

AGUASAN Workshop Series

Promising management models of rural water supply services

Outcomes of the 24th AGUASAN Workshop
Gwatt, Switzerland, 13 to 17 October, 2008

A workshop for sector specialists and decision-makers



AGUASAN Workshop Series

Promising management models of rural water supply services

**Outcomes of the 24th AGUASAN Workshop
Gwatt, Switzerland, 13 to 17 October, 2008**

A workshop for sector specialists and decision-makers

For further information please contact:

François Münger, Senior Water Advisor
Swiss Agency for Development and Cooperation (SDC)
francois.muenger@deza.admin.ch

Roger Schmid, Water and Environmental Sanitation Specialist
Swiss Resource Centre and Consultancies for Development (Skat)
roger.schmid@skat.ch

Albert Bürgi, Water and Sanitation Advisor
Swiss Association for International Cooperation (Helvetas)
albert.buergi@helvetas.org

Chris Zurbrügg, Director & Programme Officer
Swiss Federal Institute of Aquatic Science and Technology
Department of Water and Sanitation (Eawag/Sandec)
christian.zurbrugg@eawag.ch

Impressum

Published by	SDC in collaboration with Eawag/Sandec, Helvetas and Skat
Orders	The report is available for download on the publishers' websites (www.sdc.admin.ch , www.sandec.ch , www.helvetas.org , www.skat.ch) or can be ordered at publications@skat.ch
Compiled by	Agnès Montangero (Skat) Based on contributions by all AGUASAN Workshop participants
Peer review	François Münger (SDC), Roger Schmid (Skat), Albert Bürgi (Helvetas), Chris Zurbrügg (Eawag/Sandec), Bruno Valfrey-Visser (Hydroconseil), Roland Schertenleib (Eawag/Sandec), Ken Caplan (BPD)
Language editing	Adrian Coad
Layout	Martin Läng (Skat)

Berne, Switzerland, August 2009

Table of Contents

1	Introduction	1
2	A brief overview of management models for rural water supply services	2
2.1	Defining the field of investigation	2
2.2	Towards a typology of Rural Water Supply (RWS) management models	3
2.3	Overview of existing types of management models	4
3	Enhancing the sustainability of rural water supply services – an analytical framework for assessing the management models	8
3.1	The Stakeholder Function Matrix.....	8
3.2	The Stakeholder Map.....	9
3.3	The “SWOT Diamond”	9
3.4	The Performance Criteria Checklist.....	10
4	Assessing a real rural water supply management model - The Senegal case: From a “national-utility” model to a delegated model where semi-professional water user associations are managing multi-village pipe networks	13
4.1	Institutional arrangements, main actors and features	13
4.2	Stakeholders’ functions	15
4.3	Stakeholders’ map	16
4.4	Strengths and weaknesses.....	17
4.5	Model performance.....	18
4.6	Conclusions.....	18
5	Enhancing the sustainability of RWS management schemes: Key ingredients for success	19
	References	22
Annex A	Case studies	23
Annex A1	The Burkina Faso case: A sector reform towards delegated management ..	24
Annex A2	The Kosovo case: Management delegation to regional water utilities	30
Annex A3	The Tanzania case: Private initiatives to provide water services.....	35
Annex A4	The Weinfelden / Switzerland case: A municipality-owned utility in charge of the water supply network.....	39
Annex B	List of workshop participants	45

Abstract

“Is community management enough to sustain the Millennium Development Goal efforts?” This question was raised to initiate the debate at the Aguasan Workshop 2008, a five-day event that brought together water specialists and development practitioners from all over the world. Although the community management model is by far the most widespread approach for rural water supply services in low-income countries, it has often failed to deliver the expected level of sustainability. Hence there is a strong need for re-examining this approach as well as for investigating alternative management models.

This report synthesizes the main workshop outcomes. It describes an analytical framework that can be used to assess the potentials and limitations of rural water supply management models, as a first step towards enhancing the sustainability of rural water supply services. It also highlights these key ingredients for success in managing rural water supply services:

- The existence of a legal framework clearly defining the roles and responsibilities of the various stakeholders is one common element of successful models.
- In countries undergoing decentralization, local authorities should play a central role in the management of water services. However, financial, material and human resources have to be effectively transferred from central to local government in order to enable the communes to fulfil their role.
- The private sector plays an important part in managing water supply services. In general, the weak profitability of infrastructure maintenance and operation activities is mentioned as a factor that limits private sector involvement. The combination of several water systems or facilities, forming packages comprising profitable and unprofitable facilities to be managed by private operators, could be a way to facilitate private sector participation. Reducing fiscal charges, exempting taxes even temporarily, decreasing water tariff subsidies, and contributing to extension costs could enhance the attractiveness for the private sector.
- Capacity building is a crucial issue to tackle in order to improve the management of water services, regardless of the type of management model. Involving NGOs or associations could be a way to provide technical support.
- In most cases, the dependence on external funding for the replacement of long-term assets or system extension is considered as a threat to sustainability.
- The case studies analysed during the workshop show a trend towards more involvement of the private sector. This is considered as a way to professionalize the management of water services.

Acknowledgements

This report is based on the background paper on rural water supply management models prepared by the Aguasan Community, in collaboration with Bruno Valfrey-Visser (Hydroconseil) as lead author. It is further based on the case studies presented and analysed during the workshop. We would like therefore to thank the case study presenters Bruno Valfrey-Visser, Jean Mathieu Bingbouré (Ministry of Environment and Water, Burkina Faso), Astrit Vokshi (Community Development Initiatives, Kosovo), and Erich Baumann (Skat). We also would like to thank all workshop participants for their active participation and very constructive contributions. Moreover, the constructive comments prepared by the peer reviewers François Münger (SDC), Roger Schmid (Skat), Albert Bürgi (Helvetas), Chris Zurbrügg (Eawag/Sandec), Bruno Valfrey-Visser, Roland Schertenleib (Eawag/Sandec), and Ken Caplan (BPD) greatly contributed to this publication.

Acronyms and Abbreviations

AFD	Agence Française de Développement (French Development Agency)
ANEPA	Agence Nationale de l'Eau Potable et de l'Assainissement (Mauritanian National Agency for Water Supply and Sanitation)
ASUFOR	Association des Usagers du Forage (Borehole Users Association), Senegal
AWS	Autonomous Water Station
CBO	Community-Based Organization
CGS-AEP	Cellule de Gestion et de Suivi des AEP (Unit of Water Supply Management and Monitoring in Mali)
CoP	Community of Practice
CSO	Civil Society Organization
CWSA	Community Water Supply Agency (Ghana)
DRAHRH	Direction Régionale de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques (Regional Directorate of Agriculture, Water Resources, and Fisheries), Burkina Faso
FAUEREB	Fédération des Associations d'Usagers de l'Eau de la Région de Bobo-Dioulasso (Federation of Water Users Associations in the Bobo-Dioulasso Region), Burkina Faso
HP	Handpump
KTA	Kosovo Trust Agency
MAHRH	Ministère de l'Agriculture de l'Hydraulique et des Ressources Halieutiques (Ministry of Agriculture, Water Resources, and Fisheries)
MDG	Millennium Development Goal
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
ONEA	Office National de l'Eau et de l'Assainissement (Burkina Faso National Water and Sanitation Utility)
ONEP	Office National de l'Eau Potable (National Water Utility in Morocco)
OSCE	Organization for Security and Co-operation in Europe
PEPAM	Programme d'Eau Potable et d'Assainissement du Millénaire au Sénégal (Millennium Water and Sanitation Program in Senegal)
RNET	Régie Nationale des Eaux du Togo (Togolese National Water Utility)
RWC	Regional Water Company
RWS	Rural Water Supply
SDC	Swiss Agency for Development and Cooperation (SDC)
SDE	Sénégalaise des Eaux (Senegalese Urban Water Utility)
SODECI	Société Des Eaux de Cote d'Ivoire (Water Supply Company of Ivory Coast)
SONES	Société Nationale des Eaux du Sénégal (Senegalese Urban Water Company, asset holding company)
SWOT	Strengths, Weaknesses, Opportunities and Threats
SWSS	Simplified Water Supply System (small network)
UA	Users' Association
WBI	World Bank Institute
WEDC	Water, Engineering and Development Centre (UK)
WS	Water Supply
WS&S	Water Supply and Sanitation
WSP	Water and Sanitation Program
WUA	Water Users' Association
WWRO	Water and Waste Regulatory Office (Kosovo)

1 Introduction

Effective management of the operation, maintenance, replacement and upgrading of water supply systems is essential to guarantee the sustainability of water supply services. Although the community management model is by far the most widespread approach for rural water supply services in low-income countries, it has often failed to deliver the expected level of sustainability. Hence there is a strong need for re-examining the approach and its institutional support, as well as for investigating alternative management models. 36 development specialists from around the world gathered from October 13 to 17, 2008 in Gwatt (Switzerland) for a week of intensive exchanges on this issue within the framework of the 24th AGUASAN Workshop.

This report builds on the background paper entitled “Management Models for Rural Water Supply Services” prepared by the AGUASAN community in collaboration with Bruno Valfrey-Visser (Hydroconseil) as lead author. It further builds on the case studies presented, analyzed and synthesized during the workshop.

One of the main outputs of the workshop is an analytical framework that can be used to assess the potentials and limitations of rural water supply management models, as a first step towards enhancing the sustainability of rural water supply services. The proposed analytical framework can be used as a decision-support tool. It supports the development of measures aimed at improving the sustainability of water supply services. This report has as its objective the sharing of the workshop results – the analytical framework in particular – with interested water professionals wishing to conduct a systematic analysis of the rural water supply management schemes in their respective regions. However, this report does not answer the question of what is the most appropriate model in a given context.

The report first gives a brief overview of management models for rural water supply services (Chapter 2), then it describes a series of tools that can be used to assess rural water supply management models (Chapter 3), illustrates the use of these tools based on a case study (Chapter 4), and finally summarizes the main conclusions (Chapter 5).

