

# **The Organization of Water Supply Projects in Latin America**

**Jan-Victor Stienen**  
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LIBRARY IRC  
PO Box 93190, 2509 AD THE HAGUE  
Tel.: +31 70 30 689 80  
Fax: +31 70 35 899 64  
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## **Chapter 1**

### **Introduction**

#### **1.1 The Goals of this Report**

The report is meant to inform professionals, from external to local organizations about the ongoing processes in the drinking water sector throughout different regions in Latin America. It presents an overview on the way in which water supply projects are organized by the different involved actors. Emphasis is laid in this report on the rural and the peri-urban areas. The peri-urban areas include cities in Brazil, Bolivia, Peru, Ecuador, Colombia, Honduras and Guatemala. Considering rural areas, piped water systems are focused in the Andean and the Central American region.

The intention is to present an overview of the models of community involvement in water supply systems. The extend to what community management already has been developed in these areas is presented. In addition, the tasks executed at the implementation of water supply systems are described and the capacity building will be discussed. As the water supply programmes in the studied Latin American countries are more or less comparable, this sort of overview is made perceptible.

#### **1.2 Different Origination of Water Supply Projects**

Considering the origination of water supply projects, two sorts of projects will be classified. The first group includes projects, resulting from felt needs within the community. These projects subsequently are initiated and executed by local communities or communal development groups and therefore will be called "demand driven". The second group includes projects which are initiated by external actors, like governments or external organizations. These projects will be called "supply driven". A gradual shift can be observed between supply driven projects and demand driven projects. Totally supply driven projects, where a community passively "receives" a water supply system, can be set at one side, whereas demand driven projects, in which the community has to do everything itself, at the other side.

#### **1.3 Main Problems in Water Projects in Rural and Peri-Urban Areas**

In addition to the distinctions in origination, differences can be observed between water supply projects in rural and peri-urban areas. Considering rural areas in Latin America, the Andean region and Central America has been covered. In addition to the geographical determination, the report is referring to projects using piped systems. In the Andean and Central American

region normally, even in the dry season, sufficient springs can be encountered to establish piped water supply systems. The confronted problem is that most projects, as executed by governments or external organizations, perceive the construction of piped water supply systems but no follow up is included in their programmes. This can lead to an inappropriate use of the systems or cause early breakdown.

In the urban areas of the surveyed Latin American cities, water supply systems are common good in the central areas. But, in the peri-urban areas inhabitants lack services of drinking water supply systems. In order to acquire drinking water, the inhabitants of these areas are forced to buy water from private water vendors. Next to the fact that this water is far more expensive than water distributed in the central areas, the quality is inferior.

#### **1.4 Background on Water Supply Projects and Community Involvement**

##### ***Community Participation, or Cheap Labour Contribution, leads to Early Deterioration***

As the communities were supposed to manage the constructed systems at community level, already in the 1960's, several Latin American governments have been creating the so-called "Juntas Administradoras" (Administrative Committees). These committees were to administer, after the completion of the construction, the water supply systems. The involvement of community members through these committees in water projects has been called "community participation". Community participation normally signifies the assistance of community members to the constructors. In other words, deliverance of cheap labour. Normally no follow up is provided by the government or agency after completion of the system. Thus in reality this "participation" is not submitting the level of cheap labour input by the community. It therefore depends on the community if the management of the system is executed appropriate. Experience has shown that in many projects the involvement, of the community in the construction alone, does not lead to sustainable systems. If the community is not sufficiently guided and trained to execute the operation and maintenance of these projects and the community does not prioritizes the project, the systems can not be maintained, neither by the external authorities nor by the community.

##### ***Sustainable Water Supply Systems through Community Management***

Analysis of successful projects has made clear that sustainability of water supply systems is assured through the management by the community. Examples can be found in Guatemala (Agua del Pueblo, 1993). Community management signifies that emphasis is laid on an interactive relationship between the community and the water agencies. In order to reach this relationship it has been stressed that the role of the government or external organizations has to change from provider of water supply systems to facilitator for communities. This has been formulated in the sense that "Community management takes maximum advantage of the resources available within the community and complements them with the necessary resources from outside" (IRC 1993). In this interactive process it has to be kept in mind that communities must know their potentials in order to evaluate for themselves whether they wish to take on responsibilities concerning water supply systems.

### ***The Scope of Community Management***

Community management is encountered if the community organizes itself, searches for opportunities to develop water supply systems and takes action in construction, operation, maintenance, monitoring and evaluation activities. If these prerequisites are matched, and communities see their roles in the management of water supply systems, the sustainability of these systems will be secured.

### ***The Aims of Community Management***

The aim of community managed projects is to build up sustainable water and sanitation systems, managed at community level, where the community sees its own needs met. Over the last years, due to the awareness of the need for more participatory methods and to enhance operation and maintenance, this new concept for the active involvement of the community has evolved. Community management draws on the relations between the self conscious community, government water agencies, NGOs and the private sector. Capacity building and education is needed for supporting agencies and for the communities in order to get aware of their potentials to create sustainable water supply systems, beyond construction.

### ***Community Managed Projects in Latin America***

In the management of water supply systems, active involvement of the community can be found in some projects: Specific organization schemes are found in Central America. The Guatemalan non governmental organization "Agua del Pueblo" and the Honduran unit for peri-urban areas "UEBM/SANAA" provide some good examples. They have developed projects in which they closely work together with communities in order to stimulate community managed projects. As part of these projects some local based organizations are developed to support the individual communities.

### ***Still a Long Way to Go***

In the meantime it is evident that there is still a long way to go before all water supply systems are managed in an appropriate way at community level. This is illustrated by a recent evaluation of the Peruvian national plan for rural water supply:

"It was concluded from the diagnostic survey that the faults found in simple gravity supplies from protected springs showed the need to promote simple community-based repair and maintenance strategies..." (Wedgwood 1992:23).

## **1.5 The Scope of this Report**

The lay out of the chapters and sections is arranged in such a way that the texts are illustrated by examples of different countries and studies. Though these examples might concern specific cases, they are generally representative for the Latin American regions as studied.

A categorization has been made according to "supply" and "demand" driven water supply systems as well as according to the specific aspects of rural or peri-urban systems. These categories delineate an overview of the different forms of project appearance, the involved processes and the tasks performed by the different actors and the provided training.

Chapter 2 addresses the different forms and origins of water supply projects. Like discussed before, these are categorized according to their location (rural, peri-urban) or their origin (supply driven or demand driven). The next chapter describes the aspects of water committee composition and the gender issues involved with water supply projects. The fourth chapter presents step wise the processes during the implementation of water supply projects. The tasks of the agencies and communities during preparation, construction and administration of a water supply system are listed for each step in the process. The fifth chapter discusses the actual and needed capacity building aspects in the sector. The last chapter aims at pointing out the roles and working methods of the different involved actors; governments, international organizations, NGOs and other civil organizations, communities and politicians.

The preparation of this report has implied a review of the existent literature in the IRC library and is based on "Water Committees in Latin America; Tasks and Training" by Norah Espejo (1989).

## **Chapter 2**

### **Organization of Water Supply Systems at Community Level**

#### **2.1 Community Involvement and Intervention of External Actors in Water Supply Systems**

Because the intention of this document is to present an overview of the models of community involvement in water supply systems, and the extent to what community management already has developed, we first focus on the origin of these systems. In this chapter a categorization of projects, according to initiation and location, will be made to model the degree of community involvement. This categorization can be made because water supply systems are initiated for different reasons and by different (groups of) people. In addition, the amount of community involvement is apparent between rural and peri-urban areas.

##### ***Supply Driven and Demand Driven Systems***

Considering the initiation of projects, two models of water supply systems can be distinguished: supply driven and demand driven water supply systems. If water agencies are using a top down approach, in which they implement a system in a community, we speak of supply driven systems. If a community organizes itself in order to initiate their own water supply system, we speak of demand driven systems. It is stressed that a gradual shift between the two models can be observed.

##### ***Rural and Peri-Urban Regions***

Next to the models of supply driven and demand driven water systems, a distinction will be made on geographical aspects. This distinction is made between rural and peri-urban areas. As peri-urban regions are build up spontaneously, normally governments have not included these regions in their water and sanitation plans. This is the reason why peri-urban communities are more dependent on their own initiatives to obtain water supply systems. On the other hand, governmental plans normally do cover rural areas. In these rural communities, if selected, water supply systems are initiated by governments.

Analogue to these definitions it can be concluded that demand driven water supply systems will be more encountered in peri-urban regions, whereas supply driven systems are more likely to be found in the rural areas.

Although many rural areas are covered by governmental programmes, not all the rural communities can be included in these programmes. Reasons include the far-off location of these communities or simply the fact that they, because of the extend of the programme, not yet are included. If rural communities are not included in governmental plans, the development of water supply systems is, like in most peri-urban regions, dependent on the initiatives from inside the community.



### *Peri-Urban and Rural Water Supply Systems*

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*rural systems include:*

*(pre-treated or non-treated water supply systems)*

*aqueducts -house connections, yard connections, neighbourhood connections, public standposts*

*family wells*

*family pumps*

*communal pumps -manual*

*-mechanical (electricity, diesel)*

*peri-urban systems include, (next to the above mentioned systems):*

*water vendors -cisternal tanks*

*-kiosk distribution*

*communal tanks -house connections, yard connections, neighbourhood connections, public standposts*

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### *Typical Rates for Domestic Water Use*

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<i>public standpost</i>	<i>5-15 l/p/d</i>
<i>neighbourhood connection</i>	<i>15-50 l/p/d</i>
<i>yard connection</i>	<i>20-80 l/p/d</i>
<i>house connection (single tap)</i>	<i>30-70 l/p/d</i>
<i>house connection (multiple)</i>	<i>70-240 l/p/d</i>

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*(IRC, Partners for Progress, 1991)*

In the following sections supply driven and demand driven water supply systems will be covered (Section 2.2) as well as the characteristics of rural areas and peri-urban areas (Section 2.3).

## **2.2 Supply Driven and Demand Driven Water Supply Projects**

### **2.2.1 Supply Driven Projects: Top-Down Oriented**

In the case of supply driven projects, outsiders are the most influential actors for the creation of water supply systems in the communities. Because supply driven projects are highly guided and patronized by these external actors they can be called externally organized. These projects are top-down oriented: The government or agency uses a central planning in which standard schemes for the implementation of projects are set up. As part of this planning, standard designs for water supply systems are used.

This central planning signifies that there is no decentralization of services and no diversification of designs. This results in the fact that system design can not be discussed properly at community level, because the engineers in these projects are instructed in constructing the pre-designed systems. Another problem of centrally planned programmes is caused by the lack of proper site investigations in each distinct community. Without accurate investigations, population growth can be under estimated or springs badly chosen.

Seen in this light, supply driven projects create a situation in which the community involvement is very low. This lack of community involvement will easily result in designs not matching community needs. In fact, the community stands a-side, watching the external organization building a water supply system. Consequently, it has been observed that communities refuse water supply systems if there has been no coordination between them and the external organization.

A typical example for this type of projects is presented by the following case as encountered in a supply driven project USAID/CARE project in Bolivia (see box).

Though the proposal and agreements so specify, there was very little opportunity for community input into the planning of the project. The basic outlines had been determined before the communities were contacted. The basic design of the project had already be determined, limiting the possibility of joint planning and participation. Given USAID funding requirements for detailed project design, this type of "top-down" design is hard to avoid...there was very little opportunity for community input into the planning of the project (Karp, 1990).

#### ***Preconditions set by Agency***

In the case that governments, or other external water agencies, design communal water supply projects, these have formulated aims and goals. Consequently, communities will be chosen on preconditions set by these actors. In a Bolivian water supply project the preconditions were as follows:

"Identify communities on the basis of health indicators, need for water supply, size, and willingness to work." (Karp, 1990)

### ***Problems in Operation and Maintenance, no Linkage between Development Plans***

In development plans of many projects attention is primarily directed to the construction of water systems. In contrast, little or no attention is paid to the operation and maintenance phase. Another problem in supply driven project is caused by the fact that development plans are insufficiently linked within governmental departments or ministries. The executing of development plans next to each other, but without linkage, results in programmes where supply driven water projects are initiated without using results obtained from other development projects. An example is given for Peru. Here a health care project and a water supply project both were executed in the same area, but no formal plan for the integration of these two projects was made:

"...There is no strategy to link water supply programmes with the integral primary health care project." (Haratani, 1990)

### ***An obligation for the community to create Water Committees***

If a community is selected by an external organization, or in order to be included in externally organized water supply projects, communities have to create water committees, either before or after construction. ("juntas administradores"). These water committees are imposed upon by the governments or external organizations to execute certain tasks. The committees are responsible for the administration, operation and the maintenance of the water supply systems. If these committees have been created before construction they also have tasks in the construction phase.

Where the agency or government and its institutional network (the government, the municipality, the contractors) are mainly involved in the initiation and the construction work of a water supply system, water committees are created specifically to run the administration, operation and maintenance. For instance in Panama the ministry of health builds the water supply system whereas in Guatemala the systems are built by either the unit for rural aqueducts (UNEPAR) or by the division for environmental sanitation (DSA). In both countries it is a communal water committee what has to run the system.

### ***Projects initiated without Water Committees' involvement***

If, during preparation and construction, no water committee has been installed, the promoter is the main responsible person during those phases. The promoter has to motivate the community to contribute labour, material and land. Furthermore he has to explain the financial obligations before and after the deliverance of the system. The community will participate in the project as "unskilled labour", while the initiatives and decisions largely remain in the hands of the constructor (an outsider). The obligations for constructors with the community, after the construction has been completed, vary: for instance, in Ecuador, systems constructed by IEOS (the Ecuadorian sanitary works institute) are handed over to the democratic chosen water committees (Arias, 1990), meanwhile in Peru the system construction remains under the supervision of the agency (DISABAR). For El Salvador a case of a supply driven system is illustrated, where the committee has been created after the construction of the system. The examples of Peru and El Salvador are presented in the next box.

The project document (of DISABAR) does not describe the role of the community in design, execution, administration and evaluation of a project, nor the necessity to develop such a methodology...no strategy has been established to include the community in the pre-construction phase... (Haratani, 1990)

PLANSABAR (National Agency for Rural Sanitation) is building a water system using USAID funds from ORE, but implementation is delayed by the lack of personnel responsible for the design work...In order to speed up the design work, ORE has contracted local consultants for the design of the water systems which fit in to the studies done by PLANSABAR. PLANSABAR is supervising the consultants and the construction. ORE is buying the materials and finances the labour for the construction ...Operation and maintenance of the water systems built by PLANSABAR is turned over to local administrative committees, under the guidance of PLANSABAR regional offices. The committees collect the water bills and deposit the profits in a revolving fund. As there is a lack of payment PLANSABAR is facing the deficit. (Moncada, 1986)

### ***A lack of Sustainability in Supply Driven Projects***

Many supply driven projects are initiated in communities with an insufficient degree of community participation. In spite of this, in most projects operation and maintenance is, for large extent, supposed to be executed by the communities themselves. The experience has learned that such projects often fail because the organizational structures within, as well as outside, the communities are insufficiently developed and not properly functioning. The resulting consequence denotes that the sustainability of the projects is endangered.

