COMMUNITY MANAGEMENT OF IMPROVED WATER SUPPLY SYSTEMS

A preliminary review

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PREFACE

This document has been prepared as a background paper for an action-research proposal submitted by the IRC International Water and Sanitation Centre to the Directorate-General for International Cooperation (DGIS) of the Netherlands Ministry of Foreign Affairs. Financial support for the preparation of the document and proposal was provided by DGIS under phase 1 of the project "Community Management of Water Supplies" (WW/91/875) verpl.nr.706191, and is gratefully acknowledged.

The document was prepared by Mr Phil Evans (Programme Officer), with assistance, advice, and comments from Mr Jan Teun Visscher (Senior Programme Officer), Ms Christine van Wijk-Sijbesma (Programme Officer), and Ms Norah Espejo (Research Officer). Additional comments were also received from Mr Michael O'Brien (Consultant) and Ms Eveline Kamminga (Consultant).

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BOXES

1. INTRODUCTION

This paper presents the findings of an initial review of literature on community management of improved water supply systems in developing countries. The aim is to explore recent experience, identify general trends, and point to directions for further development. The paper has been written as a background document for an action-research proposal submitted by the IRC International Water and Sanitation Centre to the Directorate-General for International Cooperation (DGIS) of the Netherlands Ministry of Foreign Affairs.

In recent years a shift in terminology in the water and sanitation sector from community participation to community management has become increasingly apparent. This has arisen from a process of rethinking approaches to water and sanitation development, with implications of significant practical importance. This change has been described as a "paradigm shift" in thinking, presenting both a challenge and an opportunity in that it "..not only provides new solutions, it also provides a new perception as to what the problems are" (Donnelly-Roark, 1987).

The document begins by summarizing the origins of the change of perspective from participation to management, and describes the range of development challenges for which community management approaches are seen as a suitable response. An examination is also presented of the various ways in which community management has been defined. The central parts of the paper are illustrated with experience from the field, using case-study material to underline key issues and problems. The paper concludes by pointing to directions for further work.

The available literature on community aspects of water supply and sanitation development is vast, as a number of review publications have shown (cf. White, 1981; Wijk-Sijbesma, 1981; Wijk-Sijbesma, 1985; IRC, 1988). The literature in the IRC library alone runs to more than 1,000 entries on community issues. The selection made for this review seeks to strike a balance between overview and advocacy documentation on the one hand, and accounts of actual experience from the field on the other.

Management by communities of water systems goes back hundreds of years, and is nothing new in itself. Adapting to the changing circumstances of the modern world has not always been easy, however, and new problems and challenges have arisen which require new solutions. Community management raises many issues, from finding the most appropriate forms of local organization, to the strengthening of problem-solving skills in both communities and agencies, the establishment of financial and other management systems, and the building of local capacity for operation and maintenance. If community management capacity is to be further enhanced, new tools and methods

will be required. These need to be based on a detailed knowledge of the current management capacities displayed by communities, and the constraints to be overcome in further strengthening these. Although there is significant evidence in the literature that communities are capable of taking on complex management roles, studies which systematically analyze the performance of systems operated and maintained by users are hard to find. A programme of action-research, linking improvements in knowledge with the development and field testing of new tools and methods, is suggested as a next step.

2. DEFINITIONS AND SCOPE

The discussion in this paper focuses on the roles of communities in managing improved water supply systems (wells, boreholes, protected springs, simple piped supplies, etc.). The management by communities of improved sanitation systems is not directly considered, though many of the basic principles of water system management may be seen to apply equally to these.

For the purposes of the discussion in this paper, the "community" means the group of users who live in the same area and have access to, and use, the same improved water supply system.

3. THE GOALS OF COMMUNITY MANAGEMENT

The shift in terminology from community participation to community management became increasingly apparent from about the middle of the 1980s (cf. Williamson, 1983; Wood, 1983; Briscoe and de Ferranti, 1988), as the International Drinking Water Supply and Sanitation Decade (1981-90) gathered momentum. By the end of the decade, community management was placed firmly on the agenda by its inclusion as one of four guiding principles for sector development in the 1990s outlined in the New Delhi Statement (see Box 1).

Box 1.

THE NEW DELHI STATEMENT

In September, 1990, hundreds of delegates from around the world gathered in New Delhi, India, to attend a Global Consultation on Safe Water and Sanitation for the 1990s. The purpose of the meeting was to review the achievements of the International Drinking Water Supply and Sanitation Decade, and point to directions for further development in the 1990s. The meeting ended with the issuing of a statement identifying four guiding principles for sustainable water and sanitation development:

1. Protection of the environment and safeguarding of health through the integrated management of water resources and liquid and solid wastes.

2. Institutional reforms promoting an integrated approach and including changes in procedures, attitudes and behaviour, and the full participation of women at all levels in sector institutions.

3. Community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes.

4. Sound financial practices, achieved through better management of existing assets, and widespread use of appropriate technologies.

Source: UNDP, 1990b.

The water and sanitation decade led to important advances, with lessons being learned from both success and failure. As more and more improved systems have been built, it has become increasingly difficult for governments to maintain them. Estimates suggest that 30-40% of water systems in developing countries may be broken down at any one time. For individual countries and systems, percentages as high as 60-70% have been reported (WHO, 1990a). If water supply systems can not be kept in good working order, the benefits to be gained from building and using them will be hard to obtain. With more than 1.5 billion people in the world still lacking access to a safe water supply, and funds available from governments and donors unlikely to increase in the foreseeable future, a larger share of responsibility will inevitably fall on the users themselves.

The New Delhi meeting saw community management as an important solution to basic problems of sustainability. A background paper prepared for the meeting argued that approaches to community participation during the decade had not produced the hoped-for results, and a more powerful approach was required (UNDP, 1990a). An earlier meeting in Abidjan, Côte d'Ivoire (African Development Bank, 1990), and later international meetings at Delft, The Netherlands (UNDP, 1991), and Dublin, Ireland (ICWE, 1992), drew similar conclusions.