AGUASAN is an interdisciplinary Swiss community of practice (CoP) bringing together a wide range of specialists to promote wider and deeper understanding of key issues in water supply and environmental sanitation in developing and transition countries. This CoP consists of committed sector professionals from diverse specialized institutions involved in Swiss development cooperation and research. Since 1984, **AGUASAN meetings** have been held four times a year to enable its members to share experiences and information related to the sector, to discuss successes, problems and innovative solutions, and to develop practical recommendations. In this way, the CoP has, for 25 years, provided a functioning multi-stakeholder platform serving the water and sanitation sector and it therefore constitutes an essential link in the thematic knowledge management strategy of the Swiss Agency for Development and Cooperation (SDC).

Besides these regular meetings, members of the AGUASAN CoP (with members from SDC, Skat, Helvetas, and Sandec) organize an international **AGUASAN workshop** in Switzerland every year, generally in June. At these workshops, project field staff, desk officers, researchers, consultants, other sector specialists and development practitioners from all over the world come together for five days to reflect collectively on a cutting edge theme of the sector. AGUASAN workshops foster a mutual learning experience and aim to utilize the broad and multi-faceted knowledge gathered by participants to collectively develop strategies and conceptual tools of practical use in development work. The year 2008 saw the 24th consecutive workshop in what has become a very popular, successful and respected series of innovative events.

2 A brief overview of management models for rural water supply services

2.1 Defining the field of investigation

Rural areas: There are various ways of defining “rural areas”. The population density criterion is one of these, but a rather limited one (Satterthwaite, 2003). In the present context, the easiest way is to define “rural areas” as the areas not expected to be served by the main service provider in charge of urban areas. This definition enables the inclusion in “rural areas” not only of villages and scarcely populated areas but also of small towns. The only disadvantage of this definition is that it excludes the cases in which the main “urban” service provider also serves rural settlements. This was the case in Togo, for instance, with the Togolese National Water Authority (RNET) and to a lesser extent in Ivory Coast with the Water Supply Company of Ivory Coast (SODECI). However, the general trend is to restrict the mandate (and the territory) of urban service providers to capital cities and secondary towns, leaving rural areas to other actors. A good example of this phenomenon is the re-engineering of Ghana Water and the subsequent establishment of the Community Water and Sanitation Agency (CWSA) to take care of rural areas, including networks serving small towns formerly managed by Ghana Water.

Technical options: There are significant differences between urban and rural water services. One of these differences is related to technical options. Urban water supply usually relies on piped networks, or tends to when a dominant service provider is involved in the management of services. On the other hand, rural water supply draws on a range of technologies which fall into three main categories: wells, boreholes fitted with handpumps, and small piped networks relying on ground or surface water. This range of technologies and the variety of situations governing access to water resources are typical of rural areas and have a strong influence on the type and performance of management models. In Senegal, for instance, the success of the “multi-village” model (in which medium-sized towns and very small adjacent villages have access to water from a single network connected to one or more boreholes) can be at least partly explained by the policy developed by the Senegalese government in the 1980s, which resulted in the drilling of hundreds of deep and very productive boreholes (Valfrey-Visser et al, 2002).

Rural water supply: Rural water supply has evolved over the last 30 years. What we call rural water supply has gone through two major phases of “fragmentation” and can now be divided into at least 3 categories. This evolution can be illustrated as follows:

1980-1990 The development of handpumps	The Golden Age of Rural Water Supply Dominant technology: wells and cheap boreholes fitted with handpumps Dominant management model: self-sufficient community groups		
1990-2000 The inclusion of small towns	Small Town Water Supply Piped networks & standpipes More complex models involving formal Water User Associations	Village Water Supply Technology: as above Management model: still community-based, but with touches of private sector participation	
2000-2010 The rise of a new category?	Small Town Water Supply Piped networks, standpipes & house connections More complex models involving delegation of management to the private sector	Village Water Supply The same as above, but restricted to public investment, Management by water committees and/or the private sector	Self supply and “semi-collective” water supply, boosted by cheap technologies and privately managed

In terms of investment, small towns are likely to continue to rely on public finance for a long time, as expensive equipment is required (deep boreholes, water tanks, and extensive primary networks). Handpumps are currently very expensive – around US\$1,000. They are

mostly financed by donors, NGOs, and sometimes also by governments, and therefore evade market rules, making it very difficult to create a market for very cheap versions (that cost around US\$100), although they would be technically feasible. It is likely that, in about a decade, the market for cheap handpumps will become profitable, in rural areas, which will therefore partly fall into the “self supply” category.

It is also likely that private actors will increasingly invest in rural water supply (handpumps and networks). The phenomenon has already started in most countries, although it remains difficult to quantify. In Benin, for instance, the last inventory conducted by the Water Directorate revealed that more than 500 unregistered boreholes were privately operated by investors who installed a handpump or built a small distribution network around a motorized borehole. This tendency is currently observed in urban areas, but considering the “market share” that rural areas and small towns represent, it can be expected that investors will progressively invest in rural settlements also.

Management models: The term “management model” in this report does not only encompass the theoretical set of arrangements governing the management of water services in a village or in a small town. It also includes the relationships between key actors, however informal these relationships might be.

2.2 Towards a typology of Rural Water Supply (RWS) management models

Key actors in the management of RWS services

The actors involved in the various management models play different roles and have different influence – some actors are even completely absent in some models. However, in all the models basically the same key actors play significant roles: (i) the central government (in most cases, the ministry in charge of water and its regional/local branches); (ii) local authorities (which in many countries are formally in charge of managing water services); (iii) water user groups or associations (more or less community-based); and (iv) private operators (pump mechanics, spare part retailers, network managers, etc.).

A first typology of models based on the dominant actor

The typology developed in this section is not based on the functional or contractual relationships between actors but on the main (dominant) actor involved and three other distinguishing criteria: (i) the scale at which the model is applicable (local, regional or national); (ii) the extent of delegation; and (iii) the level of private sector involvement. On the basis of these criteria, four main models were identified in the examples analysed and assessed during the workshop. The following table lists also three other models which are possible and used in other cases:

Brief description of the model	Key actor	Scale of model	Extent of delegation	Private sector
The four main models				
Community management models	Community	Local	0	0
Municipal management models	Municipality	Local	+	+
The delegated management models	Operator	Variable	+++	+++
The privately-owned management models	Investor	Local	0	+++
Other existing models				
Nationwide or “national utility” models	Utility	National	0	Variable
Maintenance-oriented “packaged” models	Supplier	National	+	++
The “regional” management models	Federation	Regional	Variable	+

2.3 Overview of existing types of management models

Some of the identified models encompass several sub-models and the models are not mutually exclusive. For instance, the Mauritanian model is a combination of the nationwide model (ANEPA, the Mauritanian Agency for Water Supply and Sanitation, covers the whole territory of Mauritania) and the delegated management model (ANEPA contracts private operators for the management of water services in each town or village). The real-life examples described and analysed in Chapter 4 and in Annex A also show that management usually evolves over time, drifting from one model to another.

2.3.1 The community management model

In developing countries, the community management model is clearly the dominant one, and will probably remain dominant in the coming years. Even if the terminology varies strongly from one country to another, the main features of this model remain the same: a group of users is established at the level of a village or small town, usually through an election process, and this “water committee” manages all aspects of the water service – not only operation and maintenance, but in many cases also the improvement of the service: providing house connections, extending networks, etc.

Advantages and limitations of community-based management*

Advantages

- Proximity to users and local capacity to manage conflicts
- Flexibility in dealing with those who are in arrears with their payments
- The structure is permanent (members come and go, but the committee stays)
- The status of an association reduces the risk taken by each individual member
- Users have a better mechanism for expressing their demands and their concerns

Limitations

- If members get no benefit from their involvement, the impetus is lost
- No capital and therefore no guarantee in case of mismanagement
- Limited skills to manage technically complex equipment
- Tendency to reduce expenses rather than increase revenue from water
- Difficulty in developing a strategic vision for network extension

What would be the most suitable role for a users' association?

- A users' group or water committee is suitable for managing users or clients who are not accustomed to an “urban” service and whose willingness to pay is generally low.
- A users' association (UA) is likely to face difficulties when managing the “production” side as this requires technical skills. However, a UA easily manages the commercial side.

* Adapted from Savina, Vézina and Valfrey, 2002.

This model basically offers the possibility of increasing the level of *ownership* at community level, however in practice central or local government remains in most cases the true *owner* of the facilities. After a few years, a users' committee often turns into a small group of persons managing the water service in a private fashion – which is not necessarily a problem, but is clearly in contradiction with their initial mandate and in most cases with their legal status too.

Among the models described in this report, the community management model is definitely the one that can be described as a family of sub-models, encompassing a range of possible options. One of the main trends in community management is to consider the water committee or board as a (professional) operator rather than as a community body (see for instance Brand, 2004, for an example in Latin America). This trend can be observed in rural Benin for the management of handpumps under the concept of “reinforced community management”.

The term “community management” represents an umbrella under which many institutional arrangements can be found, including situations where a self-organised and almost “private” entity manages the service.