To reach towards sustainability, the communities must be included in the preparation phase and participate in system design and project execution. By this means they have to build up organizational structures in order to plan and execute the works. A preferable situation occurs if the water supply project includes a socio-economic study on the community and the community members are sensitized on the aims of the project. Further more they should be trained in such a way that they are able to execute operation and maintenance of the water supply project. By doing this, community cohesion can be enhanced and the project is more eager to succeed. This has been suggested in recommendations of different project evaluations:

"A major accomplishment of the project was the creation or strengthening of community organizations, including water committees, mothers' clubs, and leaders' councils, and the selling of the idea of community ownership of, and responsibility for, the water systems." (Bolivia; Karp, 1990)

"Sustainability of constructed systems could be enhanced with better promotion and more in-depth knowledge of community culture." (Ecuador; Edwards, 1989)

"Without sensitisation and training during the initial and construction phases, the water committee did not organize itself to execute the administration of the water supply system." (Honduras; Gelting, 1993)

But, even if water committees are involved in supply driven projects from the very beginning, this does not prevent them from management problems after the construction phase. The reason for the diminishing of community involvement is considered to be a result of the lack in the proper development of management skills. In addition not enough attention is paid to the provision of follow up by the external organizations. This results in communities which

feel abandoned and they will lose interest. Examples are given in the next box for projects in Bolivia and Ecuador:

Most water board members knew their duties, but the team noticed that in communities where two years had elapsed since project completion, they became less sure of their authority and role. The reason for this failure is the fact that follow-up provided by IEOS staff on community operation and maintenance has been weak (Edwards, 1989). An other study perceived the same problem caused by the fact that concentrated attention to sustainability came late in the project (Karp, 1990).

For this reason the aims of sustainability in water and sanitation projects through community management are not sufficiently matched in supply driven projects. Preferable is the circumstance where the community itself is the one to take the first step towards solving their drinking water problems. By doing this they display some form of internal organization, which can easily lead to a more sustainable project.

#### *Local Initiatives lead to more Sustainable Projects*

Next to the supply driven projects which are totally planned by external stakeholders, community members, local organizations, individuals, neighbourhood associations, or interest groups (women's groups, environmental groups, etc.) can launch the idea for the implementation of a water supply system. Although the communal awareness of a need for water and the strong community interest are the main reasons for the formation of a water committee, governmental policies exists and will model the supply driven project. In this case, where communities take initiatives, they will arrange their projects in such a way as to fit into the governmental framework. This signifies that the government holds a strong influence in the decisions made during construction.

The strong side of these local initiated projects is the fact that the community itself feels the need to introduce a water supply system. For the actual construction they are dependent on external agencies but after the construction is completed they are more eager to maintain "their" system.

Examples of this type of projects are found in Colombia and Honduras, where a formal communal development organization - like the "Junta de Acción Communal" or a "Patronato" - takes the responsibility of initiating and constructing water supply systems in the communities. All the necessary steps are coordinated with the government. When a project reaches completion, the community organization creates a special water committee: the "Junta Administradora", "Junta de Acueducto Rural" or "Junta de Agua Potable".

As has been mentioned before, a gradual shift can be observed between supply driven and demand driven projects. In the next section the more on community management based "demand driven water supply projects" will be described.

## **2.2.2 Demand Driven Projects**

Demand driven projects are determined as projects where the community is organized in such a way that they initiate and construct their own drinking water system. Normally these communities have established a communal development scheme, in which the construction of the water supply systems is one of the goals.

Projects which are initiated and developed at community level have positive influences on the community cohesion and development. By striving for a communal goal the community jointly will put their efforts in the project and work together. This signifies, in the case of drinking water projects, that the community is likely to take care for, and maintain their own water supply system after construction is completed.

Workshops or training schedules are known to enhance this community cohesion. In Colombia workshops with communication aspects are directed towards community cohesion in order to reduce tension within the community if conflicts between users and the water committee arise (CINARA, 1990).

### **Three Situations in Demand Driven Projects**

Three situations can be encountered in which communities initiate demand driven projects. These are the peri-urban communities, the remotely located rural communities and the more developed rural communities.

#### ***1) Peri-Urban Communities***

The main reason for communities to develop their own water supply projects originates from the fact that they are excluded from external assistance. This kind of demand driven projects can be observed in the "favelas" of Brazil and in the "terrenos invadidos" of Guatemala City. An example comes from a peri-urban region in Guatemala City:

To obtain basic services a neighbourhood group was created. The aims were to establish an organization to coordinate the tasks and to solicit help from the government and some NGOs. The reason for the organization of this cooperation was the resistance from the authorities to provide a water supply system (Recinos, 1992).

#### ***2) Remotely Located Communities***

A second reason for communities to start their own projects will be the condition in which communities are excluded from external projects. These communities can decide to construct a water supply system for themselves, searching for some external assistance. If the communities are deprived of any external assistance this can even lead to totally self constructed water supply systems. A case where Amazon tribes in Peru are found to construct their own project is described by the next example:

"After an unsuccessful search for external technical assistance, the Mamayake community undertook the work themselves. They got a fund of usd 3,000 from the inter ethnic development association, to construct the system." (Bartram, 1987).

In this type of demand driven projects, the weak points are the implied technical risks and the possibility for systems of poor quality. But, on the other hand, it can bring expertise and total involvement of community members towards the water supply system.

### ***3) Better Developed Rural Communities***

The third type of demand driven projects can be observed in the better developed communities, where yet no governmental projects exist. These communities have the means to develop their own water supply system. Typical examples provide communities which are located near cities or roads, for what reason they are exposed to a better developed environment. An other example, of this kind of demand driven projects, are the better developed agricultural regions, like coffee growing areas. In this case, agricultural associations can initiate water supply projects.

The initiation of a water supply project by such an agricultural organization is not always synonymous for a demand driven project. In Colombia supply driven projects are encountered which are initiated by the national coffee growers federation in Colombia. Here the communities apply for water supply systems at the federation. If the local funds are enough (some 30% of the total costs) the federation may decide to implement a system. The local committees are supervised by the field staff of the federation, while the community mainly has an executive role (IRC 19XX).

### ***Communal Organizations as Positive Actors for Success***

Considering demand driven projects, the activities carried out towards the water supply system implementation can be carried out as part of an entire communal development programme. The community constructs and administrates the water supply systems, leaving the responsibilities of operation and maintenance to a water committee. This role can be executed by a sub-committee of the communal development committee. If no special committee has been created, certain members of the communal committee are in charge of the water supply system. Evaluations have made clear that water supply projects which are initiated in communities where other communal organizations are active are the most successful. Also externally organized water supply projects can benefit from the existence of these communal organizations by stimulating them to execute projects.

### ***Demand Driven Projects resemble the Community Management Concept***

In the case of demand driven projects the communities have to organize their own projects. They have to hire the technical services (an architect, engineers, bricklayers, etc.) needed for the implementation of the water supply system. Next to this they have to employ schooled operation and maintenance assistants or fountaineers, to guarantee the sustainability of their system.

Thus the communal organization has to be strong enough to initiate, build and maintain water supply systems with or without governmental or external support. For this reason demand driven projects most closely resemble the concept of community management.

Demand driven project can be illustrated by the case of a private cooperation in El Salvador. In this case it is shown how a Housing, Saving and Credit Cooperation organizes itself to initiate a water supply system (see box).

"Dear member: The board of Directors of the Co-operation for Housing, Savings and Credits "El Paraiso Zacamil de R.L." addresses you in order to communicate the constitution of a water committee, in charge of the preparation and execution of the project "The introduction of drinking water and pluvial drainage", therefore we have pointed out the following committees:

1. Executive Direction, constituted by the architect (name), the foreman (name) two bricklayers and one operator from the community who will co-ordinate the project execution.
2. Personnel Committee - consists of four members whose responsibilities are organizing workmen and work shifts.
3. Store Committee - constituted by six members, some of them are member of a vigilance committee, which will purchase materials and take care of the distribution during the construction phase.
4. Supply Committee - embodied by four members who will plan preparation, cooking and distribution of food for workers.
5. Accounting Committee - represented by three members who will prescribe the policy for control of available goods and funds.

All these committees will coordinate with the water committee to carry out the execution of "The project for the introduction of drinking water and pluvial drainage" in the community El Paraiso Zacamil." (letter from the Directors of the cooperative to the users - "Cooperativa el Paraiso", 1988).

### ***The Role of the Government and other Actors in Demand Driven Projects***

Governments or other stakeholders may participate, but the community is the principal actor in demand driven projects. The community feels the need to undertake the construction of a drinking water system and works towards completion of this goal. Of course, a smooth transition can be observed between totally supply driven projects, where the government arranges everything, and an extremely demand driven project where the community has to carry out everything on its own.

If the government plays a role in demand driven projects it is mainly ruling and controlling. The role of NGOs or international water agencies in supporting local organizations for the implementation of water supply systems is remarkable. An example from the Bolivian Highlands is presented in the next box.

### ***Water Supply Systems as Component of General Communal Development***

The interesting aspect of demand driven water supply systems is the connection with other activities like agriculture (irrigation), small enterprises and health. In this type of water management, water is also considered an economic good, which will bring benefits, rather than as a communal service alone. As such, water is approached as a profitable and commercial good for which one has to pay. An example comes from El Salvador, where a strong organized group wanted to provide themselves with drinking water "in order to improve the



The Yacupaj project is assisting remote rural communities of 50 to 250 people that are willing to contribute to and maintain improved water and sanitation systems. The project emphasizes sustainability first, where the community must see its own needs being met by the facilities members build with our help. Making initial contact with local inhabitants takes time, for they are very busy with their daily activities. Promoters begin by generating demand. Once convinced of the benefits of improved services the inhabitants request for assistance. The first step is to diagnose needs and determine the community's ability to pay. Social and technical workers educate and assist community members in selecting, building and maintaining the water and sanitation systems. Efforts to educate highland women and children, the primary users of water, have also been quite successful. Female promoters have devised most of the materials for community education, writing them not only to inform but also to entertain (Pini, 1992).

economic and social situation of the family members of the cooperation" (A-CANAAN: Cooperation for Farmers and Artisans, 1988).

Normally water supply system activities are one component of a communal development plan. External organizations involved with the community plans can easily direct efforts to education on health and sanitation components: Health and sanitation aspects can be easily incorporated in the communal development plan. In this way the community is more likely to obtain the ultimate goals: development and health improvement.

In Colombia a recent administrative reform of the INS (National Health Institute) was arranged to stimulate community initiatives. Though, a weak point has been encountered. The communities are building their own systems without knowledge how to judge the correctness of design and technology choice, the quality of the construction and the costs (IRC, 19XX). This signifies that a supporting role provided by the government, or other external actors is advocated to secure the quality of the systems.

### *Sustainability through Demand Driven Projects*

Due to its origin, from inside the community, demand driven water supply systems involve greater community participation. This active community involvement leads to a better care taking and therefore towards the sustainability of the water supply system. For this reason the development of this type of systems has to be stimulated and elaborated. This same device is encountered in the definition of community management, which strives for sustainability and optimal community involvement.

## **2.3 Rural and Peri-Urban Areas**

In the previous section, according to the initiation of projects, a differentiation has been made between supply driven systems and demand driven systems. On a geographical scale, sound differences can be encountered between rural and urban areas. To cover these different aspects, in this section a distinction is made between rural areas and peri-urban areas.

### 2.3.1 Rural Areas

As has been described in Section 2.2, rural areas are often incorporated in governmental development schemes. As they are incorporated in external schemes, projects in these areas can mainly be classified as supply driven. But also other agencies play remarkable roles in these areas, whose methods and programmes are more demand driven oriented.

#### *Criteria for Selection: Accessibility and Technical Merits*

Governments and other stakeholders have developed criteria to select rural communities if they apply for assistance. The governmental criteria in many Latin American countries are elementary: The willingness of the community to contribute in the implementation of the system and its capacity to pay for the water, financing the operation and maintenance. The Catholic Institute of International Relations (CIIR) - as example of a private agency - demands the following community selection requirements:

- the community has a recognized and unfulfilled need for water;
- the community is isolated and no likely to be served by other programs;
- a source of water has been located which will be adequate and available at reasonable cost;
- the community has the rights to the water and attendant areas;
- the community is organized and capable of installing the system; and,
- it is willing to participate in the training and education programs which will be made available." (Larrea, 1988:10)"

Another criteria seems to be the accessibility of the community as shown the case in USAID-funded projects:

"In USAID-funded projects, selection has been governed by a community's proximity to the office and the ease of access to materials..." (Edwards, 1989:11).

"Communities were generally selected where there was reasonable access by dirt road..." (Karp, 1990:42)

In practice, the communities which have developed some internal structures, leadership and the capacity to articulate their needs, are selected as beneficiaries of water supply systems.

In Guatemala the rural water supply programme has set a scale of values to select communities. Some primary remarks are given for community selection such as:

The community has to have over 100 inhabitants; there has to be a road leading to the community; the distance of the source is within a 15 km range and is sufficient to provide for over 50% of the daily demand in the dry season; legal status of the source has to be obtained, and the community has to contribute (rep. de Guatemala, 1990).

The scale has a maximum of 100 points and a priority order has been given, in which communities exceeding 76 points have a top priority.

The accessibility, population and concentration grade of the community has a maximum of 20 points. The technical viability also gets 20, and the source capacity counts for maximum another 12 points. The possibility to construct gravity fed systems gets 10 points, while pumps

count for 5. Water quality and treatment have a maximum of 11 points (in the case of clear, disinfected water). The lowest quality of yet existing water services count up to 16 points, while community contribution is valuable for a maximum of 12 points.

This accounting system tend to bias towards technical and geographical aspects, were the actual community contribution is only given as a condition, awarded with an influence of maximum 12%. Even more, the existence of a water committee counts for 2 points of the total scale, and women participation is not mentioned at all.

These examples make clear that although theoretical criteria state the willingness to contribute in the system implementation, more "practical" criteria are being used in reality. The main incentives for community selection in rural areas are rather based on technical merits and site accessibility than on social aspects.

### ***Integrating Water Supply Projects in Rural Development***

General rural development projects can be easily extended with water supply projects. optimizing them by presenting a integrated approach. This is to say that the interaction between the different development goals can result in a positive influence on the total project performance. An example of linking water with health and environmental components is given for Bolivia and Ecuador:

"because of the keen desire of typical rural communities to have improved water supply systems, the water supply component of the project was used to both motivate the community to participate in the overall integrated projects." (Karp, 1990)

"Each operation and maintenance promoter will work in 15 to 20 communities, visiting each community at least 4 times a year (in a 4 year project).. a great deal more contact is planned through the operation and maintenance component which lends itself to many environmental monitoring and promotion activities...inter-institutional cooperation could support cross-training and sharing of work in the same area." (Hogrefe, 1990)

If no water supply project was included in integrated development projects, the execution of these projects can initiate, at village level, the demand for water supply systems. In rural development projects promoters of Fe y Alegría and World Vision in Panama monthly pay visits to the communities and discuss together with them their felt needs. If the community seeks a solution for their drinking water problem, the promoter is eager to help them finding one.

On the other hand, not always development projects concentrate on water issues. In demand driven development projects for example no attention can be directed to drinking water systems. The case of a environmental sanitation programme in the Amazon area indicates that despite their long experience in implementing health programmes, water, sanitation and hygiene have received little attention. Currently technical training for community members - chosen by the tribal council - is being planned; an engineer who will stay in the community for two years will train them in construction, operation and maintenance of water supply gravity systems. The trainees must work at least two years in the communities after the training period has been completed (Bartram, 1987:27-28).