An enhanced management role for user communities is seen as a way of increasing cost effectiveness, improving reliability, and ensuring sustainability by placing a larger share of the responsibility for operating and maintaining water and sanitation systems in the hands of the users themselves. It is also seen as an approach which may provide solutions to broader problems: these include the insufficient achievement of health and other benefits; the inequitable distribution of improved systems and benefits; excessive costs; insufficiently prominent roles for women; apparently low levels of self-reliance; and technology and service level choices which do not match community demand. Community management is a potential vehicle for achieving a broad range of development goals (see Box 2).

Box 2.

GOALS OF COMMUNITY MANAGEMENT

The goals of community management are to:-

* Improve system reliability.
* Improve the attainment of health and other benefits.
* Promote greater democracy and equity in the development process.
* Promote a more prominent role for women in development.
* Ensure more appropriate choices of technology and service level.
* Reduce the costs to agencies of improvements by making better use of local resources, skills and knowledge.
* Build community confidence and capacity to undertake further development activities.

(Sources: Cox and Annis, 1982; Dworkin, 1982; Whyte, 1984; van Wijk and Visscher, 1987; UNDP/World Bank, 1988; McCommon et al, 1990; UNDP, 1990b; Narayan-Parker, 1990; Franceys, 1991; Indonesia-Australia Development Cooperation Programme, 1991; Renard, 1991).

In addition, as noted earlier, governments have often proven unable to cope with the recurrent cost and manpower implications of operating and maintaining new systems, leaving communities little choice but to take on these responsibilities themselves or abandon them altogether. Community management is thus seen as a general vehicle which should lead to more efficient, sustainable, and cost effective water supply development.

4. WHAT IS COMMUNITY MANAGEMENT?

According to the dictionary, to manage is to "organize; regulate; be in charge of" something, and managing is "having executive control or authority". To participate, on the other hand, is to "take a part or share in" something (Allen, 1990).

Box 3.

BASIC COMPONENTS OF COMMUNITY MANAGEMENT

Responsibility: The community takes on the ownership and attendant obligations of the system.

Authority: The community has the legitimate right to make decisions regarding the system on behalf of the users.

Control: The community is able to carry out and determine the outcome of its decisions.

Source: McCommon et al, 1990.

On this basis, community management is "more than participation" in that it "emphasizes the communities' own decision-making power over those water supplies or components for which they hold or share responsibility.." (Wijk, 1989). While it is possible for a community to participate in a water supply improvement programme designed and controlled by an outside agency, it is not possible for the community to manage the system without having significant autonomy and decision-making powers. The three basic components of community management can be defined as responsibility, authority, and control (see Box 3). The authors of this model stress that choosing community management is more than a simple choice between a top-down or bottom-up approach:

> *"Rather, it is the outcome of a collaborative partnership between the community and the government in which neither is dominant and each understands and accepts its role." (McCommon et al, 1990).*

Most discussions of community management usually refer to more or less the same basic set of characteristics. These are summarized in Box 4.

An important feature of many definitions is the strong link made between community management, on the one hand, and community financing, on the other. For some, this relationship is indispensable, and is closely linked to the ownership of improved water supply systems by communities themselves (Briscoe and de Ferranti, 1988; McCommon et al, 1990; UNDP, 1990a; UNDP/World Bank, 1991). For

Box 4.

CHARACTERISTICS OF COMMUNITY MANAGEMENT

Community decides on:

* technology choice
* service level
* form of local organization
* use regulations
* financing mechanism

Community responsible for:

* maintenance and repair
* regulation of use
* local management organization
* financing

Community owns the system

McCommon and her co-authors, community management only makes sense if communities are also prepared to meet at least part of the running costs.

"In community-managed systems, users identify and mobilize resources. A community that is unwilling to use its available resources, however limited, for this purpose or that is unwilling to obtain them from elsewhere, can hardly be in control of its system". (McCommon et al, 1990).

Not all those who write about community management are prepared to be so direct, but none of the documents covered in this review attempts to challenge this argument head-on.

The idea that community ownership is a precondition of effective community management raises complex issues, though "sense of ownership" is often used in project and programme evaluations as an indicator of community commitment (for example, see Mukherjee, 1990). In some cases, communities may not perceive themselves as the owners of systems for the very good reason that from a legal standpoint they do not have ownership rights. As Wood has noted, however, the important question is not so much "who owns the system?" as "who is responsible for taking care of it?" (Wood, 1983). Many business enterprises are run by managers who do not own them, but who nevertheless accept responsibility for their success or failure. Even when communities do acknowledge ownership of a water supply system, they may not always feel that they are in control of it. A project evaluation in Rwanda, for example, found that community members, while expressing a sense of ownership of their water systems, nevertheless perceived decision-making authority as originating from outside the community (Coreil and Beaudoin, 1989).

In a review of experience in Nepal, Williamson identifies three different management approaches (see Box 5), indicating a progression from agency-management, via community participation, to community management. In the case of community management, responsibilities can be shared between agency and community, but it is the community which ultimately decides on how things are to be done. Williamson omits to mention the issue of financing in his model, but it serves to illustrate both that different options are available, and that community management, where feasible, can have clear advantages.

Community management can take many forms, in the same way that community participation can have many variants (cf. White, 1981). McCommon and her co-authors identify a broad range, from low-cost management of simple dug wells and boreholes in Sierra Leone, Togo, and Kenya, through more complex management systems taking care of piped schemes in Malawi and Guatemala, to relatively sophisticated local water associations in rural areas of the United States (McCommon et al, 1990). Community management need not imply that communities must take care of everything (or necessarily pay the full costs). The idea of partnership referred to earlier allows scope for a sharing of responsibilities between agencies and communities.