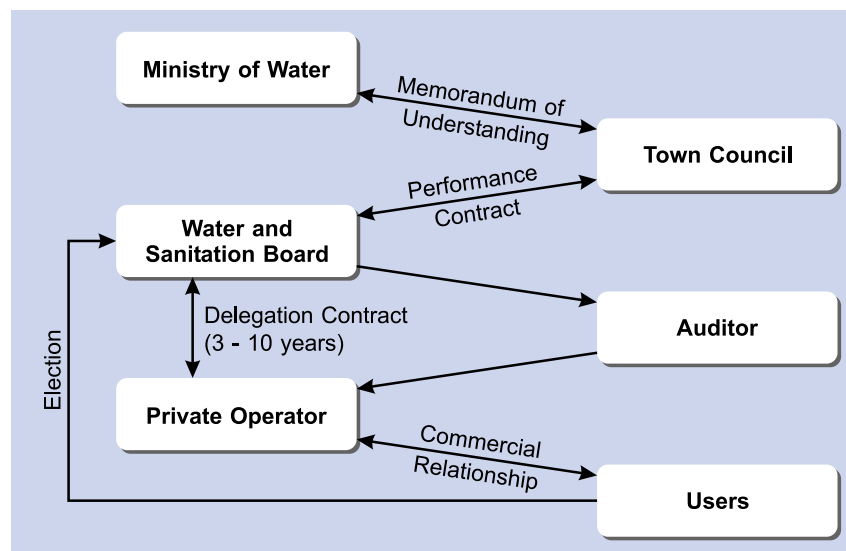
2.3.2 The municipal management model

In this case, the water (or sanitation) services are managed directly or indirectly by a municipality, commune or district council. This is the case in many countries. In both developed and developing countries this is probably the dominant model for rural areas. However, in developing countries, and especially in rural areas, there are rather few cases of successful management of RWS services by the municipality. The drawbacks of municipal management have been discussed and documented elsewhere (Ringskog, 2003). The three main disadvantages relate to: (i) the difficulty of retaining good professionals in the municipal departments; (ii) the difficulty of ring-fencing the revenue from water in a context where communes struggle with insufficient budgets; (iii) the difficulty of creating incentives for the municipality to expand services and finance new facilities, when the municipal or district investment budget is already under considerable stress. Examples of municipal management models can be found in Colombia and other Latin American countries, among others.

2.3.3 The delegated management model

This category covers models with different forms and levels of management delegation. The common point is the existence of a relationship (usually a contract) between the “owner” of the system, usually the central or municipal government or a Water User Association (WUA) and a privately-managed entity such as an individual, a company or a Community-Based Organization (CBO). The conditions of the contract and the allocation of responsibilities between the delegating authority and the operator can vary substantially from one case to another; the figure below gives an overview of the model, taking into account different possible levels of delegation.

This management model has proven to be very successful in the case of small towns and piped networks, because it takes advantage of the capacity of the private sector to boost access and manage services in a dynamic way (the Mauritanian example is a very good one in this respect). However, it is more difficult to attract private providers into the management of village water supply services that rely on handpumps). A case study in Kisumu, Kenya demonstrated that the critical principles for success are: (i) transparency in the bidding process, (ii) clear contractual arrangements, and (iii) the right financial incentives for all parties (WSP, 2009). The drawbacks of the delegated management model are: (i) the difficulty of keeping a good balance (in terms of transparency and accountability) between the owner and the provider (especially in the situation where the owner is a WUA) and (ii) the difficulty of organizing a system of regulation that helps to keep prices down while guaranteeing service quality. (Pressure from the users is the best guarantee of such a regulation, but if there is a conflict another entity needs to intervene.) Examples of the delegated management model can be found in Rwanda, Mauritania, Niger, Colombia, Uganda and elsewhere.



2.3.4 The privately-owned management model

This is not a type of delegated management model because of the complete absence of delegation. In this case, a private investor decides to build and operate a water point or a small piped network to serve a neighbourhood that does not have access to any kind of water service. These private investments can occur spontaneously or be encouraged by the government if it does not have the capacity to provide the required water services. Privately-owned management models are driven by competition and therefore often develop in peri-urban contexts, where there is the possibility of offering an alternative to the service provided by the dominant utility. Especially in an urban setting, a key issue is how to regulate the activities of the private investors without putting them out of business (Valfrey-Visser et al, 2006). Examples of such models can be observed in Benin, Paraguay, and Nigeria.

2.3.5 The nation-wide or “national utility” model

This family of models encompasses all situations in which a national *umbrella* entity directly or indirectly manages the RWS services. One option is when the main service provider (in general the urban water utility) is also directly in charge of providing services for the rural areas. The obvious advantage of this option is that rural dwellers get access to a good quality service. However, the urban utility generally operates in rural areas at a very high marginal cost, and so the possibility for an “urban” utility to serve rural areas can only arise if a significant cross-subsidizing system is organized at national level. This is typically the case in Ivory Coast with the SODECI and to a lesser extent in Burkina Faso with the National Water and Sanitation Utility (ONEA). Some attempts have been made to develop new *franchising* contracts that reconcile these aspects, but very few examples are actually documented. The National Water Utility in Morocco (ONEP) abandoned such an idea and is now implementing a more classical form of delegated management.

A second situation is when a nationwide *umbrella* organization is established to host a certain number of management or lease contracts throughout the rural areas of a country. This second option presents several advantages, the main one being the possibility of organizing a cross-subsidizing system between small towns/villages and larger (and therefore more profitable) settlements. The best example of such an umbrella organization is the ANEPA in Mauritania; unfortunately, this example also shows the difficulties that arise when putting into practice such an organization – charges are set at the national level and therefore sensitive to political considerations.

2.3.6 The maintenance-oriented or “packaged” model

This model is usually only applicable to the management of handpumps or solar pumping systems. The idea is to provide a package of services under a lease contract. These services include – depending on the local situation – maintenance, repair (including the supply of spare parts), fee collection from the users, and technical assistance to the WUAs. In some countries (Mauritania, Burkina Faso, Benin, Niger), this package was marketed as a “total warranty scheme” associated with a given manufacturer (the French company Vergnet). Unfortunately, although the rationale behind this model is promising, its implementation has not seen great success. In Mauritania, for instance, within two years of the signing of the first contract, the number of WUAs interested in renewing their contracts had dropped tremendously, to the point that the local representative of Vergnet had to change their strategy and increase the annual cost of the total warranty lease contract (Desille, 2004).



A pedal pump in Mauritania.

© Hydroconseil

2.3.7 The „regional“ management model

The regional management model covers the situations in which an umbrella organization provides services to a certain number of local managers or providers such as WUAs, co-operatives or private providers. The extent of these support services is variable and can range from technical assistance on issues such as maintenance, commercial management or accounting, to a higher level of integration, for instance the common management of saving funds, or a maintenance contract signed by the regional organization in the name of all its members. These models can be seen as a sub-model of the “nationwide” model, but there are two significant differences: (i) the regional organizations are usually Civil Society Organizations (CSOs), with a loose link or no link to the government; (ii) the regional organizations are less directly involved in the management of day-to-day services. Examples of such regional umbrella organizations are the Federation of Water Users Associations in the Bobo-Dioulasso Region (FAUREB) in Burkina Faso, the South Western Towns Umbrella Organisation in Uganda, and the Unit of Water Supply Management and Monitoring (CGS-AEP) – and similar organizations – in Mali.

3 Enhancing the sustainability of rural water supply services – an analytical framework for assessing the management models

A series of tools for understanding stakeholders' roles and relationships, analyzing strengths, weaknesses, opportunities and threats, and assessing the performance of rural water supply management models is presented here. This assessment is an important step in enhancing the sustainability of rural water supply services. These tools have been used to assess existing management models (see Chapter 4 and Annex A).

3.1 The Stakeholder Function Matrix

The management of water services is often characterized by the large number of stakeholders involved. Clarifying stakeholders' roles and relationships is therefore a key to a better understanding of a management model and a basis for analyzing its strengths and weaknesses. Listing the roles played by the various stakeholders is a useful first step in analyzing a management model. The key functions related to the management of water supply services and stakeholder categories are represented in the following matrix. However, the matrix must be adapted on a case-by-case basis. Important stakeholders must be identified and additional functions or a more differentiated analysis of functions (e.g. differentiation between ownership of water resource and of infrastructure) may be needed.

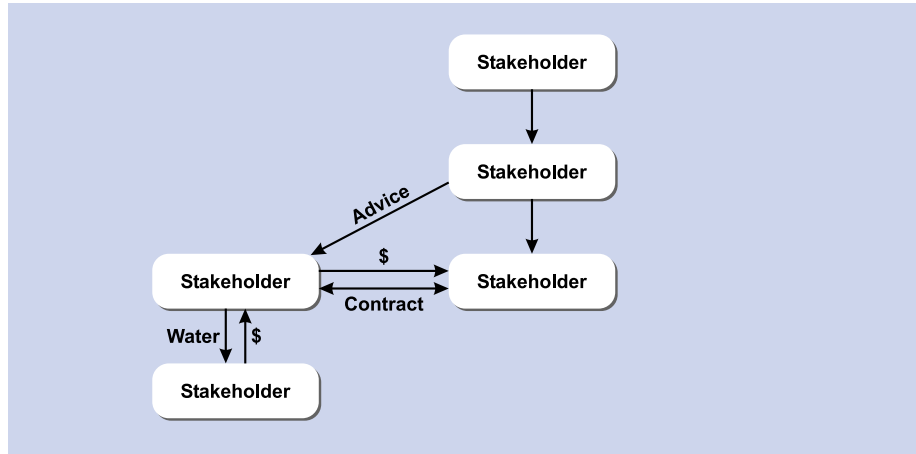
Stakeholders	Functions							
	Individuals	Communities	NGOs, associations	Private sector	Local government	National government	International organizations	
Ownership								
Financing construction								
Managing funds								
Setting tariff								
Regulating								
Controlling / Reporting								
Operation								
Maintenance								
Replacement								
External support								

This matrix helps by visualizing information such as unclear or overlapping responsibilities and how tasks are shared between government, private sector and civil society. It further assists in identifying the key actors, the extent of delegation, and the level of private sector involvement. As mentioned in Chapter 2.2, these are three of the main criteria used to classify water supply management models.