### 2.3.2 Peri-Urban Areas

Peri-urban areas display, in contrast to the rural areas, a different pattern in water supply projects. These areas are newly build up and the communities lack the amount of cohesion, as can be observed in the rural communities. Normally the urban fringe areas lack infra-structural provisions and settlers have to organize themselves in order to carry out the implementation of a basic infrastructure (including water). According to this self-help, in peri-urban areas demand driven systems can be observed.

In Latin America the urban population is growing at the expense of the rural population. Especially the urban fringe areas are fast growing due to migration from the rural areas, as is observed in all development countries. Some data on urban growth is presented in the next table.

*Table: Urban growth in Latin American countries*

country	urban population of total (%)		urban population annual growth rate (%)	
	1960	1990	1969-90	1990-2000
Colombia	48	70	3.7	2.5
Ecuador	34	56	4.6	3.7
Peru	46	70	4.1	3.7
El Salvador	38	44	2.9	3.6
Nicaragua	40	60	4.7	4.1
Guatemala	32	39	3.5	4.0
Honduras	23	44	5.6	4.7
Bolivia	39	51	3.5	4.2
All developing countries	22	37	4.0	4.0

Source: UNDP, 1992

#### *Insufficient Assistance of Governments towards Peri-Urban Areas*

Spontaneous settlements in peri-urban areas are often not included in governmental plans. Peri-urban areas are still considered a "black box" for the local governments. The settlers accordingly have a low expectancy level of governmental assistance. Sometimes non-governmental organizations execute projects with a social participation component, but normally no participatory projects are encountered at all (IDESAC, 1992).

#### *Communities have to Organize Themselves*

As peri-urban communities mostly lack every form of drinking water supply systems, they have to search for solutions on their own. As the communities have to search for solutions themselves, they have to take initiatives, develop self-tuition and construct their own systems. For this reason in the "barriadas" or "pueblos jovenes" of Lima the settlers association or other neighbourhood groups are in charge of the water supply system.

An other example of demand driven projects is encountered in the "favelas" in Rio de Janeiro. The "favelas" (marginal neighbourhoods) of Rio de Janeiro host 60% of the local population. The initiative is taken, and the construction of water supply systems is executed by the residents organization ("Asociacao de Moradores"), often without the support of the municipality. As a result 75% of the existing pipelines in these settlements are unofficial.

"Concerning water supply the inhabitants are constructing wells, small water tanks, etc. The illegal connection to the regular distribution network is normally executed through communal self-help. Organized by the "Asociacao de Moradores" (ADM) or local leaders, the inhabitants construct networks, public taps and small water tanks including pump stations and take over the operation and maintenance. The necessary funds for the materials are collected from the groups which will be the beneficiaries of the new installations; in some cases they also get support from religious or others institutions. The cost of operation (e.g. the electricity for pumping or the bills for the water supply companies) are distributed among the consumers by the ADM." (Wehenpohl, 1986:21).

Not always this process of self-development is as easy as it would seem. In peri-urban communities inhabitants mostly pertain to the informal sector, where they have to make long days in order to earn their living. People tend to be individualistic and focus on immediate needs. For this reason community cohesion is not always very developed.

If the settlers do not organize themselves in order to find solutions, these communities have to make use of the very expensive services of private enterprises, like water vendors. The purchasing of water from water vendors is very common habit in peri-urban areas of cities. An example is provided for the case of Lima and Quito (see box).

"More than 850.000 persons in Lima are dependent on cisternal tanks for their water supply. A project group of interested organizations tried to improve the drinking water supply of cisternal tanks. Meetings were held with community leaders, the transporters association and the municipality with the objective to reach agreements resulting in a better water distribution and quality at lower prices. Some advancements have been made in the quality assessment, but the situation is far from optimal." (DelAgua, 1991)

"A marginal region of Quito, with 56.000 inhabitants, is using cisternal tanks. While not being included in the municipal water programme until 2020, the community organized themselves to find a solution...The church played an important role for the integration of the community and the acquiring of the water system...A contract was signed between the community and the municipal water agency (EMAP-Q) and a private constructor was hired to execute the project, at a cost level 20% lower than the EMAP-Q offer...A savings and loan cooperation has been established to pay the costs and moreover additional external funding has been acquired." (Campoverde, 1990)

### ***Rotative Funding in Peri-Urban Projects***

As the governments are not capable to assist all peri-urban areas, NGOs and other organizations have directed their attention to these areas. In peri-urban areas many projects, executed by local NGOs, use rotative funding. Rotative funding signifies that loans will be given to communities in order to execute projects. These loans can be either with or without interest. Examples are given for Colombia, where "Fedevivienda" gives loans to communities in order to start self-housing programmes and water supply systems. "Techo", a Panamanian NGO, has a programme to develop sanitation provisions in slum areas. But also international organizations, like the cooperative housing foundation (CHF), are active in this field. CHF executes a water and sanitation project in a peri-urban region of Tegucigalpa. These NGOs try to focus on sanitary aspects in their projects, and have a strong educative approach.

The drinking water supply project in Tegucigalpa, Honduras, is a well known project using revolving funds. In Tegucigalpa 60% of the population, being some 480.000 inhabitants, live in the peri-urban areas.

In Tegucigalpa inhabitants of peri-urban areas have to buy their water from water vendors. To change the situation, in which the residents have to pay high prices for bad quality water from cisternal tanks, in 1987 a peri-urban water supply programme was set up by SANAA, creating a special unit for marginal areas (UEBM)...The initiative always comes from community organizations which have identified water supply as a top priority in the development of their community, UEBM is acting as a facilitator...UNICEF supplies materials, UEBM designs the systems and supervises the construction, while the community delivers labour and some funds. The community executes for two years the administration, in order to pay back the interest free loans and to originate a fund for a sewerage system. (Espejo, 1994; Friedlander, 1990)

Some problems were encountered with the repayment of the revolving fund, caused by the special skills, not yet acquainted by UEBM, necessary to execute this task. Prices paid to participate in the programme are between 2 and 3 us dollars monthly. These prices are higher than those paid in the richer areas, where the SANAA operates its conventional system. But as they are lower than the prices paid to the water vendors (usd 1.10 for a 55 gallon drum), this morally justifies the project (Aasen, 1992).

## **Chapter 3**

### **Water Committee Composition and Gender Issues**

#### **3.1 A Quest for Water Committees**

Most water supply projects require the formation of a water committee to execute the operation, maintenance and the management of the project. In rural areas governments and other external organizations are actively implementing water supply projects and therefore most rural projects are -more or less- supply driven. In this case the governments or external organizations have to promote and organize water committees.

The construction of the water project is mostly executed by the committee together with the external organization. The external organization should sensitize the community and possess the flexibility to adapt their programmes to wishes, expressed by the community.

If no committee is formed before construction, the community works together with a promoter from the external organization. After the construction is completed the community has to take over operation and maintenance.

As discussed in Section 2.3.2, normally there are no governmental strategies for peri-urban areas, nor the external organizations are as actively involved in peri-urban areas as they are in rural areas. In order to obtain reliant and affordable water supply systems, not being dependent on the expensive services of commercial water vendors, these communities are motivated to find solutions by them selves, initiating demand driven projects. In the case of demand driven projects, the community itself has developed some form of water committee in order to execute their own project.

#### **3.2 Water Committee Composition**

The size of water committees varies: on the one hand there are "large" scale water committees. These committees can bring benefits in operation and maintenance of the system and guarantee the democracy of management. On the other hand there are water committees embodied by one person only. These, so called water managers -usually a woman-, are found for instance in peri-urban areas in Tegucigalpa. The majority of the water committees ("Juntas Administradoras") in Latin America have the classical structure of president - secretary - treasurer and possibly some vocal members beside. The president is a kind of general manager, he has the highest authority and is the responsible person for the whole administration of the project.

The structure of water committees can also reflect a wider range of responsibilities on which the water committee is involved. This is the case of water committees in Nicaragua ("Comites de Agua Potable"), which composition includes five members for the following tasks: Finance, labour organization, community development, propaganda and a coordinator.

Both in rural and peri-urban areas the management of water supply systems increasingly comes in the hands of users themselves. In addition to the water committees a diversity of committees have taken over activities aiming at the improvement of new or existing water supply systems and further communal development.

### **3.3 Gender Issues**

#### ***Drink Water Supply the Task of Women and Children***

In rural as well as in peri-urban communities the supply of drinking water is mainly the task of women and children. Easily accessible drinking water is a women's time and money saver. Without reliable water supply systems, collecting water they often have to spend many hours daily. Time and energy which could be made of use for raising their children, working in their fields or which could be spent for their households.

#### ***Women as main Promoters***

In literature some active women participation is encountered. Being prime beneficiaries women act as the main promoters of drinking water related issues, and female participation in these projects is remarkable (Blondet, 1986). If women participate in the identification of necessities, water is one of the main issues (Elmendorf in Whitaker, 1992). Moreover the growing number of women-headed households would impose on the significance of female involvement in water issues. In "Participation of Women in Water Supply and Sanitation (C. van Wijk, 1985) the role of women is illustrated as initiators of water supply systems. This confirms the crucial role that women play in initiating water supply systems. An example of female initiative in Amazonian tribes is offered by the next example:

"Aguaruna and Huambisa council in the Amazonian region included health among their working programmes; water was not included until women ('mothers') of the community became interested in drinking water and presented the demand to the council." (Bartram, 1987: 11).

#### ***Limited Female Influence in Water Committees***

Although the importance women play in water related issues, their influence in water committees is still limited. Because their tasks are considered to be in the household and not in the streets, women have to ask their husbands permission to join water committees. If no previous experiences exist, women lack the confidence to accept roles in water committees. In addition, the external organizations do not always display positive attitudes towards women participation. Gender issues should be highlighted by organizations and discussed between engineers and promoters in the field to overcome these problems (Whitaker, 1992).

Women who do participate in water committees are dynamic persons, and are also involved in other community activities. Although there should be no misunderstanding that, though women may play prominent roles in the informal sector, "they are under presented on water boards and in promotional corps" (Edwards, 1989:57). Despite women active participation, audio-visual materials only portray men involved in water supply and environmental activities (Larrea et al, 1988:A6).



Some resistances towards female participation and possible interventions are depicted in the next box.

resistances	interventions
<ul style="list-style-type: none"> <li>- Cultural aspects promote male leadership and leaves women in the role as assistant.</li> </ul>	<ul style="list-style-type: none"> <li>- To discuss these problems with the water committee using participatory techniques, depicting the relevances of sexe in socio-economic aspects and the negative consequences for the female position. The used methods should not work confronting and agreements should be more favourable for women.</li> </ul>
<ul style="list-style-type: none"> <li>- The exclusion of female committee members and the fear of women to take responsibilities in decision making.</li> </ul>	<ul style="list-style-type: none"> <li>- To hold separate meeting with male and female participants in order to analyze this problem and to look for solutions.</li> </ul>
<ul style="list-style-type: none"> <li>- The most influential men in the communities create the water committees.</li> </ul>	<ul style="list-style-type: none"> <li>- Revise the electoral process of committee members and make them more participatory in such a way that man and women from different economical sectors are presented.</li> </ul>
<ul style="list-style-type: none"> <li>- Problems with female members who are not able to attend reunions due to bad timing.</li> </ul>	<ul style="list-style-type: none"> <li>- Reunions should take place if all participants can attend and children are taken care of.</li> </ul>

source: Espejo, 1994.

As far as gender composition is concerned, the water committees in Latin America are predominantly male. For instance, the "Patronatos" in rural Honduras which manage about 400 water supply systems (Santos 1988), are men-only organizations (CIIR, 1988). Although the significant male predominance in Colombia it has been detected, that women take over operational tasks if their husbands are away (CINARA 1990).

It can be concluded that although women have a clear role as providers of drinking water this is not reflected in the composition of the water committees. An example is given for Tegucigalpa, Honduras. Although 37% of the households is women-headed and 80% of the voters are female, the water committee composition is predominant male. Distribution of water committee membership, according to sexe is shown in the next table:

table: Distribution of water committee membership

function	members	male	female
total	131	91 (70%)	40 (30%)
president	21	19 (90.5%)	2 (9.5%)
secretary	21	9 (42.9%)	12 (57.1%)
treasurer	21	14 (66.6%)	7 (33.3%)
fiscal	19	17 (89.4%)	2 (10.6%)
vocal	42	27 (64.3%)	15 (35.7%)

Source: Whitaker, 1992.

### **3.4 Enhancing Gender Issues and Female Participation**

Lately emphasis is attributed towards gender issues by different organizations in the field. One appropriate method is found to be the employ of female promoters, who will be more easily accepted by local women. These female promoters can show them that women can occupy various non traditional roles (Karp, 1990:72). Female involvement, as staff members or promoters, can also help with the education of local women (Pini, 1992:14). For this reason, Catholic Relief Services (CRS) in Ecuador employ 130 promoters of which only one is a man. This in contrast to the involved governmental institute which counts with one woman out of 140 promoters (Edwards, 1989:42).

In Ecuador, evaluations of water supply projects executed by CRS, indicates that women are actively involved in construction work (digging trenches, carrying blocks, etc.), meetings and are sometimes elected to be committee member. However, household responsibilities restrict their travel to meetings outside the community.

#### ***Some examples of Active Female Participation***

To avoid projects, induced by local water committees, including only male members some interesting cases are found in Ecuador and Guatemala. In Ecuador a CARE project faced a project requested by a pro-water committee ("Comite pro-agua") consisting of only male members. CARE approved their proposal but the community had to form a water committee ("Junta de Agua") in which a female member participated.

The next case is provided by a Guatemalan project. The water source was heavily contaminated but the male (irrigation) committee did not want to take action. Therefore women installed their own female health committee. This committee examined new springs and prepared the necessary legal papers. The female committee solicited for assistance from Agua del Pueblo. After project approval the male committee provided assistance (labour and technical) to the project. The male committee took over the project but the president of the female committee became member of this committee, covering the health related issues of the water supply system.

## **Chapter 4**

### **Tasks of Agencies and Communities in Water Supply Projects**

#### **4.1 Introduction**

In this chapter the different activities performed at the execution of water projects in rural as well as in peri-urban areas in Latin America are reported. For every part in preparation, organization, construction, management and monitoring is described what tasks are performed and by what actors. Furthermore the participatory components are discussed. In Section 4.6 two case studies will be presented to illustrate the profiles of rural (Guatemala) and peri-urban water supply projects (Honduras) as they are encountered in more community managed programmes. In the next chapter (Chapter 5) the capacity building and training for water committee members will be covered.

#### **4.2 Project Planning; Project Phase Description of Water Supply Projects**

Because this chapter focuses on the actual project planning as encountered in Latin American countries today, a description has been made using materials, comments and recommendations from different studies, like: "Water Committees in Latin America; Tasks and Training" (Espejo, 1989); WASH reports concerning Ecuador, Peru and Bolivia, giving evaluations concerning design, implementation, water system maintenance, sustainability and community involvement of water projects in combination with health delivery systems (Edwards, 1989; Haratani, 1990; Karp, 1990; Yacoob, 1990); Examples of communal started projects in the peri-urban regions of Guatemala (Recinos, 1992), and Honduras (Whitaker, 1992); And the establishing of inter communal organizations by Agua del Pueblo (Racanchoj, 1993; 1994) in Guatemala and Agua para el Pueblo (APP, 1992; Gelting, 1993) in Honduras.