Whether or not a community is really managing its water supply system is much easier to see in practice than to strictly define at a theoretical level. At the same time, there is a general consensus that, although the relationship between them is complex, the distinctive features of community management are that:

* The community has direct management and decision-making control.
* The community is committed to contributing towards covering costs.
* The community accepts responsibility for running the system.

In many projects and programmes, communities play important roles in performing basic operation and maintenance, and other tasks. If the elements of decision-making, contributions to covering costs, and acknowledged responsibility are missing, however, it is difficult to say that they are truly managing the system on their own behalf. It is clear from the literature that community management means transferring greater authority and control to communities. This has significant implications for the way in which sector development proceeds in the future. In particular, it implies the development of the relationship between supporting agencies and communities into one of partnership.

Box 5.

OPTIONS FOR WATER SYSTEM MANAGEMENT

	Agency–managed (Centralized)	Limited community–involvement (People's participation)	Community–managed (Decentralized)
Flow of ideas	AGENCY → COMMUNITY	AGENCY → ← COMMUNITY	AGENCY → ← COMMUNITY
Basic assumption	Local people know nothing and can't learn new things	Local people have knowledge which can be used in design. They can also provide labour for construction	Local people have management skills and quickly learn needed technical skills
How need is realized	Agency decides community needs water	Local political official decided community needs water	Community realizes own need
Who makes decisions	Agency	Agency and local leaders	Community
Strategy	Survey, design are done by agency staff. Little time is spent in community. Design is done in office	Survey is done by agency staff with advice given by local leaders on location of water sources, tank and tap stands. After design is completed in office it may be sent to community for information	Community asks agency for survey. Local people assist and understand survey. Community makes decisions about design. Design is prepared in the community; everyone is able to understand it
Construction	Construction is done by contractor hired by agency	Agency provides technician who organizes all work and does skilled work himself. Community provides volunteer unskilled labour	Agency provides technician who teaches necessary skills. Community organizes all work
Maintenance	Agency provides for maintenance by placing own staff to look after own system	Maintenance is left for community to work out	Maintenance is organized by community who have skilled persons able to make repairs
Approval of designs	Agency	Agency	Community and agency
Primary beneficieries	Agency–its 'good name'	Agency–its 'good name'	Community
	Contractor–profit	Local political leaders	
End result	Dependence on agency	Continued lack of initiative	Self-reliance

Note: 'Agency' refers to Government or Development Agency which implements the drinking water project

Source: Williamson, 1983.

5. PROSPECTS FOR COMMUNITY MANAGEMENT

In acknowledging the current lack of precision in clearly defining community management, Tamm suggests that this is partly "due to a corresponding lack of successful examples, (which) has made this approach as much ideological as operational, as much guided by beliefs as by practical considerations." (Tamm, 1991).

In spite of this, claims that community management can succeed have been made for quite a long time. At the beginning of the water decade, for example, a series of USAID evaluations of projects in six countries (Kenya, Thailand, Peru, Panama, Korea, and Tunisia) indicated that systems managed, and paid for, by communities tended to be more reliable than those which were not (Dworkin, 1982). These studies were conducted more than ten years ago, however, and few studies have since been done which systematically analyze the performance of community managed systems. Many gaps in knowledge need to be filled, and more experience gained, before clear conclusions can be drawn about the real potential of community management approaches.

6. COMMUNITIES AS TRADITIONAL MANAGERS OF WATER SUPPLY SYSTEMS

Although community management has been promoted as a new approach in the water and sanitation sector, the management of water supplies by communities is certainly nothing new in itself. At a common sense level, it is obvious that communities have managed their own water supplies (if not "modern" water systems) for thousands of years.

Rules for regulating access to water sources, and agreements on appropriate uses for different sources, are commonplace, and numerous examples of these forms of management can be found in historical and anthropological literature. In many developing countries today, traditional water sources are subject to similar locally developed management rules that operate outside of, or alongside, the regulatory frameworks of national states. Water collection and use is seldom a free-for-all, and is often carefully thought out (cf. White et al, 1972). Communities often come to explicit or implicit agreements that define uses (drinking, livestock watering, clothes and body washing, irrigation, etc.) for water from different sources (wells, springs, streams, rivers, dams, etc.), or at different locations at the same source (along a river bank, or on a lake shore). Many of these decisions are made by women, who have long played a crucially important role in the management of water use (cf. Wijk-Sijbesma, 1985).

New water supply systems imported from the outside often make new demands on communities and require new approaches for successful community management. National social and economic developments can also undermine pre-existing community-based management systems and reduce the appropriateness and effectiveness of these in new settings.

A good example of a traditional water supply management system that has proven to be highly effective for many hundreds of years, but is now under threat by progress in national development, is to be found in Oman. The falaj system (see Box 6) has provided people with water in a harsh desert environment for as long as 2,000 years. The system is ingenious, but complex, and needs constant attention and careful management.

Box 6.

TRADITIONAL WATER MANAGEMENT IN OMAN

The falajes were built in Oman following its occupation by invaders from Persia some 2,000 years ago. Water is tapped from underground and is run to the surface through tunnel systems, sometimes several kilometres long. No mechanical devices are used to lift the water, which flows through the tunnels by the force of gravity. Once it reaches the surface, it is channelled to subscribers for irrigation, livestock watering, and human consumption, on the basis of complicated and well-regulated distribution and payment systems. The tunnels and channels need constant repair and problems of tunnel collapse are persistent. During droughts, which are frequent, distribution is carefully rationed and extensive repairs undertaken, both to improve the flow during the drought itself and to subsequently improve the efficiency of the system when the drought breaks. Today, falajes remain the dominant form of water supply in rural areas, with 4,000 systems serving 60% of the population outside the towns and cities, but their future is highly uncertain.