3.2 The Stakeholder Map

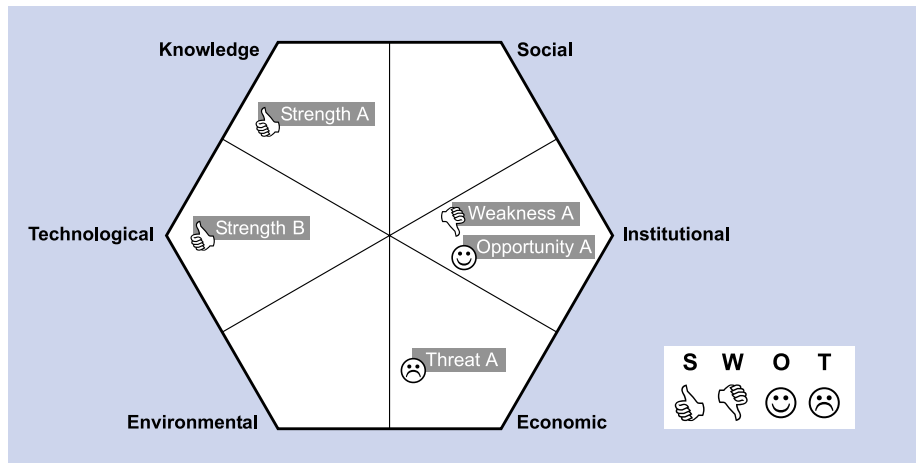
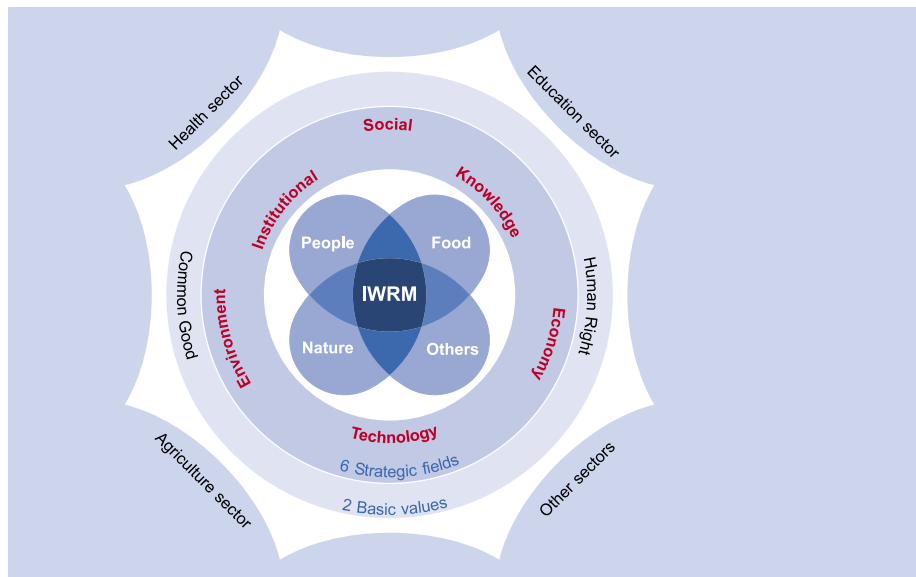
The stakeholder map visualizes the relationships between the stakeholders. Stakeholders can be linked to each other by the provision of water or materials, transfer of money, delegation, supervision or monitoring of tasks, training, or a contractual relationship. Stakeholders influence each other to varying degrees.

Mapping stakeholder relationships helps in getting a clearer understanding of the situation and serves as a basis for identifying weaknesses or challenges and discussing potential improvements.



3.3 The “SWOT Diamond”

The diamond shows the six strategic fields guiding SDC’s programs in the water sector. They are the three pillars of sustainability: social, environmental, economic, and the three thematic fields: institutional, technological, and knowledge. A “SWOT Diamond” consists therefore in analyzing **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats considering the six strategic fields, thereby promoting a comprehensive assessment.



The table below contains selected issues related to the six strategic fields. This approach contributes to a clearer understanding of the strategic fields and thus facilitates assessment according to these fields. The list however is not exhaustive.

Social	Economy	Environment
<ul style="list-style-type: none"> ■ Equity of service: access for all or for the poor ■ Integration of socio-cultural context ■ Participation and demand responsiveness ■ Empowerment of user groups ■ Gender equality ■ User satisfaction and willingness-to-pay 	<ul style="list-style-type: none"> ■ Costing (recurrent, replacement, expansion costs) ■ Tariffs (incl. tariff setting mechanisms), ability-to-pay and targeted subsidies ■ Financial management 	<ul style="list-style-type: none"> ■ Water conservation ■ Resource protection ■ Precautionary principle ■ Environmental sanitation
Institutional	Knowledge	Technology
<ul style="list-style-type: none"> ■ Regulatory framework ■ Good governance ■ Sector coordination / multi-stakeholder dialogue ■ Institutional capacities 	<ul style="list-style-type: none"> ■ Capacity building at all levels ■ Learning and knowledge transfer ■ Documentation ■ Performance monitoring and auditing 	<ul style="list-style-type: none"> ■ Appropriate technologies and service levels ■ Appropriate level of standardization and quality control ■ Operation and maintenance arrangements ■ Viable supply chains for goods & services ■ Flexibility and incentives for upgrading and extension

The assessment results can be visualized as strengths, weaknesses, opportunities or threats according to the strategic fields, thereby facilitating the identification of limitations and the development of potential options to improve the current system. The clearer understanding of stakeholders' roles and relationships supports this assessment.

3.4 The Performance Criteria Checklist

Based on the above list of sustainability issues related to the six strategic fields, a set of criteria is proposed for assessing the performance of the different management models:

Financial and management autonomy	How autonomous is the operator in managing the cash flow, recruiting the staff, and paying for O&M costs on a daily basis?
Demand responsiveness	Does the management model encourage the service provider to meet users' demands in the most appropriate way?
Incentives for expansion	Does the management model encourage investments aiming at meeting the future demand and ensuring that all segments are served?
Professional support	How easily can local actors (and especially service providers) have access to support for technical or commercial issues and at what cost?
Regulation	Are the customer's rights protected against potential abuses by the provider? Are water tariffs fair and easy to modify? Are monitoring data collected and transferred to the upper level for benchmarking?
Transparency and accountability	Is the water service managed in a transparent way? Are accounts and contracts regularly audited by an independent body?

This checklist helps identify the strong and weak points of each model. However, when assessing the models in practice, some criteria may be more relevant than others; it may therefore be meaningful to weight them. Moreover, this list is not exhaustive and should be adapted on a case-by-case basis. The four main models described in Chapter 2 are assessed on the basis of these criteria (see the Table on page 11).

Performance criteria	Community management	Municipal management	Delegated management	Privately owned & operated
Financial and management autonomy	Water committees are usually financially independent (when formalized, they have their own bank account). The autonomy of the water committee depends on the strength of its leaders. Some committees can be politically influenced or oriented, usually to the detriment of service provision.	Financial autonomy is a very strong bottleneck in municipal management (revenue from water not going back to the water sector). Management autonomy is usually weak, which can have a positive effect (if there is a political will to improve service provision, management will have to follow); but usually there is a negative impact, leading to over-staffing.	When contracts are properly designed and negotiated, most providers under a delegation contract have full management autonomy and substantial financial autonomy. Providers may manage a joint account with the delegating authority for renewal funds. Sound regulation can help improve the level of autonomy and protect the service provider from potential political interference.	Financial and management autonomy of the water provider is absolute in this specific case – the provider is not meant to have any kind of relationship with public authorities with regard to the management of his/her business. However, legal uncertainty or insecurity (no contract) can limit the apparent autonomy of the provider, by making him/her more sensitive to political pressure or influence.
Demand responsiveness	Despite their proximity to users, community managers do not have a strong incentive to meet the demand of users, especially when the demand is for higher levels of service such as private connections. A general trend in community management is to offer only one level of service (e.g. standposts in the case of a piped network) in the name of equity, which makes it difficult to meet the demand.	In most developing countries, municipal management has a poor record in terms of demand responsiveness. Due to poor financial management and low tariffs, investments are not made in a timely manner and it is very difficult for the municipality to understand and meet the demand. Clients are often seen as potential voters and not clients as such.	Meeting the users' demands is normally the best way for providers to increase their revenue. However, in delegated management, the demand responsiveness needs to be embedded in the contract and the provider must have clear financial incentives to increase the consumer base and meet the users' demands.	Because of the nature of their business, self-funded providers always meet their customers' demands. They usually have a deep understanding of the levels of service that consumers are expecting, as well as their financial capacity. Private providers are creative in inventing new ways of meeting the demand and in being flexible (e.g. in term of payments) so that a majority of users can have access to the service.
Incentives for expansion	Unless the community leaders have a sound vision, the community model does not encourage expansion, by limiting investment and other risk-taking decisions. Low tariffs and savings do not allow committees to plan big investments such as a new handpump or a new line in the case of a piped network.	Unless the municipality has a good vision of the future of WSS, or a strong political incentive to do so, the model does not encourage expansion. Absence of ring fencing makes it very difficult to use the water price as an instrument to finance expansion costs.	If the contract is wisely designed, the provider will have a strong interest in expanding the service. It mostly depends on the clauses governing the way that funds for expansion are secured and who decides on the investing of these funds for expanding service coverage. Power must be balanced between the parties.	Such a provider will have a strong incentive to expand the services... but not towards all user segments. However, the incentive for expansion depends on the size of the operator. The smallest operators might have a "niche" strategy and be happy with a very small consumer base, without any real incentive to increase that base.