##### ***Similarity between Projects with a Focus on Community Management***

Both rural and peri-urban project profiles have strong resemblance and no profound differences are detected. Some remarks can be made: Demand driven projects will be more often encountered in peri-urban regions, while supply driven projects are more commonly encountered in the rural areas. The project initiation and community accessibility, density and cohesion can be accounted as significant differences between rural and peri-urban areas, but without making explicit changes in the development of projects.

In the next sections general remarks as faced in water supply projects are presented. The description of water supply projects has been divided in three phases:

- 1) The Initial Phase (4.3)
- 2) The Construction Phase (4.4) and,
- 3) The Operational Phase (4.5).

### **4.3 The Initial Phase**

#### ***Sensitization in order to reach Sustainability***

Before construction of water supply systems takes place, the community should be sensitized about the aims and the impacts of the project. An initial phase, in which the community is analyzed and selected, is considered very important for the succeeding of water supply projects. Experiences have shown that if the community has internalized the goals and benefits to be gained from the system, sustainability is more apt to be reached. The achievements of the initial phase depends on the extent of the participatory approach in community selection and analysis and on feasibility studies as executed by the government or other agencies.

#### ***Tasks for Organizations and Communities***

From the beginning of the water supply project, the community or its representative should have the possibility to take decisions in project aspects and planification. Therefore a flexible project planning is necessary to secure sustainability. Considering demand driven projects responsibilities and tasks during the preparation phase are performed by the local organization or by the community. In the case of supply driven projects, external actors are the responsible entities for the preparation and organization of the project. In order to obtain sustainable projects they have to dedicate time and special attention to the capacity building in the community. For this reason promoters should, regarding the tasks to be performed, guide and share responsibilities with the committees. If no committee is formed, the promoter is responsible to prepare and organize the community.

#### **4.3.1 Project Preparation and Organization**

During project preparation the involved partners -community and possibly, government, agencies, donors, private contractors- perform the following tasks:

- *To organize meetings at the community level to get people involved in the water project. These meetings are induced by external promoters or community members. They are meant to inform the community about implications, consequences and time schedules, enhance community cohesion and formulate demands which have to be presented to the authorities or politicians. In a study of Bolivia two to four weeks were needed just to establish a relationship with the community ( Pini, 1992).*
- *To sensitize the community on the importance of female participation in water projects.*
- *To perform negotiations between community and other local, national or international organizations to obtain co-operation, agreements and official contracts with the government or NGOs. For this reason a file of documents concerning the project has to be compiled.*
- *To select sites for water intake and test them quantitatively and qualitatively.*
- *To have discussions on system design, characteristics and costs.*

Actually, in demand driven projects, all the responsibilities in this phase are carried out by the community.

### **4.3.2 Fund Raising and Revolving Funds**

Normally the water committees receive guidance regarding fund raising from the promoter. These fund raising activities are common features in Latin America and can include collective production of (agricultural) products, organization of social activities, acquiring donations, or the setting of tariffs. Organizing these activities could imply the creation of special sub-committees. The revolving fund is another way of financing the water supply system; the community gets a loan from an external organization to initiate the construction. The instalments have to be repaid, with or without interest, so other communities can benefit.

A remarkable case considering project funding provides "Agua del Pueblo", a Guatemalan NGO, which promotes demand driven projects throughout a self-financing program. In these projects 8% of the total costs is contributed by municipalities, 52% by international funds. Communities themselves finance 40% of the costs of their water supply systems: 16% by means of supplying labour and materials and 24% by low-interest loans from "Agua del Pueblo". This program succeeds in a complete recollection of the funds, by setting tariffs which can, for instance, be adapted for the time of season. Meanwhile it is made clear that the community gains invaluable experience on the management of credits, fund raising activities and learns to negotiate on loans. With this knowledge subsequent community development activities are more easily initiated (IRC/UNICEF, 1993).

### **4.3.3 The Choice of System Type and Technical Decisions**

In peri-urban areas only recently uniform water supply systems were introduced, as is observed in Tegucigalpa (IRC, 1994) and Guatemala (Recinos, 1992). Mostly, water supply comes from "shallow wells, water tank lorries, purchase of water from neighbours or from public standpost." (Wehenpohl 1986:13).

#### ***Communities have a Voice but not a Vote***

Water Committees are expected to decide upon the level of service provided to their community. In reality, the situation appears to be such that engineers in the field let their considerations prevail over community desires. This is observed in many projects, like in Bolivia (Karp, 1991:21) and Peru (Haratani, 1990:4). If the community is insufficiently involved this can lead to inadequate use of provisions, rejection of systems or adjustments needed after project termination (Haratani, 1990:16). In Honduras, "patronatos" support communities in making decisions considering the type of system. Where communities had no vote in used technologies, the system was not accepted after completion (CIIR, 1988).

With the exception of this example, the water committees normally have a voice but no vote in the choice of their system. In other words discussions between engineer and water committee could take place, but technical criteria predominates. Additionally, in literature no reports are found considering the capacity building of communities in order to support activities in this phase. It is advocated for engineers and organizations to direct attention to participatory processes in technical issues. Training would enable community members to make a better choice, or could increase their negotiating capacity in this process.

#### **4.3.4 Contracts between Partners**

The agreement between government or donor organization and the water committee indicates the official initiation of the water supply project. This agreement contains the obligations of both parties involved, but varies according to specific situations. The agreement can specify details on each community and set the financial obligations for each individual water committee or it can be more general, giving percentages of the total costs to be paid upon by each community and state general rules about service of water and types of systems.

#### **4.3.5 Organizing Local Support**

Before construction, the water committees actively participate in organizing local support. They participate in supplying and storing local materials, in donating the needed land and secure the legal rights of the water source. Only if the water committee is formed after the construction phase, a promoter has to coordinate and execute these tasks.

In order to organize local support, registration forms concerning local contributions are inevitable. These forms should illustrate the estimation of the total cost for each water system and function as a registration form for project purpose (storing materials, labour, material contribution).

#### **4.3.6 Subscriptions and Future Demands**

Before construction can be started, the committee in charge of the preparation phase should organize records on subscribers. This is to know how labour can be divided and how many connections are needed. Possible changes must be accounted for, because families from uncovered areas will move to the village which has a water system under construction. In addition, it is necessary to anticipate on future population developments (normally for the upcoming 20 years). The project must regard these preconditions, so the system easily can be adapted to the expected growth.

#### **4.3.7 Educational Campaigns**

Water committees can collaborate with the promoter to implement educational campaigns. These programmes have different target areas: The promotion of health, sanitary and water related issues within the community, community support for internal organization and participation in the water project. Different methods and materials can be used, as long as they are appropriate for the target communities. Well known are educational campaigns using the marketing mix: a combination of multi-media components, like radio programmes combined by house visits, to optimize the effects.

## **4.4 The Construction Phase**

In the construction phase the community participates mostly by delivering unschooled labour. The water committees and involved partners divide work and responsibilities. From the literature reviewed, some common denominators, consistent for the different types of water committees involved in the construction phase, could be mentioned:

- *The participation of the community in supply driven projects is regarded solely as contribution of labour.*
- *People like to participate in the construction phase but tend to loose interest when the supply system is operable.*
- *Mainly men do the hard physical work.*
- *Women are responsible for food, lodging and children.*

These findings stipulate the fact that the participation of the community is mainly labour input, what can be regarded as a consequence of poor consciousness building in the preparation phase.

### **4.4.1 Organizing and Registering Labour**

Water committees of supply driven projects, if created before construction, are largely involved in the organization of labour. Contrarily, considering committees which are created after the construction phase, the promoter organizes labour together with the community (for instance a communal development organization).

In demand driven projects, the community organizes labour and construction itself. The water committee can be assisted by a promoter to execute the labour distribution efficiently. Otherwise they have to execute this task by themselves.

#### ***Household based Labour Organization***

"Household-based" is a common criterion for organizing labour contribution in most rural areas of Ecuador, Bolivia, El Salvador, Honduras and Guatemala. This signifies that every household has to fulfil his share. Widows or disabled persons could hire someone to do their share, or the community has to make other regulations (Larrea et al, 1988). The families who can not afford to contribute can be exempted, although in some cases they even have been excluded (Karp, 1990). Better-off families who are not participating in the communal work, or families who apply for a connection after the construction has been completed, will be required to pay in cash.

#### ***Other Forms of Labour Organization***

The bigger the village or the higher the population density, the greater the tendency exist to organize labour streetwise. Sanitation committees in Paraguay, for instance, have branches ("filiales") in every street to carry out the control of labour contribution. In favelas in Brazil, people are streetwise organized in order to implement a water supply system.

## ***External Influences***

Hiring private constructors, could cause benefits for water committees. In Honduras private constructors have to instruct community members as part of their contract delivering services (Friedlander, 1990). When construction is largely in the hands of constructors, the community participates mainly as labour force. In this situation, there are examples where food is being used as payment -"food for work"-, although this is not always considered appropriate. Fe y Alegría in Panama has the opinion that providing food accentuates the top-down approach: The community does not conceive the project as their own but as an external project (Parraso, pers. com., 1993).

### **4.4.2 Supply and Storage of Materials**

Mostly tubes and other materials which are locally not available are supplied by the partner organizations, while local materials (like sand and wood) are supplied by the community itself. It is evident that the materials often need more guarding than storage, because they are easily stolen if left in the open.

### **4.4.3 Room and Board for Outsiders**

If technicians (both bricklayers and plumbers) who are building the water tank and connecting the tubes stay for some days in the village until construction completion, they get room and boarding. The water committee is required to provide these services. Room and boarding is only applicable for difficult to reach communities. In peri-urban regions and easy accessible communities, outsiders daily come to the community.

### **4.4.4 Contribution of Labour and Self Construction**

#### ***Contribution of Labour as Community Participation to the Projects***

If water committees were created before construction, they are always involved in the construction work. The general situation in Latin America shows that community participation in construction work is seen as "labour contribution" and the contribution of local materials. The following example shows the general situation of those projects supported by Catholic Relief Services (CRS) in five Latin American countries:

"Construction criteria are heavily influenced by the community capacity in each country. In one country a CRS engineer provides detailed supervision or hires a master bricklayer to supervise the process. In another an experienced technician uses his experience and creativity to solve the various construction problems with the community participating in the process."(Larrea, 1988:11).



Although there is a sort of on-the job training given to selected people (by the community or the water committee) to perform the work of operator and repairman, this limited involvement has a negative influence on the learning of technical aspects of the projects.

The active role of the "Patronatos" (communal development organizations) in Honduran water supply systems, allows communities to create an effective and efficient community learning process (CIIR 1988:18-9). This is accomplished in such way that:

"The entire community has learned construction and maintenance techniques, eliminating the need for a specific maintenance man" (Larrea et al, 1988:D33).

The same source indicates the existence of a training school, run by the church, which trains villagers in diverse technical and health-related skills.

### ***Self Construction in Demand Driven Projects***

Demand driven projects can face the total responsibility for the construction of water supply systems. If the organization -local or communal- has sufficient economic resources, technical services for the construction work will be hired. In other cases the water committee can decide to execute the program by themselves (see Section 2.2) .

Experiences of self-construction are not widely encountered. Although technical risks still constitute a weak point of these experiences, self-construction brings expertise and involvement of community members in the water supply system.

#### **4.4.5 Setting and Collecting the Initial Payment**

The amount to be paid by the community -the initial payment and the total contribution- is set by the external organization responsible for the water supply system implementation (see also Section 4.3.2). At the initiation of the project, the community is informed about the amount of the initial payment and the water committees are responsible for collecting it before the system is delivered to the community (Ecuador, Edwards 1989; Bolivia, World Bank 1986; Agua del Pueblo 1993). This task is usually done in co-ordination with the promoters, while committee members are, in a sort of on-the-job training, instructed and guided in this field.

#### **4.4.6 The Water Committee as Representatives of the Users**

Most of the regulations and laws created by governments consider the water committees as "representatives" of the community and "liaisons" between government and community. Being responsible for the drinking water system the committee organizes and steers the meetings with the community and elaborates statutes and plans. The committee has the task to report to, and co-ordinate with the local government the progress of the project. To execute these tasks effectively, on-the-job training is given by the promoter.

#### **4.4.7 Creation of Water Committees and the Formal Delivery Ceremony**

In most communities some sort of water committees exist during the construction of the water supply system. These committees assume the tasks involved with system management, operation and maintenance after the delivery of the system. In other cases, where a promoter did all the preparatory work, water committees are created some days before the delivery ceremony to assume these tasks. The delivery ceremony is mainly a social event, carefully prepared by the community and the promoter. In some countries the community now becomes proprietor of the system.

### **4.5 The Operational Phase**

#### ***The Community is Responsible***

In this section the different tasks will be described which are executed in the operational phase. During the operational phase the communities have the responsibilities to operate and maintain the water supply system. Regarding communities with demand driven projects, not much is changing. These communities were responsible for the implementation of the water supply projects and they stay responsible in the operational phase. But, for communities with supply driven projects the situation alters totally. These communities, accounting with externally organized projects, in this phase become responsible for the system operation. It is up to the communities if the system turns out to be sustainable.

#### ***Bad Promotion in Previous Phases Leads to Early Deterioration***

The operational, or management phase is mainly a sole responsibility for the community. concerning supply driven projects, follow-up activities are normally not developed. Though the external organizations often have provided capacity building for the system management, this is normally not sufficient. If this promotion has not been sufficient, or no follow up is provided, the responsibilities held by the community are undervalued, or even neglected. This easily results in problems during the operational phase of the supply system. Due to these problems the projects could deteriorate and no further, sanitary, developments are achieved.

This section is further divided into general management, financial management, operation and maintenance, monitoring and follow up.

#### **4.5.1 General Management**

##### ***Periodical Information to the Users Assembly***

A general assembly is a common event organized by water committees in Latin America; It informs the community about activities performed by the water committee, financial statements and changes in the organization. There is very little information in literature about the way the information on agreements is disseminated to the community.

### ***Connections and Disconnections of the Services***

Water committees deal with requests for new private connections and are also responsible for disconnecting services because of defaults of payments or inappropriate use. To avoid abuse of power by water committees, it is important that they are democratically chosen. In Peru for instance, the state has elaborated regulations for committee elections (PNSBA, 1987).

Contracts for domiciliary connections are made between water committees and users. Sometimes contracts, explain in detail the budget cost of the connection, and the users obligations. In other cases the contract is only a formality which indicates that the connection has been granted.

### ***Promotion***

The co-ordination between members from the water committee and members from other sectors in the community is crucial for communal progress. Networking should be used to make local knowledge available in management, operation and maintenance. An other example, to support communities, is encountered in the micro regions as created by Agua del Pueblo (see Section 4.6).

## **4.5.2 Financial Management**

### ***Tariff Setting in Concordance with the Community***

In many Latin American countries tariffs are regulated and established by governmental institutions. In the case of supply driven projects, where committees are created before construction, tariffs are discussed with or announced to the community. The promoter plays an important role in assisting the water committee how tariffs have to be set. To discuss water fees is very important, because a lack of discussion about water fees reinforces the "lack of perception" on the cost of potable water in real terms. There are cases in Peru where people refused the completed system when they got aware about their financial obligations (Bartram, 1987). It has been indicated that operation and maintenance fails and finally the system will deteriorate prematurely, if the community is lacking the perception to pay for the services.

