responsibility for the development, operation and maintenance of water supplies and sanitation. Figure 2 shows the differences in investment and operational costs between water supply and sanitation. WHO (1990) recognizes the legitimate concern of governments to satisfy the basic needs of the disadvantaged segments of the population and that they may wish to provide subsidized services for such groups. However, there is clear evidence that current government systems for the provision and maintenance of services tend to subsidize the rich, while the unserved poor pay more for poorer quality water and sanitation. Subsidizing existing services for operation uses up financial resources which could be used for further development of services to the unserved. Community management, in contrast, allows a better targeting of subsidies to disadvantaged groups.

When it comes to capital investment, the community must agree the level of contribution it will make and be fully aware of the amount of external support it will receive. This is critical in the decision-making process, particularly in the choice of technology.

Evaluation solves a problem in Sri Lanka

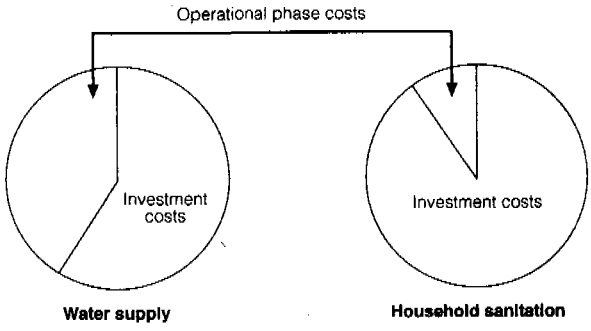
'In a village in Sri Lanka, the village water committee requested the assistance of an external evaluator to determine why the level of community interest in, and financial contribution to, a water project was so low. Working with the committee, the evaluator developed a very brief questionnaire and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

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

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

(*UNDP, 1993*)

Figure 2. Representation of costs/input differences between community water supply and household sanitation projects (WHO, 1989)



It is generally assumed that in a community management system the community will at least take on operation and maintenance costs, and eventually also replacement costs. Government may offer specific support to some communities, but a central feature of the system is the establishment of mechanisms within the community for managing the collection of funds (or equivalent), making payments and keeping accounts. In communities where resources are most limited, a long-term view must be adopted that allows for continued financial support for the very poor, provided that the level of support is low enough to be sustainable and does not undermine local self-help initiatives (Briscoe & de Ferranti, 1988). Even in these cases the community should have financial systems in place to manage those contributions that do come from the community.

The collection of fees

A variety of methods may be used to recover costs and communities should be aware of a number of points when choosing an appropriate method.

- The closer the system of collection to the community, the lower the overhead costs and the more responsive the system to the needs of disadvantaged groups and to offers of payment in kind.
- A general imposition of levies places a tax burden on both the served and unserved, thus further disadvantaging the unserved.
- Water point committees are able to maintain lists of users, collect fees and impose controls on water use when necessary.

Why cost recovery is important

'The reasons why the costs of water systems should be recovered from the users are broader and more fundamental than opponents of this philosophy have sometimes realized.

'One reason typically advanced for cost recovery is that if the local people themselves do not cover their system's costs, it is unlikely that anyone else – governments or donors – will be able to do so on an adequate, long-term basis in most communities. This observation is certainly true and, as a practical consideration, is a sufficient argument by itself. Yet there are other, more far-reaching reasons as well, which have to do with inefficiency. The symptoms are familiar: the providers of the service are unresponsive to users' preferences, facilities are in frequent disrepair because maintenance is weak, capital expenditures are not made when they should be, workers are in no hurry to get things done, the service is not reliable, and its hours of availability are limited. Providers are continually underfunded; not being dependent financially on user patronage, they have little to fear from failing to make improvements. The result is not just that service is of poor quality; it is also that the resources available to the sector are being poorly utilized. Investments are not yielding their potential returns. Scarce resources that could be of benefit in other sectors are being wasted.

'This efficiency concern has also another dimension. When costs are not recovered from the users, they are typically financed from government revenues through taxes of one kind or another, since all costs have to be shown to be met somehow, which divert resources from productive uses, distort incentives, and involve higher collection costs.'

(Briscoe & de Ferranti, 1988)

- As service levels rise the joining together of water point committees into associations may raise the opportunity for changing to levy systems, consolidating management systems and sharing expertise.

- Contributions may be made monthly, annually, or when required for repairs. The latter has obvious disadvantages and does not help to develop a stable management system. Rural communities often lack access to banking facilities and may be reluctant to hold sums of money. Local authorities may be useful here, and involving them from an early stage in a project would facilitate their support.

Expansion

If the community management approach is successful it should replicate itself, replication being one of the important objectives of water and sanitation development programmes (Narayan-Parker, 1990). Terrant (in Korten, 1987) cites a project in Indonesia to improve land and water management through terracing, integrated crop management and better water distribution. It started in one of the most disadvantaged communities and dissemination was lateral from hamlet to hamlet and farmer to farmer. Each added their own improvements, with project support, until the rate of spread was such that the project staff had virtually no role in most hamlets where the project was being started.

Partnerships between communities are a valuable tool for community organization, raising capacity for improvement and promoting the community management approach. Every opportunity should be taken at the start of a project to establish both formal and informal links between communities and with higher levels of community organizational structures. Meetings between community representatives are one way of starting the process. The benefits for capacity building are obvious in that communities can learn from one another and share experiences and expertise. Moreover, as in the above example from Indonesia, this is the prime mechanism for the spread and adoption of community management principles. In this way community management may develop from water point committees to water associations, with increased sharing and pooling of resources. It may lead to decreased daily consultation between community and water providers, with greater responsibility being taken by a competent and skilled water and sanitation management team, empowered by the community.

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