Although the falaj was a system imposed from the outside, with no indigenous knowledge now remaining of how they are constructed, complex local management systems were developed to maintain and run them. Responsibility for falajes has been passed down from generation to generation through a customary office-holding system. Systems were fully self-financing and entirely run on local skills and resources. The impact of the development of the oil industry in the region, and the new economic opportunities this has brought, has served to undermine the interdependence and community cohesion that was the basis for success. In the past, when a falaj broke down the community had no alternative but to work together to restore the water supply. National economic development has meant that other options are now available. The typical response today to drought or breakdown of the system is to leave the village to seek a livelihood in the outside world, and to return with the funds to build a private water supply. This has had a devastating effect on the falaj system, and its days now seem numbered. The poorest members of communities, who are unable to seek earnings on the outside, continue to rely on falajes but lack the resources to keep the systems going. Ironically, national development has both undermined an effective local management system and increased inequity in rural communities.

Sources: Sutton, 1984; Birks, 1984.

The long history, and rapid decline, of the falaj system points to some interesting lessons. In Oman, communities were able to take on complex management tasks and successfully run water supply systems imposed from the outside for hundreds of years, entirely with local resources. Their success, however, depended on a common interdependence on the system by all members of the community, with no viable alternatives being available. Community cohesion and the absolute need for the water provided by the system were the key ingredients for success. Once these two factors were removed, community capacity to continue to manage and maintain the systems began to break down. Neither of these factors had anything to do with the actual ability, in a technical or managerial sense, of communities to take care of the systems, but was directly related to changes in circumstances that affected their willingness to do so when other options became available.

It has been argued that new community management systems should as far as possible build on existing community traditions and institutions (cf. Fortmann, 1983, for an example from Botswana; and Renard, 1991, for a discussion based on experience in the Caribbean). Whether considered by agencies or not, indigenous systems and traditional leadership in any case often play an highly important role. In Zimbabwe, for example, elected water committees have official responsibility for community maintenance activities, but as often as not traditional leaders are just as influential in deciding how these tasks should be carried out (Cleaver, 1991). In Yemen, traditional leaders play important roles in local water supply management, though often at the expense of women, who have been under-represented at the management level as a result (Blokland et al, 1990; Horst, 1990). A recent IRC publication notes that in some countries, with many in West Africa providing good examples, chiefs and councils of elders continue to retain considerable authority. Such leaders should be acknowledged in initial approaches to the community, but at the same time "it must be recognized that traditional leaders do not necessarily represent the whole community" (IRC, 1991). In Lesotho, the involvement of traditional chiefs in local rural water supply management was found to produce very mixed results (Feachem et al, 1978).

In some cases, traditional and customary approaches can be in direct conflict with national goals. In Botswana, for example, the government tried to introduce a new community-based management approach to regulate the use of seasonal dams. These were intended exclusively for livestock watering, and the government wanted to optimize water use and protect the environment by limiting the number of livestock using each dam. Dams were to be fenced off and controlled by local dam groups, which were also required to collect money from users to pay for their upkeep. It is customary in

Botswana, in common with many other arid and semi-arid areas, to consider water as a common-property and open-access resource that should be freely available to all. This makes both limiting access to water, and charging a fee for it, extremely difficult in rural areas, particularly in remoter regions where water is scarce (Fortmann, 1983).

Where traditional authority systems exist alongside modern institutions they are always likely to make their presence felt to some degree or another. Development programmes often ignore this at their peril. Acknowledging the presence of these systems and where possible seeking ways to integrate them, rather than setting up new ones which may lead to conflict or resistance, is an important first step towards the development of effective local management organisations.

7. LOCAL ORGANIZATION FOR COMMUNITY MANAGEMENT

Although the significance of traditional management practices and local leadership are often acknowledged in the literature, the general trend is to assume that new water supply technologies require new forms of local organization to manage them. As noted already, community management can cover a broad range of options, from very local individual or household level management all the way to highly formal community water boards (cf. Wijk-Sijbesma, 1981; McCommon et al, 1990). The degree of autonomy of local organizations can also vary considerably, with some being closely tied to formal local government institutions and others being much more informal (Wijk-Sijbesma, 1981). The level of organization (from individual household upwards) may have an important influence on the success of community management. In Indonesia, for example, in a successful handpump project supported by the NGO Yayasan Dian Desa, householders opted to organize themselves around private or small group wells, rather than communal water points, on the grounds that this would avoid conflicts over sharing, amount of water use, and payment (Sudjarwo, 1988).

The most commonplace approach by government and donor agencies is to require communities to establish committees to coordinate local management of new schemes. In Zimbabwe, communities are expected to form small user committees at every water point to take care of day-to-day operation and preventive maintenance (Cleaver, 1991). In some cases, the form of these local organizations is very closely defined. In a programme in Tanzania, communities are required to form water committees with five members, at least two of which must be women (Andersson, 1990).

Local management organizations can either be specifically established to run the water system alone, or the necessary management tasks can be undertaken by existing

general development organizations (Wijk-Sijbesma, 1981). Which is more appropriate depends on local circumstances, and, according to the principles implied by the community management concept, should be decided by the community itself. Under the right circumstances, multi-purpose community organizations have proven to be highly effective, as the successes of the Saemaul Undong ("New Village") movement in South Korea (USAID, 1981), and the Village Organizations (VOs) supported by the Aga Khan Foundation in Pakistan (Pasha and McGarry, 1989), indicate.

An often unseen factor in the effectiveness of community management is the influence of charismatic individual leaders in mobilizing community enthusiasm and interest in undertaking management tasks. In a study of community maintenance, covering 480 water points in Zimbabwe, Cleaver found that often the form of a local water committee was in the end much less important for success than the presence of a dynamic local leader who ensures that the necessary work gets done (Cleaver, 1991). Katko also notes the importance of energetic individual leadership, pointing out the decisive importance of a "champion" for the success of local water associations in Finland (Katko, 1991).