### ***Rate Collection***

Setting tariffs and rate collection are closely connected. When this is not properly explained to users, it will affect their willingness to pay. If water supply systems are handed over completely to the water committees, without capacity building in administration, rate collection is affected and likely neglected.

In most of Latin America countries the treasurer is in charge of rate collection. In Venezuela it is the secretary who performs the task of treasurer and in Colombia it is the operator who helps in the water fee collection. In Bolivia sometimes special committees are formed to collect and manage tariffs (Karp 1990). In Favelas from Sao Paolo, the Asociacao de Moradores, collect the water fee for both legal and illegal connections, sending the total amount to the municipality (Wehenpohl, 1986).

### ***Responsibilities in Accounting***

In Central America, information indicates that water committees in small communities are more technically oriented, and accounting tasks are limited to the collection of water fees (Larrea et al, 1988). Although, according to these projects, collecting water fees does not appear to be a serious problem, accounting signifies more than collecting water fees alone.

Water committees are expected, in the area of accounting, to perform the following responsibilities:

- *To fulfil the payments to the revolving funds;*
- *To maintain records on payments and receipts;*
- *To collect the water fees from users;*
- *To Administrate all goods, funds and properties of the water committee.*

Few of these responsibilities are matched in practice. From the examples listed in the box, it can be concluded that water committees in Latin American countries lack managerial skills and face difficulties in the management of accounting. Training activities in this area are not emphasized, and little supervision and monitoring is provided.

- **Peru:** The fact that committees lack records does not imply their non-existence. Forms exist at the official bodies but it seems that problems in monitoring and lack of training prevent their use by the committees (DELAGUA and DITESA 1987:4).
- **Guatemala:** A report from Agua del Pueblo (1993) indicates the existence of local courses aiming at the training of water committee members in record keeping, basic accounts, mailing, planning, communication and leadership. Agua del Pueblo also organizes national encounters for water committees members. Projects built by UNEPAR receive training in operation and maintenance but no financial administration training is mentioned (DSA/UNEPAR 1989).
- **Honduras:** Rural systems built by SANAA are handed over to the town council. In cases where water supply systems were built with the help of an international agency, a administrative committee is charged with the financial administration. This basically signifies the collection of fees which cover the cost of operation and maintenance. Under this simple administration the agency -through the development worker- gives some training in financial aspects (CIIR 1988).
- **Panama:** Alike the case of Honduras, the international agencies give no formal training in accounting, although after the delivering of the system the community is responsible for the operation and maintenance.

### **4.5.3 The Selection of Water Committee Members**

In a broader sense water committees have been described in Chapter 3. Some criteria for selection are presented in this section.

It is the assembly of users which in theory selects people for the water committee (as seen in regulations in Peru; PNSBA,1987). In reality this selection is not necessarily performed as democratically as it seems. Being an "important" person in the community could be a main criterion for election. The ability to read and write another, as this is necessary for the position

of a treasurer. Regulations for committees in Venezuela, Peru and Chile, call for literacy in order to be chosen as a member.

Problems for the management of the system are related to high turnover of committee members, as has been reported, specially in Bolivia and Peru. Another problem can bring the fact that committee members have non-paid positions. They do not feel the need to take action towards performing their tasks, when there are no financial consequences involved.

#### **4.5.4 Operation and Maintenance**

Operation and maintenance (O&M) of water supply systems involve the following tasks:

- *simple repairs*
- *simple preventive maintenance*
- *site management*
- *communication with users about problems, rate collection or follow up for (sanitation) projects*

Most tasks require practical training before the users can perform them properly. But in supply driven projects the training provided by the external organizations is mostly informal, given during the construction of the water supply system (see Chapter 5).

In theory it is the central government regional office who has to supervise and back up O&M of constructed systems. But in most Latin American countries, this supervision of O&M either does not exist or is inefficiently run. The study of DELAGUA/DITESA, in Peru indicates the current situation of water committees located in three departments of Sierra Central:

"Of the communities visited, 93% had an administrative committee of some sort, however only 68% counted with an system operator. Of these operators, 14% had received some training while 43% had the basic tools required to carry out any repairs. The local administrative committees are untrained and unsupervised, and as a consequence sometimes disinterested and generally incompetent to organize the operation and maintenance of water supplies. With the recurrent water supply problem already indicated, communities are not responsible for their collection" (Del Agua/Ditesa, 1987: 4).

#### **4.5.5 Monitoring of Water Committees**

In literature few details are encountered about monitoring tasks. The responsibilities of monitoring do not solely rely on the water committees members; In the ideal situation project monitoring is done by the water committee, together with promoters or other officials. If monitoring exist it is concentrated on operation and maintenance and sometimes quality assessment is incorporated.

### ***A lack of Follow Up***

In many externally organized projects, no further involvement with the communities is displayed. This signifies that no follow-up for the integration of water supply systems in other community development programmes is elaborated. Governments of many countries lack the institutional framework to secure follow-up: After completion of a water supply system in a specific community the responsible entity for system construction moves on to the next project. Again the case of Agua del Pueblo, where micro regions are created to stimulate integrated development programmes, is found to be an exception (see section 4.6).

To change this impotent situation governments have to redefine their strategies. It is suggested to intensify bonds between governments and non governmental water agencies and decentralize activities. By doing so, non governmental programmes could be incorporated after programme conclusion, to secure follow up.

## **4.6 Profiles of Peri-Urban and Rural Projects**

In this section two profiles of water supply projects will be presented. One profile is taken from the rural water supply project of "Agua del Pueblo" in Guatemala, the other profile covers the peri-urban programme of UEBM/SANAA. The actions which are undertaken for the implementation are presented for the three main phases as described in the previous sections:

- 1) the initial phase,
- 2) the construction phase and,
- 3) the operational phase.

The goal of the two programmes, as executed by UEBM/SANAA and Agua del Pueblo, is to obtain sustainable water supply systems through an optimal community involvement which aiming at community managed systems.

### **Profile 1 Rural Areas: Agua del Pueblo - Guatemala**

#### ***General Project Information***

Agua del Pueblo (ADP) started in 1972 with the construction of water supply projects in Guatemalan rural areas. The last 5 years they have been directing much efforts towards the sustainability of their projects. ADP promotes community management and emphasizes the tasks in the initial phase to secure sustainable management. During the process ADP monitors the project and follow-up is provided to the communities. In their projects, all community members -men, women and children- are involved in the decisions to be made in the project scheme. Next to the construction of water supply systems ADP is involved in latrine construction, health education and ecological development. Seen in this light their device is clear: "Water is an instrument, not the end."

Communal development organizations have to demand for assistance from ADP. In order to be included, 80% of the community has to participate in their communal organization. The community has to contribute a substantial part of the inversions and labour to the project. A financial instalment has to be made towards ADP and a loan covers the second financial obligations.

In these projects the community has to find a method to finance their system, they are included in the technical decisions, they have to produce the working scheme, administer the supplies and organize labour assistance: The community has the responsibility to administer, operate and maintain the system.

Agua del Pueblo has created a special type of promoters, which are called Rural Water Technicians ("TAR"). They have followed a six month training course on project sensitization and promotion, planning, design and construction of rural water projects. These promoters are in charge of the project implementation in the villages and cover generally two projects a year. They are supervised by ADP engineers.

One of the main keys to the success of ADP is the Rural Water Technician (TAR). He/she has had a technical training, knows how to make a budget, is in charge of the construction, under supervision of an engineer, makes a topographic chart and has schooling in legal and rural health aspects. Every TAR is responsible for one community and can execute 3 projects in 18 months. The TARs are instructed by Agua del Pueblo in a intensive, 6 month, training.

The systems used by ADP are mostly gravity fed piped systems, using spring water, with household connections. The technology of these systems is appropriate to be operated at community level.

### ***Success in Micro Regions advocates Decentralization***

Village associations (micro regions) have been established in order to enforce the community development and follow up: Together with the communities they can develop integral development plans, including the execution of pre-feasibility studies in other communities. Two of these micro regions have their own TARs (trained by ADP), who are obtaining even better results as ADP itself. One of the reasons is that they are locals, speak the same language and have the same perspectives as the community members. They prove that local organizations attain better results as central organizations strongly advocates the decentralization of responsibilities.

### ***The Project Profile***

First the community solicits, through a water committee, for assistance from Agua del Pueblo. After this solicitude a ADP-promoter (TAR) visits the community to exam the spring, legal affairs and community organization. If he approves of water quality and quantity, the project is discussed between TAR and community. After approval the project can be started.

### Project profile of Agua del Pueblo (Guatemala)

PHASE	ADP-ACTIVITIES	COMMUNITY ACTIVITIES
<b><u>1) the Initial Phase</u></b>		
A) PIAC (Promotion, Identification, Community Support)	Gathering basic information on the community legal status, location, statistics on population and other community characteristics. 1st visit of TAR: actual status on water and sanitation, existing communal services, feasibility of spring capping (in the dry season), community organization and perception, community contribution. Assistance to community.	Community asks for assistance in the construction of a water supply system. Makes a self diagnose (social, economical and cultural characteristics). Takes care of legal status.
B) Pre-feasibility study	2nd visit of TAR: making a first project proposal based on studies for the technical, economical and social viability: Analysis of actual and future population (in 20 years), geographical location of spring and community, measuring distances and altitude differences, dispersion of the families, type of latrine to be used, legal rights to use terrains, socio-economic study. Approval or refusal of project.	General participation in negotiations with TAR about decisions on project feasibility, technical/financial alternatives, project approval, project contract and signing it. Time scheme (construction in a low productivity season), needed contributions, maintenance and education.
C) Feasibility study (topography and final design)	3th visit of TAR: making appropriate technical studies and measurements, design and budgets. Start of intensive education process and community support: Workshops at community level are held.	Participation in design and time schedule of project implementation. Participation in training projects.
<b><u>2) the Construction Phase</u></b>		
D) Construction, Education, Latrine construction, Reforestation	ADP calculates material need, trains 4 community fountaineers, provides administrative and health training, investigates the community participation, supports the committee, constructs the system and looks after spring protection	The community pays first instalment, has to organize itself to takes decisions on needed education, labour organization and supervision, administrative support, and capacity building. They approve of the necessary materials which are purchased, work together with ADP in construction and look after spring protection
<b><u>3) the Operational Phase</u></b>		
E) Operation, Follow-up	Evaluations are held, follow-up training -if needed- is given in fountaineering, administration, operation and maintenance and ecological development is promoted. Cooperation between villages is stimulated.	The community is in charge of the project, but can get back up from ADP if needed. In cooperation with other villages development is stimulated through the creation of micro regions; at this level, also pre-feasibility studies can be executed in new communities



## **Profile 2 Peri-Urban Areas: UEBM/SANAA - Honduras**

### ***General Project Information***

In peri-urban regions an example is presented for Tegucigalpa. In the capital city of Honduras many slum areas ("Barrios Marginales") are lacking water supply systems. The inhabitants of these areas are mostly dependent on the expensive services of private water vendors. In these slums approximately some 480.000 persons are housed, being 60% of the total population.

### ***The Creation of a Special Governmental Institute***

Before 1987 the governmental institute for drinking water supply systems (SANAA) was not covering these areas, because there where no policies formulated. In 1987, with external help from UNICEF, to cover the lack of reliant water supply, a special unit for the marginal areas has been created (UEBM/SANAA). From this time on, achievements have resulted in the provision of drinking water to some 38.000 inhabitants (1992).

The water used for the supply systems is either pumped from wells or withdrawn from big community tanks, which are refilled by cisternal lorries. The system distributes the water through a piped system and the communities can have household connections or communal connections.

### ***Community Managed Water Supply Systems***

The community has to solicit for approval at UEBM to be included in the project, it needs to own the land, deliver labour and has to pay water tariffs. Mostly women -37% of the households are headed by women- promote the community towards project initiation. To accomplish the tasks involved with the project development the community needs to create a water committee. For the recuperation of the loans granted to the communities, a rotating fund has been set up by UEBM. The reimbursed funds can be used to initiate new community development projects. The UEBM project resembles the case of Agua del Pueblo: They both strive towards active community participation in order to reach community management.

Tabla 1 Estrategia Propuesta para la Etapa Inicial de la Implementación del Proyecto

ACTIVIDADES DEL PROYECTO	RESPONSABILIDAD INSTITUCIONAL	RESPONSABILIDAD COMUNAL
<b>IDENTIFICACION DEL BENEFICIARIO</b>		
1. Solicitud del proyecto	<ul style="list-style-type: none"> <li>Recepción y análisis preliminar UEBM. (Tenencia de tierra, población, planos condición marginal, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>El patronato, comité pro-agua, club amas de casas presenta por escrito el documento</li> </ul>
2. Visitas de reconocimiento	<ul style="list-style-type: none"> <li>Verificación de información suministrada</li> <li>Identificación de posibles fuentes de suministro</li> <li>Aceptación o rechazo de solicitud</li> </ul>	<ul style="list-style-type: none"> <li>Acompañar al personal institucional en su visita de reconocimiento</li> </ul>
3. Estudio de factibilidad técnica	<ul style="list-style-type: none"> <li>Conformar la Comisión de intento de urbanizar</li> <li>Verificar la capacidad de suministro de fuentes identificadas (pozos, superficial, red del SANAA)</li> <li>Elaboración del estudio y decidir si la comunidad es beneficiaria o no</li> </ul>	
<b>APOYO A LA ORGANIZACION COMUNITARIA</b>		
4. Reunión con directivos para información y metodología de trabajo	<ul style="list-style-type: none"> <li>Convocar a directivos de organizaciones</li> <li>Motivar y explicar a dirigentes y comunidad acerca de la participación de hombres y mujeres</li> <li>Visitas domiciliarias/Asambleas informativas</li> </ul>	<ul style="list-style-type: none"> <li>Asistencia a reuniones</li> <li>Motivar y explicar y aprobar integración de mujeres</li> <li>Establecer fecha para elección de los miembros de la Junta</li> </ul>
5. Promoción para que la mujer esté representada en la junta de agua	<ul style="list-style-type: none"> <li>Los promotores den a conocer los Reglamentos internos con respecto a la estructura y funcionamiento de la junta</li> </ul>	<ul style="list-style-type: none"> <li>Reuniones con líderes comunitarios y grupos de mujeres</li> </ul>
6. Formación de la junta de agua	<ul style="list-style-type: none"> <li>Dirigir y asesorar al proceso eleccionario</li> <li>Juramentar a la junta de agua electa</li> <li>Extender credencial a directivos de junta</li> <li>Brindar información sobre el trámite de legalización de junta</li> </ul>	<ul style="list-style-type: none"> <li>Asistir a la asamblea general</li> <li>Proponer y elegir a los integrantes de la junta</li> <li>Hacer trámites de legalización de junta</li> </ul>
<b>ESTUDIOS Y DIAGNOSTICOS</b>		
7. Levantamiento topográfico	<ul style="list-style-type: none"> <li>Cuadrilla de topografía, con la supervisión del ingeniero de diseño</li> </ul>	<ul style="list-style-type: none"> <li>Mano de obra y aportación de materiales</li> <li>Identificación de terrenos para ubicación de los tanques</li> </ul>
8. Formación de grupos de apoyo		<ul style="list-style-type: none"> <li>Convocatoria a Asamblea Comunitaria</li> <li>Elección y juramentación de los miembros de grupos de apoyo</li> </ul>
9. Elaboración de diagnóstico socio económico, sensible al género	<ul style="list-style-type: none"> <li>Organizar y capacitar a grupo de mujeres para que apoyen el proceso de investigación</li> <li>Conducir el proceso de investigación</li> <li>Elaboración documento final</li> <li>Organizar y coordinar la forma en que se va a devolver la información</li> </ul>	<ul style="list-style-type: none"> <li>Decidir cómo se organizará para el levantamiento de datos</li> <li>Recolección de información</li> <li>Análisis de la información</li> <li>Elaboración de autodiagnóstico</li> <li>Divulgar la información a través de visitas y reuniones por sectores</li> </ul>
10. Elaboración de la memoria técnica	<ul style="list-style-type: none"> <li>Elaborar el diseño técnico del sistema y del presupuesto de la obra</li> </ul>	<ul style="list-style-type: none"> <li>Información y negociación en la localización de las estructuras del sistema</li> <li>Divulgar resultado de la Memoria Técnica</li> </ul>
<b>FORMALIZACION DE COMPROMISOS PARA LA CONSTRUCCION</b>		
11. Definición de aportaciones en dinero y mano de obra	<ul style="list-style-type: none"> <li>Definir aportaciones en dinero y mano de obra</li> <li>Establecer controles administrativos</li> <li>Capacitar sobre uso y manejo de formularios</li> <li>Seguimiento o asesoría administrativa</li> </ul>	<ul style="list-style-type: none"> <li>Junta de Agua convoca a Asambleas</li> <li>Asistencia a las reuniones</li> <li>Participar en reuniones de capacitación</li> <li>Informar en asambleas de comunidad</li> </ul>
12. Firma de carta de aceptación y compromisos	<ul style="list-style-type: none"> <li>Elaboración del documento</li> </ul>	<ul style="list-style-type: none"> <li>Firma de la Junta de Agua de aceptación de lo convenido</li> </ul>
<b>PLANIFICACION PARTICIPATIVA DE LA CAPACITACION</b>		
13. Programación de la capacitación para la junta y la comunidad	<ul style="list-style-type: none"> <li>Contar con el material de capacitación</li> <li>Identificar necesidades de capacitación para juntas y comunidad</li> </ul>	<ul style="list-style-type: none"> <li>Colaborar en la programación y en elaboración de módulos material educativo necesario</li> <li>Asistencia a los eventos de capacitación</li> </ul>
14. Presentación de esquema de suministro y charlas de fontanería	<ul style="list-style-type: none"> <li>Dar charlas de fontanería acerca del Ing. de Diseño, Supervisor y al Promotor</li> </ul>	<ul style="list-style-type: none"> <li>La junta y el fontanero asisten al evento</li> </ul>