Performance criteria	Community management	Municipal management	Delegated management	Privately owned & operated
Professional support	Community managers have a hard time getting access to professional support, if the support is not organized at national level or sub-national level or made mandatory. Experience shows that professional support is really the key ingredient to the success of community management.	Municipalities might have good access to professional support – depending mostly on their size and remoteness. However, small (typically – rural) municipalities will have difficulties in retaining professional staff and in gaining access to professional support if there is no (partly subsidized) professional support organized at central level or regional level.	Access to support depends on the institutional set-up and therefore on the goodwill of central government. In some countries (Mali, Niger and, to a lesser extent, Mauritania), delegated management is systematically associated with professional support, which is a strong need, especially when service providers are local individuals with limited technical and accounting skills.	Because of their informal nature, providers do not have access to such support, except in a very informal way. Very few projects or programs include the provision of support to privately run systems and to small informal operators. Most providers actually have the necessary management skills or can easily outsource them.
Regulation	Because of their local nature, community managers usually escape any form of regulation, except for the pressure from the users themselves. Local branches of the Ministry of Water have a key role to play in implementing the regulation framework, because no formal regulator will intervene in rural and remote areas.	Central government is supposed to regulate municipal WSS, but in practice it does not manage to do it except in big urban centres. Since water is a local service, it is difficult to regulate tariffs at national level. In some countries the government provides specific guidelines for municipalities or has the capacity to influence municipal management through conditional grants or other kinds of financial instruments.	Existence of a regulation framework entirely depends on the willingness of central or regional government. Formal regulation is not needed in most cases, and would be economically unviable. The contract itself is already a very powerful regulation tool if it is carefully designed and if there is a body that can enforce the arrangements foreseen in the contract with regard to regulation.	Self-funded providers usually escape any kind of formal regulation, sometimes to the detriment of users. However, they are sometime regulated by local authorities like any other business. In some countries (e.g. Mozambique) central government enforces minimum standards such as the quality of water distributed, but it is easier to do so in (peri)urban areas.
Transparency and accountability	Water committees are transparent and accountable when their leaders decide to be so or when users keep them under pressure. A key step towards accountability is the general meeting at which the committees report on their management to all the users. Experience shows that GMs become rarer and rarer as time goes by, but this may be because the committee is getting more professional in its management.	Budgetary confusion and political issues undermine the transparency and accountability of municipal services – in most situations. Accountability can be improved if the municipality creates a public company that is separate from the municipality and that reports directly to a Board.	Because of the existence of a contract, providers are accountable to the delegating authority and obliged to ensure a minimum of transparency, but information asymmetry can make it easy for the providers to by-pass this obligation. External oversight of reporting obligations can be a key to guaranteeing accountability.	Such providers are accountable only to themselves, unless the institutional framework obliges them to be accountable to somebody. Transparency is not an obligation for them, unless it is part of the commercial strategy and <i>public relations</i> policy towards their customers.

4 Assessing a real rural water supply management model - The Senegal case: From a “national-utility” model to a delegated model where semi-professional water user associations are managing multi-village pipe networks

4.1 Institutional arrangements, main actors and features

Historical development

The history of the institutional set up related to water supply in Senegal can be divided into four periods, each transition between two periods corresponding to a new policy and legal package, and leading to a new management model:

Situation 1 (“National utility” model)	Completely state-owned and state-managed water systems. Government covers all costs: fuel, repairs, staff, replacement, etc.
Transition 1 (1984)	First reform package: 1) progressive withdrawal of the State from day-to-day management (except for maintenance); 2) establishment of Water Committees; 3) transfer of running costs from the State to the Committees.
Situation 2 (Community management model)	Systems are managed by the Water Committees Water Committees cover all running costs (including salaries) Major maintenance remains under the responsibility of the State During this period more than 300 new systems are constructed
Transition 2 (1996)	First <i>rural water management</i> reform (first pilot project, then nationwide): 1) Water Committees become formal associations (Borehole Users Associations: ASUFOR); 2) They are encouraged to outsource maintenance to licensed providers; 3) They can have access to credit for pump or generator replacement or extension.
Situation 3 (Partly delegated management model)	Systems are managed by the ASUFORs ASUFORs cover all running costs (including salaries) ASUFORs save funds for the replacement of short lifespan assets Maintenance is outsourced to private sector in 10% of the cases This is the situation today (~ 1000 systems in operation)
Transition 3 (2005)	Second reform (<i>Lettre de politique sectorielle</i> – Sector Policy Letter): ASUFORs are encouraged to delegate management to the private sector to increase efficiency in operation and maintenance.
Situation 4 (Towards a fully delegated management model)	Towards more delegation to the private sector, not only for maintenance, but also for more comprehensive contracts (covering all O&M functions). This new trend has just started; very few contracts have been signed so far. According to the national MDG programme (PEPAM), 30 to 50 new piped systems will be constructed every year until 2015.

Since 1984, the government has been withdrawing progressively from investment and operations responsibilities. In 2000 the management of rural systems was reformed by the government and it is intended to achieve financial autonomy in the maintenance and replacement of equipment. The reform entails greater empowerment of the population (involving the rural communities in the planning, construction and management of facilities), improvement in local resource mobilization (through community contribution to the financing of facilities) and a greater involvement of the private sector in the supply of goods and services.

Current situation

The country has today more than a thousand deep boreholes fitted with motorized or solar equipment. From the early eighties, the Senegalese authorities focused on the technical option of small piped water supplies. Handpumps remain marginal and are almost exclusively installed by NGOs in areas with poor groundwater resources.

Most small pipe network water supply systems in Senegal serve several villages. These are generally small villages that are connected to a slightly bigger central village. 68% of the connected villages have fewer than 500 inhabitants, and 14% have from 500 to 1000 inhabitants. The number of villages supplied from the same borehole is 7.5 on average – a sample of 900 villages were supplied by 119 small pipe networks. This feature has an important impact on the type of management that is currently observed in Senegal in rural areas and small towns.

Even small rural communities (with fewer than 500 inhabitants, sometimes only a few dozen) are now served by “multi-village” networks, a Senegalese specificity that requires from the water committee a minimum of professionalism in the management of facilities. After a few years (and a few management crises), the original water committee usually turns itself into a more professional body: more active members receive a (sometimes substantial) remuneration, and technical functions are delegated to the private sector (especially the pump attendant, who becomes progressively, in many cases, a network operator to whom all technical functions are outsourced by the committee). In some cases, even commercial functions are outsourced. All this is done under the loose supervision of the Ministry, which keeps an important role as provider of training.



© Hydroconseil

4.2 Stakeholders' functions

Functions	Stakeholders													
	Users	Pump attendant	Manager	ASUFOR	Private sector	Local Branch of Ministry	Training centre	Maintenance brigade	Directorate of O&M	Ministry of Water	Water Directorate	Donors	NGOs	Emigrants
Ownership				Feeling of OS					Legal ownership					
Managing funds			OPEX	OPEX	Banks				None	Capital investment	Capital investment		CAPEX	OPEX
Setting tariff				Decides		Advises			Set the rules at national level			Advises		
Regulation						Local			National (policy, strategy)					
Reporting		Report to the ASUFOR		To local branch		To the Ministry				To donors				
Operation			Part of tasks	Part of tasks										
Maintenance		Day-to-day			Spare parts*			Heavy maint.						
Replacement				Short term						Long term assets				Short term
External support					In some cases	Yes	Yes						Yes	

Notes: OS: Ownership, OPEX: Operational expenditure, CAPEX: Capital expenditure

* The private sector is supposed to take over the maintenance from the Regional Maintenance Centres managed by the Ministry. Maintenance operators are licensed by the Ministry. So far, only 10% of the ASUFORs have contracted a private operator for major system maintenance.

4.3 Stakeholders' map

In the rural areas and in all towns not served by the public utility (SONES/SDE), the water service is within the jurisdiction of the **Directorate of Operations and Maintenance (DEM)**, a body under the Ministry in charge of water, which is relatively well decentralized in the country. **Municipalities have played a very limited role so far** – or rather, no role at all.

The key actor at local level is the Association des Usagers du Forage (Borehole Users Association, ASUFOR), a legal entity officially recognized by the government, having the capacity to hire staff, open a bank account, sign a **delegation/outsourcing contract**, etc. The ASUFORs have full responsibility for providing the service to the users. There is a power balance between ASUFOR and the government that should help the DEM refocus its mission on supporting the ASUFOR and benchmarking at national level.

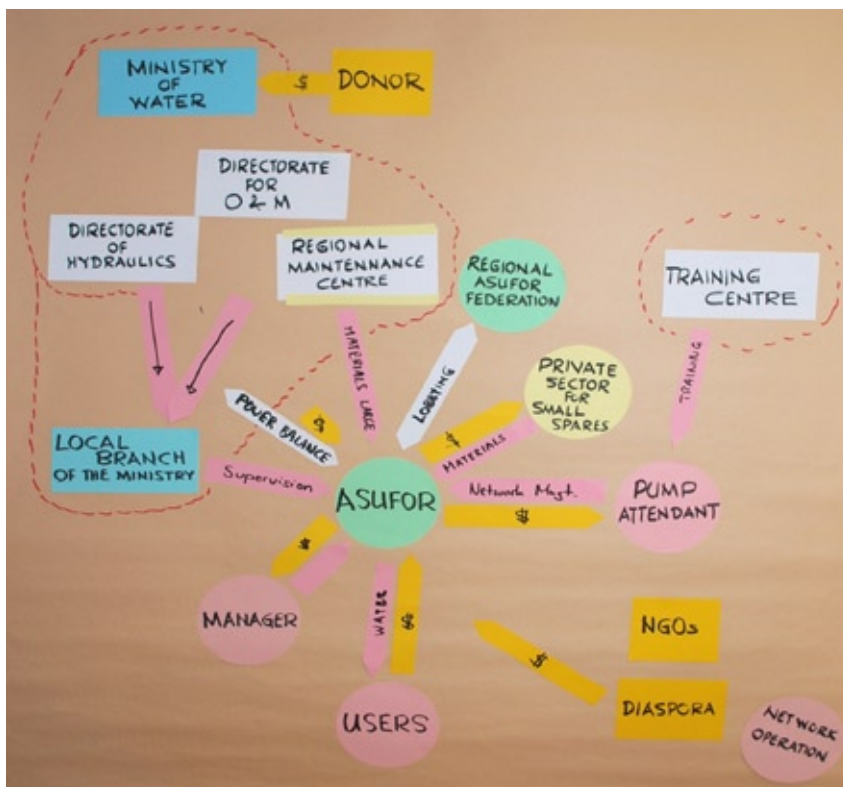
To establish an ASUFOR, the representatives must send a letter to the regional government, indicating when the general meeting was held and who the board members are. The rules are specific to the ASUFORs and they establish de facto a **delegation of responsibility between the government and the ASUFOR**. If there is no answer from the regional level after three months, the ASUFOR is considered as officially recognized.