Community cohesion has already been referred to in the discussion of the falaj system in Oman as an important factor contributing to the likelihood of successful community management. A dynamic leader can help to pull a community together and create a common purpose. A study in Yemen suggests, however, that cohesion does not necessarily mean that communities always need to act in an harmonious and peaceful way. Arguments and disputes, if properly regulated and resolved, can actually serve to strengthen cohesion by providing an important source of validation for local management rules (Vincent, 1990). Competition for water resources can be a positive force in a community in strengthening willingness to manage. This only appears to work, however, when there is an adequate and legitimate legal and authority framework to provide clear boundaries within which disputes can be settled if and when they arise.

Most donor agencies prefer that community water organizations are democratically elected and represent all interests within the community (hence, for example, the insistence of many that women be included). Many communities, however, lack the democratic model of elected representation on which this insistence is based, and find it difficult to quickly adjust to such demands when they are made. A community-based project in Rwanda, while showing considerable promise, nevertheless faced many problems. One of these was the difficulty of adopting the elective model for water users associations introduced by the support agency. This was because the method

of open election of representatives "departs significantly from the existing political system" (Coreil and Beaudoin, 1989).

The functions to be performed by local management organizations can vary considerably, depending upon the agreed division of responsibility between the agency and the community. Box 7 gives a typical task description for a village water committee.The example list is brief, but even so the tasks described cover a broad range of skills. Such models require committee members to negotiate on the community's behalf, coordinate and administer technical and managerial tasks, keep accurate financial and administrative records, promote good use of the water system, and regularly communicate and report back to the community. Building the capacity of communities to undertake these responsibilities is seen by many as a major support task for agencies (cf. McCommon et al, 1990; Yacoob, 1990; Yacoob and Rosensweig, 1991).

Box 7.

TASK DESCRIPTION FOR A COMMUNITY WATER COMMITTEE

* To represent the community in contacts with the agency
* To organize contributions by the community, in cash or kind, towards construction, and towards operations and maintenance
* To organize proper operation and maintenance, including supervision of caretakers
* To keep accurate records of all payments and expenditures
* To promote hygienic and effective use of the new facilities
* To hold regular committee meetings to discuss and decide on issues, procedures, and problems
* To inform the community regularly about decisions and to report on revenues and expenditures

Source: IRC, 1991.

As well as having an adequate skills base, local management organizations also require proper recognition and the legitimate authority to perform their functions. A study of village water supplies in Lesotho in the 1970s argued that community management must be seen as a form of "delegated authority", supported by legal sanction. If governments want community-based organizations to take management responsibilities, they must back them with the force of law (Feachem et al, 1978). While in Latin America community water boards can be found with very closely defined legal status, village water committees in Africa and Asia more often than not lack this official recognition and authority.

Although various organizational options can be found in the literature, it is hard to find a systematic account of the full range of possibilities and a thorough analysis of the strengths and weaknesses of each. The bringing together of current experience in this way would be a useful contribution to further strengthening the capacity of agencies to support community management organizations.

8. COMMUNITY OPERATION AND MAINTENANCE

The clearest indicator of the success of community management is the extent to which water systems are kept in good working order by the users. A community management approach implies that far greater responsibility for operation and maintenance will fall on the shoulders of the users. In many cases, community roles in operation and maintenance are limited to simple care of water points and it is often assumed that users can do little more than undertake protective measures to minimize breakdowns. Even a brief review of case material, however, indicates that communities may be capable of much more.

In Colombia, community water committees successfully manage small piped schemes, including simple water treatment with slow sand filters and chlorination. An evaluation report showed that the communities carried out and financed all daily operation, maintenance and management. Water treatment was managed so well that E.coli counts were reduced continuously by more than 99%. Although some problems remain to be solved, and full 24 hour services have yet to be achieved, the Colombian case indicates that with the right support and motivation communities are able to manage relatively sophisticated water supply technologies (CINARA, 1990).

Women, as well as men, can play an important role in keeping systems in good working order. In a handpumps project in Rajasthan, India, it was found that women pump mechanics were more effective than men, even though the initial costs of training were higher because women preferred to work in teams of three while men worked

alone. A field study found that the better preventive maintenance done by the women mechanics meant that major repair costs for handpumps maintained by them were four times lower than for those maintained by men (Jonsson and Rudengren, 1991).

As with other aspects of community management, adequate support is required to ensure that the full potential of communities is developed. This includes:

* Proper training in the performance of technical tasks.
* The development of approaches which allow communities to strengthen their problem-solving skills and learn from experience.
* Appropriate technical design to maximize the number of tasks which can be done by community members themselves.
* The development of simple but effective monitoring tools to allow communities to assess and improve their own performance.

Support needs also include ensuring the availability of spare parts and tools.

The range of issues which need to be addressed in strengthening the operation and maintenance of community water supplies is very broad, as the WHO Working Group on Operation and Maintenance has noted (WHO, 1990a). According to the group, operation and maintenance has not yet been given the serious attention it deserves. If increased community management is adopted as a goal, the need to address this aspect will become of even greater importance. A prerequisite for this will be a clearer understanding and documentation of exactly what communities are currently showing themselves capable of, and an analysis of how community capacities can be further strengthened.

9. COMMUNITY FINANCING

The strong relationship seen between community management and community financing is highly important. Discussions of community involvement in water supply programmes have often seen this as a means of cost recovery and cost reduction (cf. Baum and Tolbert, 1985). Although others (cf. Andersson, 1989) are quick to point to other reasons for encouraging community management, such as community empowerment and greater self-reliance, community financing has been seen as both an indicator of community willingness and capacity to take on management responsibilities, and as a precondition for success (for example: Dworkin, 1981; Briscoe and de Ferranti, 1988; McCommon et al, 1990; UNDP, 1990b; UNDP/World Bank, 1991).