Tabla 2 Etapa de construcción

ACTIVIDADES DEL PROYECTO	RESPONSABILIDAD INSTITUCIONAL	RESPONSABILIDAD COMUNAL
<b>PROGRAMACION PARTICIPATIVA</b>		
1. Planificación de trabajo	<ul style="list-style-type: none"> <li>Organizar y coordinar con la junta de agua, paso a paso las actividades que se llevarán a cabo</li> </ul>	<ul style="list-style-type: none"> <li>Asistencia a reuniones de Junta de Agua y Asambleas Generales</li> <li>Brindar local para bodega y un encargado de la misma</li> <li>Contratar al fontanero</li> <li>Identificar el número de osuarios</li> <li>Formar grupo de trabajo</li> <li>Apertura de una cuenta bancaria</li> </ul>
2. Visitas a domicilios	<ul style="list-style-type: none"> <li>El promotor estima la participación de personas renuentes al proyecto</li> </ul>	<ul style="list-style-type: none"> <li>Directivos de la Junta de Agua promueven el proyecto</li> </ul>
3. tramitación de documentos	<ul style="list-style-type: none"> <li>Informar sobre los requisitos legales</li> </ul>	
4. Buscar otras ayudas fuentes alternativas de financiamientos. Recauda del primerpago		<ul style="list-style-type: none"> <li>La comunidad gestiona otras fuentes de financiamiento</li> <li>Recaudo del 80% del primerpago</li> </ul>
5. Organización y aportación de equipos y materiales	<ul style="list-style-type: none"> <li>UEBM y UNICEF aportan tuberías, bombas, herramientas</li> </ul>	<ul style="list-style-type: none"> <li>La junta realiza la compra de materiales locales</li> </ul>
<b>CAPACITACION TECNICA</b>		
6. Capacitación para la planificación, construcción, operación y mantenimiento	<ul style="list-style-type: none"> <li>El maestro de obras cuenta con sistemas de control y supervisión de la calidad de las obras</li> <li>El Ing. Supervisor y el Maestro de Obra capacitan a usuario y fontaneros</li> </ul>	<ul style="list-style-type: none"> <li>La juntas se capacitan en planificación</li> <li>Además del fontanero, se asigna un grupo de personas para que se capaciten</li> </ul>
<b>CONSTRUCCION DE OBRAS Y CONTROL DEL APORTE</b>		
7. Trabajo de construcción	<ul style="list-style-type: none"> <li>SANAA brinda apoyo técnico, supervisión y seguimiento</li> </ul>	<ul style="list-style-type: none"> <li>Construye el sistema</li> </ul>
8. Control de aportaciones Comunales		<ul style="list-style-type: none"> <li>Control de jomales 7 pagos</li> </ul>
<b>COMPROMISOS, CONVENIOS Y ENTREGA DEL SISTEMA</b>		
9. Información y recaudo sobre tasa de suministro recaudación de fondos	<ul style="list-style-type: none"> <li>El SANAA define la tasa de suministro</li> </ul>	<ul style="list-style-type: none"> <li>Comunidad se informa y negocia la tasa de suministro</li> <li>Junta de Agua realiza el cobro de la tasa de suministro</li> </ul>
10. Entrega de constancias de solvencias		<ul style="list-style-type: none"> <li>Los abonados tienen sus constancias y conocen sus responsabilidades</li> </ul>
11. Elaboración de la memoria final y la Memoria Histórica	<ul style="list-style-type: none"> <li>Ing. Supervisor UEBM elabora la memoria a nivel institucional</li> </ul>	<ul style="list-style-type: none"> <li>Junta de Agua, elabora una memoria histórica sobre la participación comunitaria en la construcción</li> </ul>
12. Discusión y aprobación de convenios	<ul style="list-style-type: none"> <li>Elaboración y discusión del documento con las juntas</li> </ul>	<ul style="list-style-type: none"> <li>Junta y Comunidad lo discuten y lo aprueban</li> <li>Presidente Junta de Agua firma convenio</li> </ul>
13. Auditoría financiera a la junta de agua	<ul style="list-style-type: none"> <li>UEBM hace una Auditoría y presenta los estados financieros</li> </ul>	<ul style="list-style-type: none"> <li>Junta de Agua. Facilita la documentación necesaria</li> <li>Presentar Informe de la Auditoría Asamblea General</li> </ul>

Tabla 3 Estrategia Propuesta para la Etapa de Administración, Operación y Mantenimiento

ACTIVIDADES DEL PROYECTO	RESPONSABILIDAD INSTITUCIONAL	RESPONSABILIDAD COMUNAL
<b>EQUIPAMIENTO Y CAPACITACION PARA LA ADMINISTRACION CONTABLE</b>		
1. Definición de los costos del Proyecto	<ul style="list-style-type: none"> <li>Auditoría de aportes comunitarios</li> <li>Consolidación de requisiciones</li> <li>Definir costo total</li> <li>Notificación de inversión</li> </ul>	<ul style="list-style-type: none"> <li>Brinda información</li> <li>Discusión y aprobación de gastos</li> </ul>
2. Contratación de personal	<ul style="list-style-type: none"> <li>Sugerir rangos de salarios y requisitos de personal a contratar</li> </ul>	<ul style="list-style-type: none"> <li>Selección los personal</li> <li>Establecer horarios de trabajo</li> </ul>
3. Capacitación Práctica a Juntas: Administrativo/Contable, solución de problemas, decisiones y reportar	<ul style="list-style-type: none"> <li>Establecer los controles administrativos</li> <li>Desarrollar cursos participativos equipados con material didáctico en los temas mencionados</li> </ul>	<ul style="list-style-type: none"> <li>La Junta participa en la capacitación</li> <li>Analiza, discute y aplica controles</li> <li>Impresión de papelería</li> </ul>
<b>ADMINISTRACION, CONTABILIDAD Y PAGO AL FONDO ROTATORIO</b>		
4. Implementación de pago de tarifa, del Fondo Rotatorio y la administración contable	<ul style="list-style-type: none"> <li>Definir el cálculo tarifa y cálculo de pago al Fondo Rotatorio</li> <li>Información y capacitación al personal UEBM y a la Comunidad sobre Fondo Rotatorio</li> </ul>	<ul style="list-style-type: none"> <li>Analizar y discutir tarifa</li> <li>Analizar y discutir pagos y formas de pago de Fondo Rotatorio</li> <li>Impresión de recibos de pago para tarifa</li> <li>Llevar los libros contables</li> </ul>
5. Asambleas Generales de Información y aprobación (actividad continua) *	<ul style="list-style-type: none"> <li>Apoyar en asambleas</li> <li>Monitorear el desarrollo de la asamblea</li> </ul>	<ul style="list-style-type: none"> <li>Convocar, organizar y dirigir Asambleas</li> </ul>
<b>OPERACION Y MANTENIMIENTO COMUNITARIO</b>		
6. Funcionamiento del sistema	<ul style="list-style-type: none"> <li>Capacitación en mantenimiento del sistema</li> <li>Asesoría en aspectos técnicos</li> <li>Información sobre uso y períodos de explotación de fuente</li> </ul>	<ul style="list-style-type: none"> <li>Operar diariamente el sistema</li> <li>Reparar el sistema</li> <li>Establecer y cumplir horario y sectores de distribución</li> </ul>
7. Negociación y aplicación del reglamento de O&M	<ul style="list-style-type: none"> <li>Proponer modelo de reglamento O&amp;M</li> <li>Apoyar desarrollo de habilidades de negociación de la Junta</li> <li>Apoyar y monitorear la aplicación del reglamento</li> </ul>	<ul style="list-style-type: none"> <li>La Junta y los usuarios participa en la capacitación</li> <li>Analizar, discutir, reformular, y aplicar el reglamento</li> </ul>
<b>EDUCACION EN AGUA Y SANEAMIENTO</b>		
8. Educación en agua y	<ul style="list-style-type: none"> <li>Capacitar a la comunidad</li> <li>Producir material educativo</li> <li>Coordinar las movilizaciones</li> </ul>	<ul style="list-style-type: none"> <li>Integrarse al proceso educativo</li> <li>Socializar el conocimiento adquirido</li> <li>Organizar compañías y movilización</li> </ul>
<b>SUPERVISION Y ASESORIA INSTITUCIONAL</b>		
9. Supervisión de los fondos de la junta	<ul style="list-style-type: none"> <li>Revisión trimestral del empleo de fondos.</li> <li>Seguimiento en la implementación de recomendaciones</li> <li>Asesoría Adm/Contable</li> </ul>	<ul style="list-style-type: none"> <li>Llevar al día la contabilidad</li> <li>Mantener la información disponible</li> <li>Uso debido de fondos</li> </ul>
<b>COORDINACION LOCAL</b>		
11. Coordinar con proyectos de infraestructura básica sanitaria (resúmideros, inoieradores, reforestación, estufas lorenas)	<ul style="list-style-type: none"> <li>Coordinar con otras instituciones en la ejecución de proyectos, formulando propuestas conjuntas</li> </ul>	<ul style="list-style-type: none"> <li>Participación en la formulación de planes y la ejecución del proyecto</li> </ul>

## **Chapter 5**

### **Capacity Building**

#### **5.1 Introduction**

In Latin America capacity building of committee members for water supply projects is rather an exception than a rule. Concerning the rural areas there are various denominators which make the training difficult: a dispersed rural population, the scarcity of economic resources, the low literacy level of villagers, the concentration of professional resources in urban areas, the irregular contact and communication with governmental institutions, the governmental bureaucracy and the paternalistic approach towards development. In the peri-urban areas efforts directed towards capacity building is not exceeding the situation in the rural areas. If training is provided it is on an incidental base and not a part of a systematic input. This lack of training, even if it was originally included in the programme, can be encountered in many project evaluations. An example is noted for Peru where "...training was organized, but never executed, for committee members..."(Haratani, 1990).

In the next sections the actual training situations are discussed and the apparent training needs in the field are given. The sections are divided according to the differences between supply driven and demand driven projects and according to the three project phases. To obtain sustainability through community management it is proposed that the classical training approach (knowledge comes from the trainer) has to be reconsidered. A new training approach consists out of building on experiences. This process is called capacity building and is highlighted in Section 5.4.

#### **5.2 Capacity Building in Supply Driven and Demand Driven Projects**

##### **5.2.1 Supply Driven Projects**

As far as existing training activities provided by the governments are concerned, a discrepancy is observed. Governmental regulations state that it is the government's responsibility to supervise and train those water committees created by them. But in reality, training efforts address more personnel from governmental institutions than committee members. This lack of attention towards training efforts is also observed with external agencies (Haratani 1990:4). The few examples of training programmes found in the literature include training for "juntas de agua para pozos" (wells water committees), given by SANAA in Honduras integrates elements of water, technical aspects, hygiene education and regulations concerning water committees. Another training programme in Cochabamba, Bolivia, gives a two-day training with emphasis in financial administration. Finally, the training programme of INS (the national health institute) in Colombia includes information about the INS role, the contribution of the community, a short explanation of accounting systems (a half day) and the obligations and responsibilities of the committees. The little time (two-three days) that is given to the above mentioned training activities, and the fact that training constitutes

a one-time event, seem to indicate that those training activities would hardly develop the management skills of water committees members.

It is interesting to indicate the experience in Honduras where communal development organizations ("Patronatos") and the constructor organize the construction work in such way that the community learns how the systems runs. During the construction operators and regional supervisors for the system are selected. This example illustrates that, though no formal training is used, the community and committee members are able to find themselves the opportunities to run the water supply system.

Though in some cases community training is encountered, water committees, as functioning in supply driven projects, lack the proper development of management skills. For this reason the aims of sustainability in water and sanitation projects through community management are not matched if no proper capacity building is provided.

### **5.2.2 Demand Driven Projects**

In the case of demand driven supply systems, where to community is the initiator of the water supply project, no special formal training is reported. The knowledge of the community about water supply systems is rather based upon experience than upon the training they have received.

It is possible that professional services exist within the organization, or that some funding can be mobilized towards the hiring of training personnel. Moreover the communities can try to get funding or external support from international agencies. In this condition there is a possibility to fulfil the training needs of the community, without being dependent on governmental support or supervision, as is observed in supply driven systems.

Although there is a positive impact for water related issues if communities start their own projects, not enough concern is given to constructing water systems or administrating water supply systems. When communities themselves initiate water supply systems, sometimes these projects are not included in external development programmes in the same communities. The situation could occur that governmental activities only cover health issues, and the community itself has to initiate a water project.