In some regions, **Federations of ASUFORs** have been established. They are actually encouraged. They work as **platforms for a dialogue with the government**. Some of them set up mutual revolving funds – each ASUFOR pays a fee and can access the fund in case of major breakdown or replacement need. In some cases (Kaolack, Caritas) they even manage a technical advisory service and a maintenance centre.

It is worth mentioning that the Ministry in charge of water is managing two specialized entities: **three regional maintenance centres** throughout the country (taking care of heavy maintenance – pumps and generators) and one **national training centre** for the pump attendants (there is a six-month mandatory training session for the pump attendants, part of the cost of which is borne by the ASUFOR).

Emigrants play an important role in Senegal. In some cases, they contribute to the capital cost investment, alone or with partners (NGOs, twinned cities, bilateral cooperation...). Very often, they pay for part of the running costs and for the replacement of short-term assets (such as pumps and generators). Last but not least, their remittances constitute a significant boost to the willingness to pay for a good water service.

The **private sector** is involved in maintenance, mainly for replacing spare parts, but not yet for major maintenance tasks.

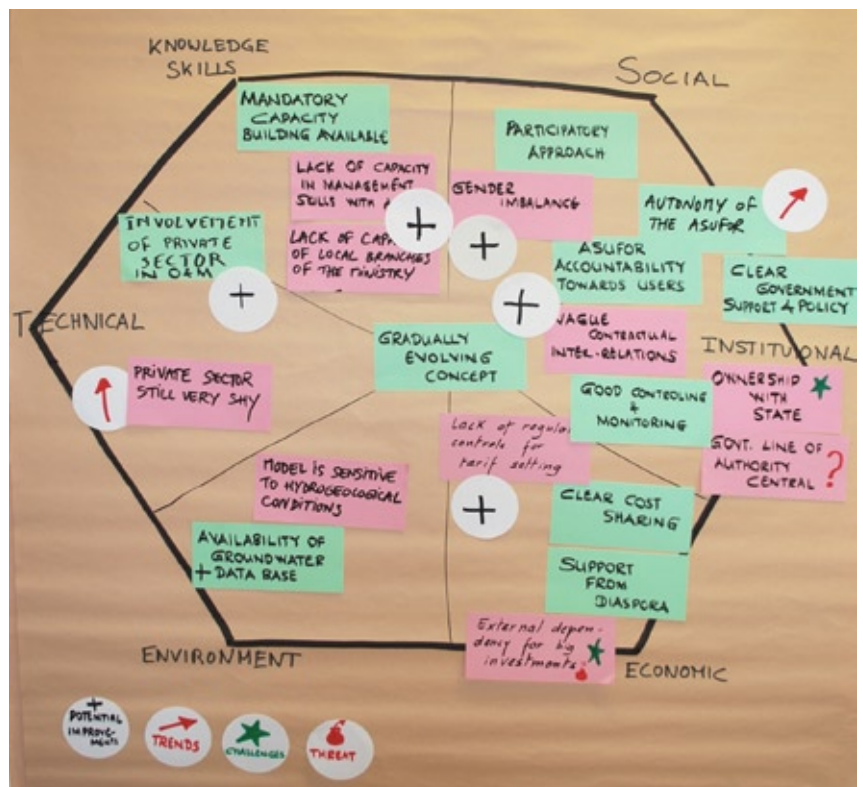


4.4 Strengths and weaknesses

Area	Strengths	Weaknesses
Economic	Clear cost sharing between the government and ASUFORs Financial support from emigrants	+ Lack of regulation regarding tariff setting by ASUFOR ● External dependency for the replacement of long-term assets
Institutional	Gradually evolving concept Clear government support and sound policy framework Good control and monitoring	★ Ownership still with the State + Vague contractual interrelations between actors
Environmental	Availability of groundwater and database of boreholes	Model is sensitive to hydrogeological conditions*
Knowledge	Mandatory capacity building (pump attendants) Support available from NGOs	+ Management skills still weak among the ASUFOR members + Lack of capacity at the level of the local branch of Ministry
Technical	+ Private sector already involved in operation and maintenance	↗ Private sector still very shy
Social	Participatory approach ↗ Autonomy of the ASUFOR ASUFOR accountable to users	+ Gender imbalance (ASUFOR)

Legend: ● Major threat; ★ Major challenge; ↗ Major trend; + Potential for improvement
In bold: key aspects, according to group discussion.

* Especially the “multi-village” aspect of the systems, which is only feasible if the yield of the borehole(s) is enough to supply a few thousands inhabitants (typically not the case in basement areas, where boreholes cannot produce more than about two cubic metres per hour).



4.5 Model performance

Criteria	Rating	Comments
Financial and management autonomy	☺	Water committees are completely independent in their management
Demand responsiveness	☺	Water committees capture reasonably well the demand of the rural users
Incentives for expansion	☺	Committees have an impressive record of expanding networks using their own funds
Professional support	☺	Professional support is limited but the Ministry still trains the pump attendants
Regulation	☹	There is no regulation to speak of – the Ministry only advises on water pricing
Transparency and accountability	☺	Depends on the level of control by the users – usually not considerable

4.6 Conclusions

In the rural areas, there is a strong demand for a level of service higher than that of improved dug wells and handpumps, including in the smallest villages. The increase in daily consumption (which is now approaching 30 to 35 litres per day per inhabitant after a few years of operation of the network, even in the very small villages) is a clear proof that the demand is there. The Senegal case tends to prove that the **multi-village scheme is emerging as an alternative** to the traditional rural water supply system normally reserved for small rural communities and to demonstrate that this alternative is economically viable.

The relatively satisfactory management of the systems studied could be due to the **phased development of the multi-village systems**. The associations first make their mark with the simple systems that are relatively easy to manage (small networks and supply through standposts) and then move gradually up to more complex systems (extensions of the network and an increase in house connections). The dynamics and lessons learnt by the old associations as a result of the reforms highlight the fundamental needs to **sell water by volume with a meter and to increase the professionalism of the Committees**.

The other lesson that can be drawn from the Senegal case is that the pragmatic approach adopted by the Government might have been wise, in the sense that it created a middle way between completely private delegated management (an option that Senegal was perhaps not completely ready to face) and purely community management (an option that had clearly shown its limitations). This semi-professional community management could be a very useful model.

5 Enhancing the sustainability of rural water supply management schemes: Key ingredients for success

An analytical framework to assess management models

The analysis of the case studies confirmed that *real* management models are often characterized by a mix of features from different *theoretical* models. They are very much influenced by the context and their historical development. It is therefore difficult to draw universal conclusions regarding the appropriateness of a specific *theoretical* model in differing contexts. Nonetheless, the proposed analytical framework supports the assessment of real models and can therefore be used as a guide in the process of enhancing the sustainability of RWS management schemes. Moreover, a series of success factors and trends can be highlighted based, at least partially, on the case studies presented in this report (Chapter 4, Annex A).

The importance of defining clear responsibilities

The existence of a legal framework clearly defining the roles and responsibilities of the various stakeholders is one common element of successful models. One of the strengths of the Burkina Faso model, for example, is the clear definition of stakeholders' responsibilities in contracts, conventions, and protocols. Moreover, regulation and control of service providers are based on these contractual documents. In the Kosovo case, the existence of a Memorandum of Understanding between the Regional Water Company (RWC), the municipality and the village council describing their roles and responsibilities is also perceived as a strength of the model. The fact that there is an independent regulatory body (WWRO) setting the water tariff, as well as licensing and monitoring RWCs, is also considered as a positive element.

Involvement of local authorities makes sense if there is a real transfer of responsibilities and resources from the central government

In countries undergoing decentralization, local authorities should play a central role in the management of water services. The Burkina Faso model, for example, in which the commune plays a central role, is therefore well suited to Burkina Faso's decentralization strategy. The commune is recognized as the entity responsible for water supply. One of the main water reform objectives in Burkina Faso is to accomplish the transfer of water supply infrastructure to the communes. The central government transfers water supply and sanitation competences and infrastructure to the communes. However, even though the communes have been assigned the role of contracting authority, the process of decentralization is still in progress and financial, material and human resources have yet to be effectively transferred from the central to the local government in order to enable the communes to fulfil their role as contracting authority. This is a common issue in many countries in the process of decentralization, and efforts must be made to develop new financing tools that would allow local authorities to fully play their part in the management of rural water supply projects and services.

Involving the private sector should not only be a policy principle, but a reality on the ground

The private sector plays an important role in all the case studies analyzed. The Senegal water reform entails greater involvement of the private sector for the supply of goods and services (e.g. pump attendant, network operator, replacement of spare parts). However, participation of the private sector is still limited. In general, the weak profitability of infrastructure maintenance and operation activities is mentioned as a factor limiting private sector involvement. The possibility of combining several water systems or facilities and forming packages comprising profitable and unprofitable facilities to be managed by private operators

is currently being discussed among water experts. The Burkina Faso water reform explicitly aims at supporting the emergence of private operators (for management and maintenance of the facilities). The Tanzania case also shows that, in order to enable a larger number of private initiatives to develop, a conducive environment should be created in which such initiatives are encouraged and, at the same time, properly monitored. Reducing fiscal charges, exempting taxes even temporarily, decreasing water tariff subsidies, and partly taking over extension costs could enhance the attractiveness for the private sector.