Community financing of improved water supply systems is a complex issue, as a recent IRC publication shows (Evans, 1992). A wide range of factors are involved, with the achievement of benefits and the ability and willingness of communities to pay

for services being among the more important. The insistence that as far as possible communities should contribute towards the costs of services, as well as taking management responsibility for them, is seen as a central precondition for the now widely advocated transformation from a supply to a demand-driven approach to basic service provision.

On a practical level, the options for community-based financing are broad (Wijk-Sijbesma, 1989). Whichever one is chosen, part of the process of capacity building is likely to require support to communities in developing effective financial management and accounting procedures. At the same time, communities themselves have a major role to play in identifying the most appropriate approaches. For example, in a Canadian-supported handpumps project in Togo, householders agreed to manage long-term operation and maintenance and cover the costs of repairs and spare parts. To raise the necessary funds, they cultivated communal farms and put the proceeds into a bank account which they used to keep the handpumps working and finance other development activities (Graham, 1990). In Niger, villagers decided to raise funds for handpump maintenance by making an annual contribution to a community fund immediately after the main harvest of the year. Most of the money was invested in grain. This reduced the likelihood that the money would be used for other purposes, and usually ensured a profit when the grain was sold later in the year (Ministère de l'Hydraulique, 1991).

A UNDP/World Bank study identified community financing as an important element of success in a study of community management in seven projects in West Africa (UNDP/World Bank, 1991), and was a prominent feature of a highly successful project in Guatemala (see Box 8). Successful community financing is far from universal, however, and remains a major challenge. The assertion that community management makes no sense without community financing also needs further investigation.

Box 8.

COMMUNITY FINANCING OF WATER SUPPLIES IN GUATEMALA

A case study of a community water supply project in Guatemala, supported by a local non-government organization Agua del Pueblo, indicates that communities can not only be willing to pay for improved water supplies but that projects also benefit considerably from a community-financed approach.

Following a request from the community, Agua del Pueblo assisted a community to install a gravity-fed piped supply system in their village. The community elected a committee to manage the scheme, a loan was arranged to pay for it, and monthly rates to be charged to users to cover maintenance costs were agreed. Using their own resources led to a high level of community commitment to the scheme, and the active search for economic benefits to help recover the costs:

"A little over a year and a half later, an Agua del Pueblo visitor found the acueducto to be in excellent working condition. He also found a second piping network had been subsequently installed. Several months after completion of the potable water system, the water committee had met to discuss taking out a loan for small-scale irrigation. They had located another spring and had sent a delegation to Guatemala City to discuss their plans with the National Agricultural Development Bank. Eventually, their loan was approved, and the irrigation system was installed."

Recovery of the loans issued by Agua del Pueblo proved to be very successful:

"Agua del Pueblo's requirement that a substantial capital investment come from the community is unusual among water programs, which normally limit the community's contribution to the provision of labour and locally available materials. To date, 15 of the 16 loans in the program's portfolio are up-to-date - testimony that communities will pay for services that they value and helped to create."

Source: Cox and Annis, 1982.

10. THE ROLE OF WOMEN IN COMMUNITY MANAGEMENT

The significance of the role of women in water management has long been recognized, and an important achievement of the water decade was to give far greater prominence to this issue. The body of evidence that women can play decisive and indispensable roles in ensuring the success of water improvement programmes is now very large (cf. Wijk-Sijbesma, 1985, Indonesia-Australia Development Cooperation Program, 1991; Wijk-Sijbesma and Bolt, 1991).

Women are capable of taking responsibility for complex technologies, as well as managing basic care of water points. In Mexico, for example, groups of women in low-income peri-urban areas successfully managed relatively complicated solid and human waste recycling technologies and turned this project into an effective income-generating enterprise by producing and marketing high quality compost (Schmink, 1984). In Burkina Faso, the entrepreneurial skills of women have been seen as a major potential asset for water supply management and official government policy has now been established to support their more central involvement (Kompaore, 1989).

The relationship between management authority and control over resources may help to further strengthen the role of women, but it may also mean that even greater efforts must be made to ensure that they are properly represented in the management process. In many societies, authority positions are reserved for men. If greater recognition is given to communities as managers, men may be more inclined to keep such positions for themselves. As Hannan-Andersson has noted, as community involvement grows a gender perspective is even more essential to prevent men from securing a dominant, managerial role and women a dependent role in an area where they formerly enjoyed considerable independence and responsibility (Hannan-Andersson, 1990).

11. PLANNING AND COMMUNITY MANAGEMENT

To improve the prospects for success, community involvement should begin as early as possible in project development. If communities are directly involved in planning new schemes and deciding how they are to be run the chances are much better that the development will meet their own felt needs (cf. Briscoe and de Ferranti, 1988; Narayan-Parker, 1990; Franceys, 1991; IRC, 1991; Rondinelli, 1991). Attempts are being made to develop techniques to involve communities more closely in planning, but there is still a lot to learn.

At the same time, it is important to recognize that governments may wish to pass management responsibilities to communities long after schemes have been built. In

many such cases communities may have had little or no involvement in project planning, and little is yet known as to how this can be overcome. In a number of East African countries, attempts to do this are currently under way. On the basis of this and other experience, it should be possible to more clearly see the relative importance of community involvement in planning in ensuring long-term success, and what is required to hand over management to communities when this has not been a feature.

12. MONITORING AND EVALUATION

The monitoring and evaluation of progress is an important management tool in projects of all kinds. If communities are to take on greater management responsibilities, an important part of establishing the necessary capacity is likely to be the development of suitable monitoring and evaluation tools. Agency monitoring and evaluation is often predominantly concerned with quantitative and technical aspects of scheme development, operation, and maintenance. Even when a broader approach is taken, the information collected is often primarily of use to the agency. Communities have information requirements of their own to enable them to carry out their management functions.