A case of an environmental sanitation programme in the Amazon area indicates that despite a long experience in implementing health programmes, water, sanitation and hygiene have received little attention. Currently technical training for community members -chosen by the tribal council- is being planned; an engineer who will stay in the community for two years will train the villagers in construction, operation and maintenance of water supply gravity systems. The trainees must work at least two years after the training period has been completed (Bartram, 1987:27-28).

Peri-urban areas are still considered a "black box" for many local governments with the result that their settlers expect very little from the governments. This leads these communities to take initiatives and develop self-tuition. Their knowledge about water supply systems is based upon experience rather than upon the training they have received.

## **5.3 Capacity Building during the Project Phases**

### **5.3.1 The Initial Phase: the Holistic Approach**

A general perception of the initial phase as a "pre-construction phase" has been observed in literature. This signifies that attention is mainly paid to the technical aspects of a project. If mainly attention is paid to the technical aspects of a project, this will be done at the expense of the social aspects.

No formal training is reported to increase the capacity of water committees or local associations in the initial phase of a project. Nevertheless, water committees created before construction can receive some support from external promoters, like the case of Agua del Pueblo (ADP, 1993).

The initial phase should be conceptualized as the phase of awareness building or sensitization, in which the community becomes aware of their conditions. In this phase the water supply system must be approached as a mean to reach development, rather than focus specifically on water supply aspects. Moreover it should make the community ready to initiate future development projects, coinciding with health and development. In this way it will be avoided that the water supply system is seen as a matter of convenience alone. To build this consciousness, the relationship between water, health and development should be emphasized at communal level. This awareness can be build through discussions between community members or local bodies, as well as discussions with other local water committees. These discussions, which can be initialized by promoters, should focus on the holistic approach of water, health and development and on the role of the community in water supply projects. To improve community involvement the promoter should unite the users and stimulate feedback.

Topics for training must cover the reasons and aims for support and how to work together with the promoters. This signifies gathering information about the procedures to get support from central or local authorities. Furthermore how to organize local support, to learn about financing opportunities and about technical aspects of water supply systems. Furthermore advise should be given on how to deal with governmental bodies avoiding or reducing dependency and paternalism. Knowing the rules and opportunities the community can make their own choices. Training should focus on capacity building within the community. In this way the community can help itself in long term prospectives.

Normally, in demand driven projects the water committees have to perform all the preparatory work without guidance. For this reason, training efforts regarding project initial tasks are desirable. Water committees require administrative, communicative and social skills, as well as information on laws and possibilities for external assistance.

### **5.3.2 The Construction Phase: the Learning Approach**

The construction phase is the most used opportunity to disseminate training elements to the community. In this phase, on the job training fits as method in the construction work. To train the community during the construction phase makes it able to operate and maintain the system. But

only if the approach aims at the extension, and not only labour input, of community knowledge the community will benefit.

During the construction phase professionals must consider the people as learners and not just as unskilled labour: Water committees should have the responsibility to organize resources, labour and materials. Training must aim at the development of skills and knowledge of committee members in order to transfer the technical capabilities to participants in construction work. The goal should be the communal ability to organize resources in order to learn about the operation of the system, because projects have more impact if the responsibilities rely upon a group rather than on a operator alone. Recommended is to provide training activities which involve subjects on how to organize resources but also on human learning processes. This implies that the professionals should move from the "unskilled labour approach" to a "learning approach".

An example of this kind of collective participation in operation and maintenance is found in Honduras: The community receives training in maintenance while the system is built, in such a way that the community and committee members are able to find the opportunities themselves to run the water supply system (see box).

"The community receives very good training in maintenance of the system by building it and therefore understanding exactly how it works, and this is compounded by two days of lectures given by CRS staff ... One of the very successful policies of the work in Camasca has been the inclusion of the most able members of the communities, that is to say those who learned and understood most readily the construction work including interpretation of the plans. Several such men are now employed by CRS to work as supervisors in other communities during the second phase of the programme. The role of the supervisor, who stays in his assigned community during the working week, is to manage the construction and to train people so that they can ultimately carry out the work without supervision." (CIIR 1988:18-19).

The use of the learning approach will result in a proper use of the water supply system. The involved learning process generates a higher commitment and community awareness of their specific habits and consumer needs. Learning about the construction and operation, in combination with the apprehension of the purpose of such service, the community develops consumer consciousness. In this way the community does not only perceives itself as the receiver of a, from the outside, imposed system.

### **5.3.3 The Management Phase**

Formal training is mainly provided in the initial and in the construction phase. During the management phase the functioning of the water supply system lies in the hands of the community. The more motivated the community, the better the systems will be utilized. Because the management phase is mainly the sole responsibility of the community extra emphasis must be laid on training programmes addressing this phase. Promotion must be sufficient in order to value properly the responsibilities held by the community.

In practise not enough attention is given to this phase. The promoter should unite the users and enhance community awareness on implications of the project. In his/her visits clear information

has to be supplied to the community. Feedback by community members has to be stimulated actively. In this way the community gets involved, it has the possibilities and feels the need to participate.

If no sufficient promotion and training is directed to the communities they are not capable to administer the project. As a consequence of insufficient capacity building water supply systems are eager to brake down. Even worse, without proper promotion it can result in total rejection of the project. An example comes from Peru, where capacity building was insufficient to operate the water supply system after construction:

"..but the committees are not fulfilling their duties in operation and maintenance because they did not receive sufficient training (including administration) and supervision." (Haratani, 1990)

Training and capacity building in the management phase will be subdivided in financial management, operation and maintenance and monitoring and follow up.

### ***1) Financial Management***

Financial aspects offer an opportunity for a formal training course. The accounting responsibilities are under developed and require ample training, especially addressing people with low level of literacy. Accounting requires the knowledge of existing techniques and procedures. If implementation of financial training takes place two aspects must be kept in mind:

1. Registration is a key element in accounting. It involves a certain logic which is deeply rooted in western culture. People of rural areas may hold a different attitude to registration. Therefore training must not only consist of transferring knowledge about accounting techniques but also promote positive attitudes for registration. Moreover registration techniques must be adapted to local registration systems.

2. One problem frequently faced by water committees is the high turnover of personnel caused by the fact they do not get paid. Literature lists examples of treasurers that performed their job only for a short period, because they did not receive money for their services. As a result high turnover is common and knowledge gets lost. Thus trainees should be selected by the committees on their motivation and likelihood to remain member for a significant period. In addition the treasurers have to transfer their knowledge to other or new members.

### ***2) Operation and Maintenance***

Caused by the reason that construction is seen as a project target, governments and agencies do not direct enough effort to the operation and maintenance phase. In many programmes a lack of proper training schedules is observed, needed to execute these tasks. Community organization, operation and maintenance is left to the responsibility of the community. The lack of governmental interest in aspects considering the operation and maintenance phase is depicted by the fact that sometimes even the governmental engineers are not properly trained in this aspect. An example from Ecuador illustrates this problem:

"Most (governmental) engineers were poorly informed about the importance of operation and maintenance procedures and how to set them up." (Edwards, 1989)



Improving O&M skills of water committee members is a primary and felt need in Latin America. Training technical personnel and operators is explicitly posed as a solution by consultants and governments. Without denying the positive consequences of formal training activities, the importance of commitment of users in the operation phase must be emphasized. Inadequacy in the operation of water supply systems is not only caused by the lack of basic technical knowledge, but also by institutional as socio-cultural reasons. Promoters should put more emphasis on the importance and further potentials of a water supply system and thus rise the awareness of the community. The initial and construction phase offer the opportunity for the collective process of learning and involvement of the users, which will have direct impact on its operation and maintenance.

Literature indicates that the operator, usually a paid employee, receives some training during the construction phase. In Honduras, "the operator must be young, literate and ,if possible, member of the water committee. They are selected at the start of the project and trained during construction" (Larrea et al, 1988:D27). In Ecuador, the operator receives training from the promoter and/or the foreman in charge of the water supply system construction and, when appropriate, by the project engineer. This capacity building of the operator covers such aspects as:

- \* *Elemental knowledge about water related diseases*
  - \* *Description of the drinking water supply system*
  - \* *Operation and maintenance of the system*
  - \* *Disinfection of the water, Chlorine Dosages*
  - \* *House connections*
  - \* *Meter reading and maintenance*
  - \* *Knowledge of the system and management of valves*
  - \* *Human relations and user education techniques*
- In pump systems, the operator completes his training by covering such areas as:*
- \* *Pump equipment, Electrical system*
  - \* *Operation and maintenance of the pump, etc.*
- (Donaldson and Larrea, 1984)*

From the information above, it is observed that in most countries the operator is trained during the construction and in some cases special training for maintenance and repair is provided. Given the fact that water supply systems are easy operable, most capacity building activities are informal.

There are specific training courses (considering O&M issues) for supervision or monitoring personnel, like technical inspectors, promoters, sanitary technicians. But this gives no guarantee that the received knowledge will be transferred to committee members. For instance, in Guatemala, a national programme for O&M started in 1987. This programme provides excellent training material for operation and maintenance at water committee level. Nevertheless the capacity building activities sofar, aimed at training supervision. 18 workshops were held until 1989 but no courses for committee members have been held (DSM/UNEPAR, 1989).

### ***3) Monitoring and Follow Up***

To obtain all the requirements in the management, maintenance and operation phase, agencies or governments should invest in structures to provide follow up to the communities were programmes are implemented. Follow up is not only applied for the operation, maintenance and management of the system but must also work out the relation between water, health and development.

In reality monitoring the performances of water supply systems is hardly executed. In most supply driven projects, the external water agency moves on to the next community if a water supply project is completed. Due to shortage of personnel or funding no activities are employed to monitor the implemented systems or provide follow up. In practise the communities have to perform the monitoring tasks by themselves.

In the case of demand driven water supply projects the community is more likely to be motivated to monitor their own water supply system and searches for follow up possibilities if needed.

#### **5.4 Future Demands for Capacity Building**

A proper characterization of the training approach is needed. The question is what training should comprise. Should the members of the water committees receive more training or should they learn more from their own experience? If the emphasis is given to training the assumption is that training courses are crucial sources of learning. But training is not the only way of learning and moreover training is not "the" source of knowledge. Furthermore untrained people possess knowledge and they learn beyond training situations. Human beings are constantly exposed to learning events, acting and analyzing experiences. Therefore training is one of the various means of learning.

The concept, using these statements, can be called capacity building. It does not exclude training, but the approach is different. Instead to bring people "to" training courses, learning must be brought to people. As a conclusion the following can be proposed: Capacity building for committee members signifies the promoting of learning experiences and capacities as well as the guided transformation of community activities into learning events.

Capacity building is considered the main tool to obtain community management: It generates consciousness at community level and the ability to develop more independency. The involved partners have to be equipped with the right training efforts to make community management happen. Again the philosophy of community management is evident: The partners change their roles from provider to facilitator towards the water committee. Elaborated capacity building procedures are presented in "Action-learning: Building on Experience" (Espejo, 1993).

Not only the training approach of the organizations in the field have to be redefined, also the role of the trainers or promoters is changing. The trainer needs to know how the communities work and what their preconditions are. He has to make a diagnose with the community and work out together with them a tailor made programme (IRC/UNICEF, 1993).

It is made clear in the previous sections that nowadays training of committee members is still a more or less a side-issue for drinking water projects. In general the concept of capacity building is not elaborated. As future demands are sustainable projects, managed at community level, some considerations have to be made. To come towards community management the gap between the actual situation in training and the capacity building concept has to be closed.

## **Chapter 6**

### **Actors in Water Supply System Projects**

#### **6.1 Introduction**

In the previous chapter attention has been paid to the organization of water supply systems, the tasks at community level and the involved capacity building. The aim of this chapter is to give some insight in the roles of the different actors in the water supply sector. In Section 6.2 some general remarks will be given on the principal structures in Latin American water supply projects. In Section 6.3 a short description will be given of the different actors in the field.

#### **6.2 Policies and Legal Frameworks**

Drinking water is a basic need, but there is a huge need for adequate water supply in many rural and peri-urban areas. The Latin American governments consider their roles in these water related issues, and to ensure that they are covered as a whole, resource management should play an important role in governmental plans. To reach an optimal coverage of water supply systems the central government has the task to create an enabling environment for the water sector and set adequate national policies. Several governments have already made attempts to regulate the water sector, by building legal frameworks.

##### ***A lack of Sectoral Planning***

Water is used for different purposes, not only for drinking water but also -and to a greater extent- for irrigation and electricity. Actors active in the drinking water sector are not always aware of the magnitude of water related issues. This is a reason for which governments have a to create a legal body in which the whole legislation for water -as used for drinking, agriculture, industry- is laid down. In Central America a regional institution -CAPRE- has been set up to integrate governmental activities in the water sector and to benefit from each other's experience (WHO, 1989).

Related to drinking water, the responsibilities for planning, design, construction, operation and maintenance of water supply systems are disseminated over different ministries and departments. In the next box the diverse governmental involvement in water projects is visualized in the case of Guatemala.

Not only in Guatemala this way of organizing makes the water sector a confusing sector. To improve the existent organization of the drinking water sector, in which roles and responsibilities overlap between ministries, a strong sectoral planning is advocated.

Here the unity for rural aqueducts (UNEPAR) is working in communities with over 500 inhabitants and is residing directly under the ministry of health. The division for environmental sanitation (DSM) operates in communities with less than 500 inhabitants and resides under the general direction for health services. The ministry for rural and urban development coordinates between donor organisations and project executors, but has no elaborated working plan. Furthermore there is a national reconstruction committee for matters of emergency. Next to this there are municipal water organizations like in Guatemala city (EMPAGUA), financing next to urban water supply systems some rural water supply systems. Then there exists a committee for the co-ordination between governmental sector and the private sector (COPECAS). A last governmental involvement mentioned, is through a council for the water and sanitation sector (CONAGUA). In this council different ministries are engaged with the problems encountered in the field (Rep. de Guatemala, 1990).

### ***Construction as Project Target***

Governments tend to direct their attention in the drinking water sector to the construction of water supply systems. Normally general goals are set, without accounting for financial consequences or for the sufficient availability of human resources. After the system has been constructed the communities have to operate and maintain these systems by themselves. If not enough attention is given to the operation and maintenance of water supply systems this can easily result in problems.

"There are no institutional policies on participation; the problems are solved by the directly involved department without consumer participation. Furthermore inter-institutional coordination, between institutes operating in the same field and geographical zone, is lacking. There are no decisions made in which all actors participate." (IDESAC,1992)

Experiences have shown that if communities not have be trained properly and no follow up is provided, the systems lack sustainability. In addition, governments and other institutions have to develop construction programmes in which the needs and wishes of the communities are optimally incorporated.

These problems are also encountered for many international agencies, where funds are directed mainly to construction and the responsibility for the operation and maintenance is at community level. In an interview with the chief engineer of USAID-Panama, it was mentioned that after the completion of the water supply system, for the lack of funds and the establishing of other priorities, no further assistance was provided.

It has been reported for projects in rural communities in Honduras, that these have a weak basis if, after system construction, no follow up is provided by the water agency. It has been concluded that these communities feel abandoned, resulting in a deterioration or misuse of the water supply system (Gelting, 1993).