No successful model without capacity building and professional support

Capacity building is a crucial issue to tackle in order to improve the management of water services, regardless of the type of management model. In the case of Senegal, professional support is limited but the Ministry trains the pump attendants during a six-month mandatory training program at the national training centre). Moreover, support can be provided by NGOs. However, management skills among the Borehole Users Association (ASUFOR) members are still weak and there is a lack of capacity at the level of the local branch of the Ministry. In Burkina Faso, the Regional Directorate of Agriculture, Water Resources, and Fisheries (DRAHRH) provides technical support to the communes, but strengthening the capacity of the municipal authorities and Water Users' Associations (WUAs), as well as finding a sustainable mechanism for advising the municipalities and private operators, are challenges that should be tackled. Involving NGOs could help to strengthen DRAHRH support and also extend it to service providers. In Kosovo, where capacity at local level is also weak, a promising feature is the existence of an association of regional water utilities (SHUKOS), a lobbying organization providing technical support to the RWCs. The example of Weinfeldten also shows the benefit of an association of water network caretakers providing training and opportunities for knowledge exchange. Small-scale private initiatives are usually characterized by a lack of support in technical and administrative issues. Support in fund management and system maintenance for example is particularly needed.

Covering replacement and extension costs, a key issue for the sustainability of services

In most cases, external dependency for the replacement of long-term assets or system extension is considered as one of the threats. This issue is particularly critical in the case of small-scale private initiatives as earnings are usually not sufficient to cover renewal or expansion costs. In some regions of Senegal, Federations of ASUFORs have been established. Some of them set up mutual revolving funds – each ASUFOR pays a fee and can access the fund in case of major breakdown or replacement need. It is also interesting to note that Water Committees in Senegal have an impressive record of expanding networks using their own funds. The Burkina Faso model suggests sharing the costs of infrastructure replacement between central and local government. In addition, replacement and extension costs are taken into account when setting the water tariff. As unserved areas represent an additional market for operators, the delegated or privately-owned management models create incentives for system extension.

There is a general trend towards more delegation

The case studies show a trend towards delegation. In Senegal for instance, rural water supply services are managed by community associations, the ASUFORs. However, a trend towards more delegation to the private sector, not only for maintenance, but also for more comprehensive contracts (covering all operation and maintenance functions) can be observed. This is considered as a way to professionalize the management of water services. The strategy in Burkina Faso is clearly for the communes as focal points of the water supply services to delegate management of the water services to water user associations (for management of handpumps) or to the private sector (for management of networks and

maintenance of handpumps). As mentioned above, the legal framework can clarify delegation arrangements, for example between the commune and WUAs (delegation convention) or between the commune and private operators (lease contracts). The Kosovo case can also be described as delegated management as regional water utilities are in charge of managing the water supply services on behalf of the municipalities.

The demand of rural users is evolving towards higher levels of service – including users in rural areas

The demand in rural areas is evolving at different rates, depending on the country, but globally the trend seems to be the same: more networks and fewer handpumps. There is a strong demand for a better level of service, and when a network already exists, users are interested in increasing the number of house connections. The only limitations seem to be the capacity to pay and the sustainability of the service offered by networks. This trend is likely to reduce the market share of handpumps so that they will probably be increasingly limited to scarcely populated areas or very small villages. The Government of Mauritania decided in 2006 that the new objective for the sector was to build networks in all settlements of more than 500 inhabitants, a policy orientation that is questionable in terms of sustainability but reflects the current trend in the demand of rural water users. The Senegal case tends to prove that the multi-village scheme (most small pipe networks in Senegal serve several villages) is emerging as an alternative to the traditional rural water supply system normally reserved for small rural communities, and making this alternative economically viable.

The handpump “system” becomes increasingly difficult to sustain and has already collapsed in some countries

The failure of the handpump approach has been documented in a number of studies (Parry-Jones, 2001 or Desille, 2004). There are several reasons for this failure; the most important ones relate to the evolution of the users' demand (see above), the very low cash flow generated by the spare parts resale business (the private sector is not interested in this activity) and the difficulty of creating a market that could allow a mechanic to earn his/her livelihood from handpump maintenance. Rural dwellers in Mauritania show more interest in wells than in handpumps (Desille, 2004). In this context, after the failure or limited success of almost all the models that have been tried so far (Village-Level Operation and Maintenance, total warranty, etc.), the challenge consists of finding new ways of dealing with handpumps, including permanent subsidizing mechanisms. In Burkina Faso, the rural water supply management models take into account the specificities of both systems: handpumps and networks. Network operators are given the opportunity of managing and maintaining handpumps in their areas of operation.

References

- Baumann, E. (2009). *May-day! May-day! Our handpumps are not working!* Rural Water Supply Network publication; www.rwsn.ch.
- Brand A. P. (2004). *Decentralization of rural water and sanitation services. New roles for rural water associations and boards in Honduras.* Field Note. Ed. WSP & SDC.
- Carter, R. (2009). *Operation and Maintenance of Rural Water Supplies - Challenging the community-based O&M paradigm.* Rural Water Supply Network publication; www.rwsn.ch.
- Desille, D. (coord.), Mokhtar Ould N'Taghri, M., Aly Moulaye Zeine, S. and Valfrey, B. (2004). *Etude sur la problématique du service de l'eau et de la maintenance des pompes à motricité humaine en Mauritanie.* Programme Eau et Assainissement, Dakar.
- DWD (2004). *Uganda National Framework for Operation and Maintenance of Rural Water Supplies.* Directorate of Water Development. Minister of Water, Lands and Environment, Uganda. Rural Water Supply Network publication; www.rwsn.ch.
- Harvey, P. (2009). *Sustainable Operation and Maintenance of Rural Water Supplies: Are we moving in the right direction?* Rural Water Supply Network publication; www.rwsn.ch.
- Hydroconseil (2009). *Case studies on the potential of the private sector in rural water supply (Niger, Cambodia, Senegal, Paraguay, Rwanda & Burkina Faso).* Unpublished report for WSP.
- Koestler, L. (2008). *Private Sector Involvement in Rural Areas: Case Studies from Uganda.* In: Proceedings 34th WEDC International Conference, Addis Ababa, Ethiopia, 2009.
- Parry-Jones, S., Reed, R. A. and Skinner, B. H. (2001). *Sustainable Handpump Projects in Africa. A literature review.* WEDC, Loughborough University.
- Ringskog, K. (2003). *Municipal Water Departments. Management Models Study.* Town WSS Initiative, BNWP Project #43, Banque Mondiale, Washington.
- Saladin, M. (2002). *Community Water Supply in Switzerland - what can we learn from a century of successful operation?* SDC / Skat Foundation.
- Satterthwaite, D. (2003). *Towns: their under-appreciated demographic, economic and social importance.* Town WSS Initiative, BNWP Project #43, Washington.
- Savina, A., Valfrey, B. and Vézina, M. (2002). *La gestion du service de l'eau dans les petites villes, actes de la rencontre inter-Etats de Nouakchott.* Ed. pS-Eau / WBI / WSP
- Schmidt, W-P., and Cairncross, S. (2009). *Household Water Treatment in Poor Populations: Is There Enough Evidence for Scaling up Now?* Environ. Sci. Technol., 2009, 43 (4), pp 986–992.
- Valfrey-Visser, B. (coord.), Bouquin D. and Bocoum, M. L. (2002). *Caractéristiques et facteurs de succès des systèmes multi-villages au Sénégal.* Field note. WSP, Washington.
- Valfrey-Visser, B., Schaub-Jones, D., Collignon, B., Chaponnière, E. (2006). *Access through innovation: Expanding water service delivery through independent network providers. Considerations for practitioners and policymakers.* Groupe Agence Française de Développement and Building Partnerships for Development.
- White, M. (1998). *1978 - 1998 Learning What Works: A 20 Year Retrospective View on International Water and Sanitation Cooperation.* UNDP-World Bank Water and Sanitation Program.
- WSP (2009). *Improving Water Utility Services through Delegated Management. Lessons from the utility and small-scale providers in Kisumu, Kenya.* Water and Sanitation Program Field Note.

ANNEX A

Case studies

Annex A1 The Burkina Faso case: A sector reform towards delegated management

A1.1 Institutional arrangements, main actors and features

Burkina Faso has made significant efforts to provide each village and each neighbourhood with modern water points. According to the national survey carried out in 2005, there were around 48,000 facilities: handpumps (HP) fitted on boreholes (60%), modern large diameter wells (35%), and simplified water supply systems (small networks) and autonomous water stations (SWSS/AWS) (5%) equipped with solar or thermal pumping stations for large villages. Prior to the reform, the predominant management model was community-based (Water Point Committees, repair artisans, spare parts stock agents).

According to studies on water supply facilities, the average failure rates for handpumps and simplified water supply systems are 23% and 65%, respectively. This unacceptable situation is partly caused by the water supply management system. Limitations of the community management model include:

- malfunctioning management structures resulting from voluntary work and lack of control,
- insufficient financial mobilization to cover maintenance and replacement costs, and
- the weak profitability of infrastructure maintenance and operation activities.

In order to overcome these limitations, the water supply sub-sector in rural and semi-urban areas embarked on a **Reform of the management system** aiming at guaranteeing the sustainability of investments (pumps, simplified water supply systems and autonomous water stations). The main reform objectives are to

- transfer water supply infrastructure to the communes (decentralization),
- support the emergence of private operators in water supply (**management and maintenance** of the facilities),
- reduce the Government expenditures,
- create Water User Associations in each village,
- manage in an integrated way the water facilities of the village.

In the new decentralization scheme, **rural communes** are at the core of the management system. Central Government transfers competences and facilities to the communes. They delegate management of the water services to **water user associations** (for management of handpumps) or to the **private sector** (for management of simplified water supply systems and handpump maintenance). Water user associations (WUAs) are constituted at the level of a village or sector and are in charge of managing handpumps in an integrated way and defending the common interests of the users.

In order to bring about the targeted improvements, communes, WUAs, repair artisans, and private operators have to fulfil their roles. Moreover, the central government must also play its part in assisting the communes in their function of *contracting authority*. It must further ensure that communes become the *focal point* by transferring to them real decision-making power regarding the management and implementation of new WS&S facilities.

The Reform implementation programme (2002-2009) has been realized in 33 communes and developed the tools needed for replication of these changes in the entire country.