The need for new approaches to monitoring scheme performance and the effectiveness of community management on a continuous basis has been recognized, and the development of such tools is being actively pursued (see, for example, Narayan-Parker, 1990). This is an important new area for further knowledge base development and testing in the field.

13. THE LIMITS OF COMMUNITY MANAGEMENT

The idea that community management should be based on a partnership suggests that limits are recognized. Although communities may be able to take on a very substantial share of management responsibility, agency involvement may always be required to some degree. The principle agency role in the future has been seen by some to be that of facilitating management by communities (cf. Briscoe and de Ferranti, 1988). This can involve anything from establishing suitably supportive legal and policy frameworks, to providing skills training and ensuring that the necessary spare parts are locally obtainable.

Water management on a broader scale also means that governments will always have an overall responsibility to ensure that national resources are protected and properly used, and national public health standards maintained. Certain technical requirements, such as the maintenance of sophisticated water treatment works or the monitoring of water quality, may also be beyond the capacity of communities to perform. What these

limits are, however, remains to be seen. Communities in some places have proven themselves able to carry out sophisticated technical tasks on their own behalf, as the earlier example from Oman and the case of Village Organizations in Pakistan (see Box 9) suggests.

Box 9.

COMMUNITY SELF-DETERMINATION IN PAKISTAN

The Aga Khan Rural Support Programme (AKRSP) provides support to rural communities in three of the poorest districts of northern Pakistan. Loans for community-initiated projects, and technical advice, are channelled through Village Organizations (VOs) which are responsible for the local development and management of projects.

The programme places a high degree of reliance on traditional technologies and local skills, and attempts to seek greater sustainability by adding new approaches onto existing ones. This entails recognizing community rights to self-determination and decision-making on their own behalf, and can cause some discomfort to project advisers.

"Occasionally, villagers have disregarded the engineers' suggestions and followed their own ideas. This can be seen during the building of (irrigation) channels. The AKRSP staff survey and mark construction levels but the villagers ignore the marks and let the water flow determine the bed slopes - a method they have been using for hundreds of years.

"In another example, at Sust, the villagers insisted on digging a tunnel through the mountains for their irrigation channel, against the advice of the AKRSP engineers who said it would be too costly. The AKRSP withheld the project funds, but the villagers pressed ahead using their own money. However, the engineers returned to help overcome the villagers' tunnel alignment problems. The project proved to be successful and project funding was resumed."

Source: Pasha and McGarry, 1989.

The Pakistan experience indicates that not only can community initiative and capability be higher than is often expected, but that allowing communities to do things in their own way, even when this is in conflict with "professional" advice, has distinct development advantages. If, as is likely, community capacities show significant variance from place to place, the move to more developed forms of community management may

need to be gradual, as Black suggests (1990), both to ensure that demands on communities do not go beyond their abilities and that agencies are able to make the necessary adjustments to provide new forms of support. Flexible strategies will need to be devised which both support the strengthening of community management capacities and allow this to develop at an appropriate pace.

14. BUILDING CAPACITY FOR COMMUNITY MANAGEMENT

Capacity building for community management can be seen to have different levels of meaning. At its most basic, it refers to the transfer of skills to communities to enable them to perform management tasks. This includes the provision of technical training for the performance of routine operation and maintenance tasks, book-keeping and financial control methods, guidance on how to develop and implement community monitoring and evaluation systems, and so on. Though very basic, this level of capacity building is extremely important. According to Yacoob, "..in most cases, communities do not have the skills or training to make wise decisions about system development or to undertake system management." (Yacoob, 1990). Although there is evidence to suggest that many communities do have high skill levels, there is nevertheless a consensus that basic support to community managers is an important requirement. As Wijk has noted: "..when change is limited to shifting responsibilities to local authorities and users, without working methods and means to match, community management will make little or no difference to sustained functioning, use and hygiene." (Wijk, 1989).

The growing emphasis on management, rather than participation, has led to the development of innovative and more participatory capacity building methodologies that place the emphasis on developing learning and problem-solving abilities rather than simply transferring technical skills. Examples include the methods developed through the UNDP supported Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWWESS) project (Srinivasan, 1990; Narayan-Parker, 1990), and the participatory approaches developed by CARE International in Africa and elsewhere (CARE, 1988; CARE, 1990). IRC is currently actively involved in promoting such approaches, for example through support currently being given to community water and sanitation projects in Guatemala and Honduras financed by the German development bank KfW.

The broader level at which capacity building works can be identified by examining a basic set of preconditions which have been identified for successful community management (see Box 10). This list will undoubtedly be further refined as experience with community management approaches grows. In the meantime, however, it

Box 10.

PRECONDITIONS FOR COMMUNITY MANAGEMENT

* There must be community demand for an improved system.
* The information required to make informed decisions must be available to the community.
* Technologies and levels of service must be commensurate with the community's needs and capacity to finance, manage, and maintain them.
* The community must understand its options and be willing to take responsibility for the system.
* The community must be willing to invest in capital and recurrent costs.
* The community must be empowered to make decisions to control the system.
* The community should have the institutional capacity to manage the development and operation of the system.
* The community should have the human resources to run these institutions.
* There should be a policy framework to permit and support community management.
* Effective external support services must be available from governments, donors, and the private sector (training, technical advice, credit, construction, contractors, etc.).

Source: McCommon et al, 1990.

serves in part to underline the importance of the factors of responsibility, financing, and control that sit at the centre of the community management concept. It also shows that community management does not necessarily mean a diminished role for supporting agencies. Community management capacity needs to be built and supported. Agencies may not therefore have less to do than before, but will instead need to concentrate on new and different inputs than in the past. In this sense, they will have to build new capacities of their own, as well as assisting in building capacity in communities.