### ***Further Problems Encountered in Governmental Organizations***

A further weak point is caused by the political structure as encountered in many Latin American countries. There is a high turnover in personnel and salaries are uncompetitive. Policy makers, if politically nominated, eventually are not specialized in the sector, and therefore not fully motivated. This results in the insufficient capacity for preparing and

managing programmes and projects. A last remark concerns the governmental master plans, which concentrate on central urban and rural areas, but do not include any specific policies for unplanned peri-urban regions.

An example is provided for Brazil: Here some 80 million people are lacking adequate sanitary provisions, the governmental policies are concentrated on higher social classes, while the used technology is inadequate and a technocratic view of the problem enlarges the gap between government and users (Arrais, 1993).

An overview of these constraints in the governmental organization causing problems in water supply projects is presented in the next box.

- Lack of adequate national policies.
- Conflicts or absence of coordination among the various governmental levels.
- Lack of a clear definition of administrative boundaries.
- Resistance of officials to innovations due to excessive bureaucratization of the local government.
- Lack of motivation of personnel, also important staff positions are assigned on the basis of political affiliation rather than merit.
- The operational and financial inefficiency.
- The inability of the existing institutional and legal framework to provide for consumer participation and the optimization of existing and potential resources.
- Insufficient capacity for preparing and managing programmes and projects.
- Concentration on central urban areas at the expense of peri-urban and rural areas.

### ***Creating Linkages between Actors***

It has been observed that governmental organizations as well as international or local agencies can improve their water supply systems by linking their programmes. By doing this, the different organizations which are operating in the same field can share sector related knowledge. Especially in regions with similar cultural aspects a share of experiences could be of significant use to execute sustainable projects together with the communities.

### ***New Attitudes Towards Operation and Maintenance***

In Guatemala the operation and maintenance is the responsibility of the communities, but the government supervises system operation. If there are problems to be resolved beyond the capacity of the community the governmental unity (UNEPAR) has to provide assistance. In earlier stages this brought logistic problems, caused by the facts that communities are difficult to reach or that demand is beyond the availability of resources. This is the reason for which UNEPAR perceives the need to develop local entities, responsible for the support of projects. These entities should work with appropriate information and administration services to coordinate the actions (rep. Guatemala, 1990).

An other example to improve the sustainability of water supply systems is contributed by "Agua del Pueblo". This Guatemalan NGO, active in the field of drinking water, has stimulated the formation of micro-regional base organizations. These organizations have training programmes for local leaders and they support communities on project related issues.

The organizations cover several rural communities and are highly effective because their local origin. This local origin breaks down the barriers between communities and the supporting organization.

### **6.3 Initiators of Water Supply System Projects**

In Latin America we can distinguish 5 classes of actors initiating projects related to drinking water. These are, next to the governments -where at 4 levels responsibilities can be observed-, international agencies, NGOs and civil organizations (such as rotary or lions), communities and politicians. The 5 classes of actors are described in this section.

#### **6.3.1 Governments**

##### ***-Ministries***

The rural drinking water programmes are administered by the health ministries or ministries for public works. These ministries develop plans for the construction of water supply systems, to be implemented in the communities. As the systems are mainly externally imposed, these projects are called "supply driven". The projects primary cover the construction of the system which makes the community responsible for the operation and maintenance. The weak points herein are that normally no follow up is provided by the government, and the drinking water quality is tested only before system construction.

##### ***-Governmental Institutes***

Governmental institutes are more or less autonomous and primary involved with rural drinking water programmes. Examples of these national water institutes are IDAAN in Panama, SANEPAR in Brazil, SANAA in Honduras and IEOS in Ecuador. In most cases these institutes do not include peri-urban regions in their programmes. An exception is the case of Honduras, where a special entity is created for these areas (UEBM; a SANAA unit for marginal areas). In rural areas the institute hands over the water supply system to the community and making this responsible for operation and maintenance (IEOS). In urban areas or other large communities, the institute remains responsible for operation and maintenance and monthly collects the bills from the users (IDAAN). Because the project plans are planned and executed at a central level these water supply projects are also called supply driven.

##### ***-Provincial Departments and Municipalities***

Provincial governments can have their own responsibilities concerning drinking water programmes. It has been observed that provincial governments execute water projects but no information is at hand at central level. The reason for this gap is the lack of co-ordination between the central governments and local governments.

Regarding municipalities, their role is the provision of water related services to their inhabitants. The programmes can be executed by municipal units or they can contract external contractors, coming from governmental entities or from the private sector. The reality, as encountered in Latin America, is the fact that municipalities often lack possibilities to cover peri-urban regions. In order to find solutions municipalities, together with neighbourhood committees, can try to find solutions for these areas. An example is given for Lima, where the municipality, together with the inhabitants, searches for solutions in the drinking water sector (CIDAP, 1989).

In 1988 the government of Colombia has decentralized its power and the municipalities have obtained autonomy concerning local development of the city and its dependent rural communities. The municipal water department is responsible for the drinking water sector. By having elections for the city council and major every two years, direct community influences are save guarded: The city council is accountable for its actions towards the inhabitants (Lozano, 1987).  
In Guatemala municipalities receive 8% of the national budget for financing water and sanitation projects. These projects are executed without consultation with the central government. The central government has no data on these projects (UNEPAR, 1990).

Also at the provincial or municipal level activities are mainly concentrated at construction works. This signifies that as well governmental, provincial or municipal involvement can mostly be considered as a short time interference, effective only during the construction phase of the water supply project. With exception to water institutes remaining in charge of the water system, insufficient follow up or quality assessment is accomplished after project completion.

#### ***-Social Inversion Funds***

Many Latin American countries have formed special governmental institutes to execute external funded projects. Examples are the FIS (Social Inversion Fund) in Guatemala, the FISH in Honduras or the FES (Social Emergency Fund) in Panama. These funds are created through World Bank involvement but may as well receive funding from the Inter American Development Bank (IDB) or other international organizations. They execute programmes in rural as well as in peri-urban areas. The approach is a more integrated one because these funds mostly cooperate with local NGOs, churches or civil organizations, which act as promoters towards the communities.

In the case of projects financed by social inversion funds, communities can form water committees and have to apply for assistance from local NGOs, which act as liaisons towards project appraisal from the social funds. In contrast to other governmental organizations the social funds have no contracts with the communities themselves. The contracts are set up between the social fund and the local NGOs, churches or civil organizations. The funds require a drinking water quality approval from a governmental institute. The partner organizations are responsible for the assistance during construction. It lays in the hands of these organizations if further follow up is provided, as well as if future quality assessment is secured. Often these local organizations have good papers concerning follow up.

### **6.3.2 International Agencies**

International agencies can work together directly with communities, local NGOs or governments. There are two sorts of international organizations: Religious and non-religious.

#### ***Non Religious Organizations***

UNICEF, as example, works together with the central governments and operates in both rural as peri-urban areas. The government selects the communities and covers the technical part, UNICEF covers the costs. Because UNICEF deals with governments, also the structure of UNICEF can be confusing, leading to the administration of different programmes with different ministries without a proper linkage.

USAID has agreements with governments or other international agencies, like CARE or Catholic Relief Services (CRS). They finance projects in rural communities if these count with a water committee and technical support is delivered by the government. An USAID project evaluation states that projects could be improved by "urging coordination between projects in the same geographic area" (Karp, 1990). As has been mentioned before, no follow up is provided by USAID itself. They provide partial, namely financial, support to the in the project. Next to this, concerning the same project it was mentioned that linkages were missing: Coordination tended to occur only within the water and sanitation component. There was a strong unawareness about what was being done in the health and community participation components (Karp, 1990).

#### ***Religious Organizations***

A whole range of religious organizations are working on the development rural and urban communities. World Vision, an evangelical organization, works together with communities, funding their own projects. CRS and Fe y Alegría work together with communities but for the necessary capital they seek for external funding. These religious organizations have long time programmes with the, mostly rural, communities. Local facilitators live in the project area and decide together with the communities which field of interest exist. Together with the communities they try to find solutions, which could be the construction of a water supply system. The community work is continued after the water supply system is installed. By this means follow up is secured. This method provides an integrated support for these organizations assist in the whole development programme.

### **6.3.3 NGOs, civil organizations**

Local NGOs and civil organizations ("clubes cívicos") operate mainly in their own districts. Local NGOs and civil organizations search for funding at local level, ministries, international agencies or embassies. Civil organizations -such as rotary, lions and kiwanis- are rather active in Latin America. They finance small projects in neighbourhood communities. They also initiate projects for which external financing is applied for at USAID or the social funds (FES, FIS). In these cases the civil organisation or NGOs act as promoters (see above, "Social Inversion Funds"). In a successful Bolivian project NGOs were in charge of the project



execution, while community selection and the purchase of materials was still in the hands of the governmental counterpart (Karp, 1992).

#### **6.3.4 Communities**

Initiating their own projects, three sorts of communities can be distinguished: Peri-urban communities, remotely located rural communities and more developed rural communities (see also Section 2.2.2). These three kinds of communities operate, typically, demand driven and mostly finance their own system. They create communal development organizations and raise funds to construct their own water supply system. The weak point is that they are often dependent on external technicians who might have other interests than the community itself.

As discussed before, many governments do not include urban marginal areas in their programmes, but also remote areas have a low priority. These communities have to create their own programmes. Examples for peri-urban areas can for instance be found in the "Areas Populares" of Guayaquil and Quito (Olaya, 1990; Campoverde, 1990), or in the "Terrenos Invadidos" in Guatemala (Recinos, 1992): The community itself takes action. In Peru, tribal councils in the remote Amazon region organize the development of the region and water issues are taken over by a health committee (Bartram, 1987).

Better developed communities which are not included in other drinking water programmes are also apt to find solutions for themselves. These communities can be found near roads, where the inhabitants have more exposure to development and are mostly aware about sanitary issues. Also communities in agricultural better developed areas (for example in coffee regions) are found to initiate their own water supply projects.

#### **6.3.5 Politicians**

Water supply systems constructed with political motives are considered to be the weakest basis for sustainability and community awareness, though much encountered in Latin America. Local politicians donate water supply systems to communities in order to gain votes in upcoming elections. These projects require no involvement of the community whatsoever and are totally supply driven: The politician hires constructors to build the system and no training is given. If the system breaks down the elections are long over, and no follow up is provided. An example of even worse consequences is given for Panama. Here political leaders donated free systems for what reason rural communities got the idea that water systems were always free. By this means other actors (like the health ministry) had big problems establishing water committees and recovering costs in their own projects. An other example comes from Bolivia where reluctancy towards water projects came from the communities: They had doubts whether they would actually get water, because there had been many promises, particularly from political parties, that had never been kept (Karp, 1990).

## **6.4 Changing Responsibilities and Decentralization**

As is expressed in Section 6.2, Latin American governments need to adapt to a more effective water resource management. Water should not solely be considered as a basic necessity, used as drinking water, at community level. It should be clear to all actors that water is also considered an economic good, used for small house hold production, or for agricultural and industrial purposes. In fact the use of water as an economic good surpasses the use as drinking water. In order to secure a sound interest in all water components, governments have the responsibility to build an enabling environment for the water sector: An effective water resource management in which all the involved components are covered and the development of sustainable water supply systems is secured.

### ***Aims and Priorities***

For this reason countries need to state aims and priorities and ought to be able to oversee the aspects for users (public, agricultural, industrial) and the environment. At the level of drinking water related planning, sustainability and quality assessment should be prioritized. Governmental departments and other actors should share knowledge and information to improve the quality of the executed projects. The fact has been stressed that more reliable data on resources and environmental factors, better legislation and regulations are needed (World Bank, 1993; Lee 1991).

### ***Changing from Top-Down to Community Managed Systems***

Not only at the overall level the countries have to redefine their strategies. Also the more practical aspects in the water sector are changing. Top-down, supply driven models, need to be abandoned for community based systems:

"...a system with a open, horizontal and direct structure, rooted in the collective self determination of decisions to be made by associated groups, supported by a solid formation of leaders and partners to guarantee the quality of their interventions is proposed."  
(Salazar, 1991)

In order to change the top-down approach towards horizontal or bottom-up structures new roles for the government are considered. Governments should build new legal and institutional frameworks in which the participatory approach is incorporated. For what reason the decentralization of the central government is required. If water supply programmes are started by governments or other water agencies, communities should be selected on their internal drive to adopt the project. These communities must have an extended form of internal organization, because these are the prerequisites to obtain sustainability. Agencies should analyze the community and facilitate requested training programmes to the community.

### ***Decentralization signifies Changing Papers for All***

Decentralization and community management imply changing roles for all partners: Ministries and their engineers, donors and NGOs, the private sector as well as the communities themselves. Human resource development is a fundamental objective in this process because "there is often initial opposition from experts in the field" and "donors and central governments have to come to terms with completely new roles" (Andersson 1990:22). Human

resource development needs to be emphasized, where new training must be given to capacitate skilled and knowledgeable people in the field. Next to this, the governments have to provide the communities with the necessary information about rights and responsibilities in water programmes. In other words, human resource development and capacity building is needed in all stages.

International organizations can play an important role in the institutional development of governments. Without this institutional backup many countries have not the knowledge, or lack the human resources, to implement changes in the governmental organization. That many countries are aware about their institutional incapacity and feel the need for external assistance is expressed in an example from IEOS in Ecuador:

"Decentralization is not a current policy for projects not funded by USAID, but the government is interested in reestablishing it with a USAID-assisted project.  
(Edwards, 1989).

To develop community management and expand this concept, more decisions must be taken at regional levels and a strong coordination is needed between partners. These changes require a new approach and will cost time. Donors have to adapt to the new, participatory, methods and should set new standards in order to create sustainability. At governmental level guidance is needed to enhance resource management and reach for decentralized services. At community level adequate support is needed in the fields of participatory capacity building, user friendly technical designs and development of monitoring tools at community level. Support is needed in which all partners participate.

**table: The main involvement, rural and (peri-) urban, of international organizations and governments in drinking water projects (Latin America).**

	(PERI-URBAN)	RURAL
UNICEF	X	X
USAID		X
WORLD VISION		X
FE Y ALEGRIA		X
CRS		X
SANAA, 1		X
UEBM/SANAA, 2	X	
MINSA, 3		X
IDAAN, 4	X	
IEOS, 5		X
DSA, 6		X
SEMAPA, 7	X	
DISABAR, 8		X
SEDAPAL, 9	X	
SENAPA, 10	X	
MINSA, 11		X
UNEPAR, 12		X
DSM, 13		X
EMPAGUA, 14	X	
PLANSABAR, 15		X

1=Honduras (SANAA; national water and sewerage agency)

2=Honduras (UEBM; unit for urban marginal areas)

3=Panama (MINSA; ministry of health)

4=Panama (IDAAN; national water and sewerage institute)

5=Ecuador (IEOS; Ecuadorian sanitary works institute)

6=Bolivia (DSA; department of environmental health)

7=Bolivia (SEMAPA; municipal water and sewerage service)

8=Peru (DISABAR; department of basic rural sanitation)

9=Peru (SEDAPAL; Lima enterprise for water and sewerage)

10=Peru (SENAPA; national service for water and sewerage constructions)

11=Colombia (MINSA; ministry of health, formerly INS; national health institute)

12=Guatemala (UNEPAR; unity for rural aqueducts, >500 inhab.)

13=Guatemala (DSM; division for environmental sanitation, <500 inhab.)

14=Guatemala (EMPAGUA; municipal water service)

15=El Salvador (PLANSABAR; national agency for rural sanitation)

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