In the version given in the background paper for the New Delhi conference (UNDP, 1990a), the list of preconditions was divided into two parts. Six of the preconditions (demand, willingness to take responsibility, willingness to invest, empowerment, institutional capacity, and availability of human resources) were identified as preconditions at the community level. The remaining four (provision of information, technologies and service levels, policy framework, and external support services) were seen as factors contributing to the creation of a suitable "enabling environment" in which community management can flourish. While the partnership concept suggests that both agencies and communities should work together at all levels, it seems clear that the creation of the enabling environment is principally an agency responsibility.

Adequate support to communities to prepare them for management roles is indispensable, both in terms of skills development and proper information. In Hyderabad, India, attempts to hand over water schemes to community management met with limited success because village councils were inadequately prepared for the task. Schemes were handed over with no information being given to the community on the financial, managerial and administrative implications. Despite this, willingness to pay for water was high, and most villagers said they would prefer village management if this could be organized efficiently (Job and Shastry, 1991).

15. THE EFFECTIVENESS OF COMMUNITY MANAGEMENT

The effectiveness of community organizations in undertaking management tasks varies considerably. In Latin America, which has the longest experience in community water supply management, highly successful community water boards are often found (cf. Cox and Annis, 1982). In Africa and Asia experience has been very mixed. The success of local management does not only depend upon the availability of skills. In India, for example, communities were found to have a very low level of perception of their own role as managers, with handpumps being seen as the government's responsibility. They therefore did very little to take care of them (Mukherjee, 1990). In a comparative analysis of experience in Asia and Africa, Black noted that in India community self-help was actually discouraged by the high levels of national political support and resources given to the rural water and sanitation sector. In Bangladesh, by contrast, communities have taken on much higher levels of responsibility simply because these levels of support are missing. In Nigeria, a decline in resource availability following the collapse of world oil prices persuaded communities to accept lower service levels and take a greater share of responsibility (Black, 1990).

The extent to which communities themselves determine the form which local management organizations take may have an important impact on their success. A study of water committees in Latin America found that those that were locally developed, rather than being imposed from the outside, were the most effective (Espejo, 1989).

At the same time, leaving communities entirely to their own devices may not always be the best way to protect the interests of less powerful members of the community and ensure equity. In Namibia, government support to the operation and maintenance of deep motorized boreholes in the arid Herero region was largely withdrawn during the transition to national independence. User groups were left to devise their own local maintenance and financial management systems, with very mixed results. Some groups established highly equitable arrangements, agreeing to share running and repair costs on a pro rata basis linked to the numbers of cattle each member of the group owned (thus linking contributions directly to use and ability to pay). In others, however, powerful local leaders insisted that all group members pay the same, irrespective of their level of livestock holding, thus serving their own interests at the expense of poorer members of the group (Evans, 1990).

Where local water management has been successful, this has been attributed to many factors. These include that communities are paying for their supplies (Dworkin, 1982, UNDP/World Bank, 1991), the scarcity (and hence felt need) of water in the area (Yacoob and Rosensweig, 1991), the growth of an active and central role for women in decision-making and control (Wijk-Sijbesma, 1985; Wijk-Sijbesma and Bolt, 1991), the community's awareness that if they do not take care of their own water supplies nobody else is likely to (Black, 1990), and the extent to which communities have an awareness and desire for the health and other benefits to be obtained (WHO, 1990b).

Yacoob and Walker make the very important point that the taking on of management tasks has cost implications (in both time and resources) for communities that will affect both their willingness and ability to perform them. In Rwanda, for example, women were found to be spending more time on collecting fees to maintain their water system than on collecting the water itself (Yacoob and Walker, 1991; Coreil and Beaudoin, 1989). Communities may also be unwilling to take on management responsibilities if they are unable to see in advance what the cost implications are likely to be (Evans, 1992).

The broad range of variables influencing success clearly indicates that prescriptive approaches are unlikely to be appropriate, but that suitable strategies and frameworks need to be developed which will allow supporting agencies to adapt and respond to local conditions. To be effective, it is important that such approaches are

developed in close collaboration with communities, and through the agencies working most closely with communities themselves.

16. CONCLUSIONS

The shift in terminology from community participation to community management is indicative of an important and challenging transformation of perspective in the water sector. Rather than simply being a form of super-participation, it may be seen instead as a major vehicle for transforming the basis of basic service provision from a top-down to a partnership approach. Seen from this perspective, it is clear that new tools and approaches will be needed to develop its full potential.

On the basis of current experience, the prospects for successful community management appear to be quite promising. There are examples in the literature of high levels of skill and ability being displayed by communities in taking care of both traditional and improved water supply systems. Although many communities display the necessary potential to take management responsibilities, community management as an approach is still very much at a theoretical stage of development. In many cases, communities do not accept full responsibility for improved water supply systems, pay little or nothing for their construction and upkeep, and have little real control over them. The true potential of communities to take a higher degree of management responsibility is not yet known. The absence of systematic analyses of the performance of community managed systems, and the associated identification of the most effective approaches to strengthen community management capacity, represent major gaps in current knowledge and practice.

Moving further forward will require work on several fronts. These will include the building up of more practical experience from which lessons can be learned, the establishment of a wider knowledge base on which to build, and the development and field testing of improved strategies, tools, and methods to further build management capacity in communities, and to assist agencies in making the necessary adjustments to provide effective support to the capacity building process.

Although much knowledge and experience is already available, it is generally scattered and an integrated picture has yet to be built up. Many innovative tools and methods have also been developed to strengthen community roles in sustaining water supply improvements. These need to be pulled together, and further developed, in close collaboration with communities themselves in order to devise coherent strategies to give further support to community management. The agencies providing direct support to communities also need to strengthen their own capacities to provide the necessary

support. Detailed studies of community management experience in the field, undertaken as far as possible by locally-based support agencies, are urgently needed to cope with the increased call for community management. These need to be linked to the development and testing of new methods and tools to strengthen both the willingness and ability of communities to manage water supply systems, and improve the capacity of agencies to provide the necessary support.

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