A1.2 Stakeholders' functions

Stakeholders	Users		Community		Private actors		Local government		National government		International actors	
	HP	SWSS	HP	SWSS	HP	SWSS	HP	SWSS	HP	SWSS	HP	SWSS
Ownership							X	X				
Management of funds			X			X	X	X				
Tariff setting							X	X				
Regulation									X	X		
Controlling / Reporting	X	X	X	X			X	X				
Operation			X			X						
Maintenance					X	X						
Replacement			X					X	X	X	X	X
External support									X	X	X	X

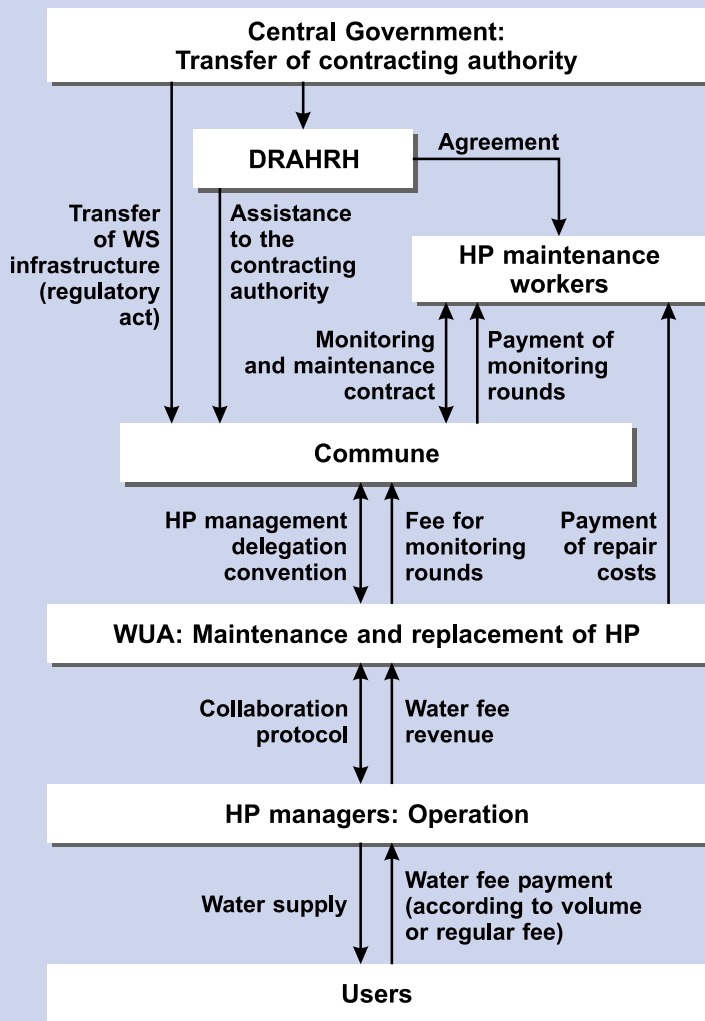
Notes: **DRAHRH** Regional Directorate of Agriculture, Water Resources, and Fisheries (Directions Régionales de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques), **HP** handpumps fitted on boreholes, **MAHRH** Ministry of Agriculture, Water Resources, and Fisheries (Ministère de l'Agriculture de l'Hydraulique et des Ressources Halieutiques), **SWSS** simplified water supply systems/autonomous water stations, **WUA** Water User Association

A1.3 Stakeholders' map

A1.3.1 Handpumps

In the case of handpumps, the Reform does not call into question the community management model but attempts to improve it by

- assigning the role of contracting authority to the **commune** that will be in charge of contracting one or more **maintenance workers** for monitoring and maintaining the handpumps
- establishing **Water User Associations (WUAs)** in each village or sector to which water services will be delegated by municipal authorities and who will manage handpumps in an integrated way.
- setting up a control mechanism through the WUAs and maintenance workers for the following tasks: water fee payment (according to volume or as a fixed fee) and harmonization of handpump management at the level of a village.



The **central government** transfers water supply and sanitation competences and infrastructure to the **communes**. They delegate the management of water services (handpumps) to legally recognized **WUAs** representing the village or sector population through a **handpump management delegation convention**.

The WUA gathers representatives of each village neighbourhood and is led by an executive committee elected in the General Assembly. The WUA manages the water service – all handpumps in the village – in an integrated way and mutualises the water fee revenue to ensure maintenance and replacement of handpumps.

The **handpump managers** (water point committee or any other natural person or legal entity mandated by the WUA) ensure water point management. They sell water to the **users** according to the water tariff and modalities defined by the WUA (on the basis of the communal decision on water price) to whom they have to transfer the revenue. A **collaboration protocol** between the WUA and the handpump managers defines their respective obligations.

The commune hires one or more regionally authorized maintenance workers (according to the number of pumps and their types) on the basis of a price offer and signs with them a **communal handpumps monitoring and maintenance contract**. The commune remunerates their monitoring rounds (with the WUA license fee) and the WUA covers repair costs.

The Reform implementation programme has shown that the price of a monitoring round varies between 3000 and 4000 FCFA per handpump. It recommends conducting two rounds per handpump each year. This can be used as the basis for determining the fee to be paid by the WUAs to the commune.

The commune sets the water price. This should include HP maintenance costs, maintenance workers' monitoring rounds, HP managers' allowances, WUA's operating costs, and HP replacement costs. The Reform implementation programme recommends generating at least 75,000 FCFA per year for a handpump being used by 300 people, corresponding to approximately 2500 FCFA per household each year. However, it suggests WUAs should set the payment modalities to take into account local practices.



Handpump in action, Nagréongo, Burkina Faso. © G. Aubourg / pS-Eau

A1.3.2 Simplified water supply systems and autonomous water stations (SWSS/AWS)

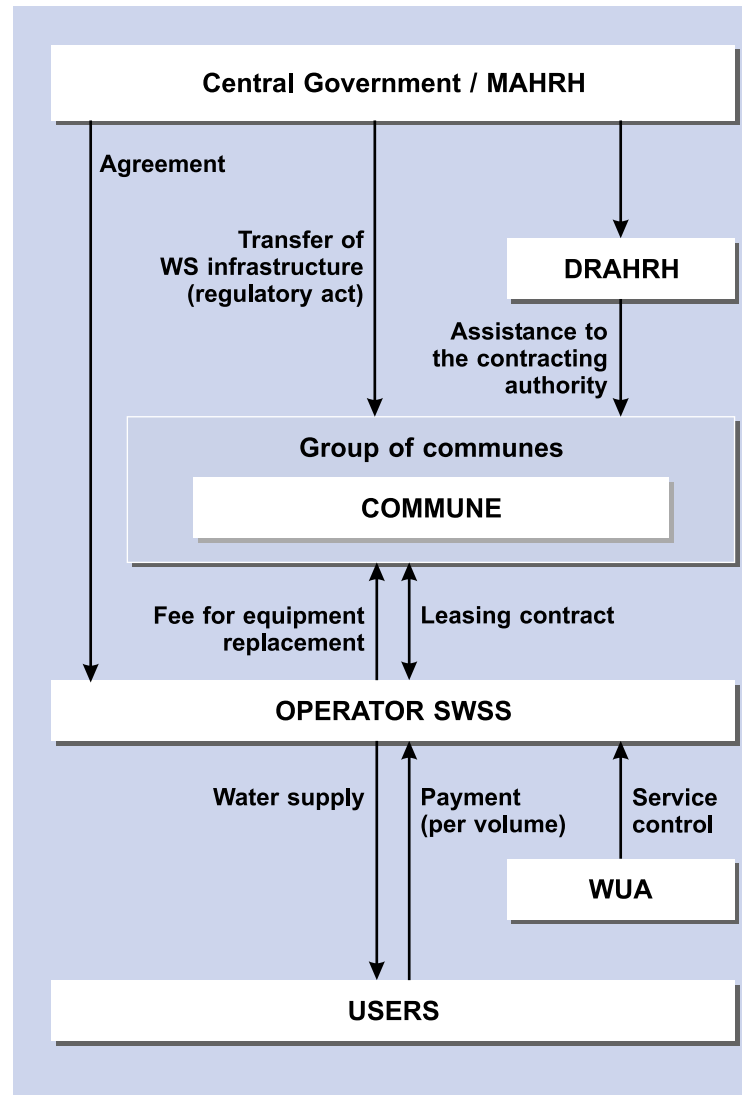
In the case of small piped water systems or autonomous water stations, the Reform excludes the community management model and recommends delegating management to a competent private operator. The Reform comprises the following points:

The **central government** transfers competences and infrastructure in the field of water supply and sanitation to the **communes**. The communes delegate management of water services to a **professional private operator** hired by the commune on the basis of a service offer by means of a **lease contract**.

WUAs are not in charge of managing the water services but ensure the control of public water services (equity, quality, availability, and accessibility).

The **operator** manages all SWSS/AWS located in the area of the communes with which he has signed a contract. He ensures water production and delivery to the **users**, equipment maintenance according to the contract with the commune, and financial management of the system.

The commune sets the maximum water price (often 500 FCFA/m³). This price comprises operating costs and possibly also a communal tax. The operator pays a monthly fee (according to the volume sold) to the commune to cover replacement costs of short-term (< 15 years) installations and reinforcement or extension of installations.



A1.4 Strengths and weaknesses

Area	Strengths	Weaknesses
Economic	<p>Transparency of tariff setting (handpump model)</p> <p>Gradual transfer of costs (to avoid putting a burden on operator)</p> <p>Financing of infrastructure replacement is shared between central and local government</p>	<p>Weak profitability of management and maintenance tasks: lack of incentive for the private sector</p>
Institutional	<p>Strong legal framework (actors' responsibilities clearly defined)</p> <p>Decentralization is a national strategy: commune's responsibility regarding water supply is recognized.</p> <p>Regulation and control of service providers</p>	<p>Incomplete decentralization (insufficient transfer of money)</p> <p>Local government not involved in handpump replacement</p> <p>Insufficient effectiveness of DRAHRH to support communes</p>
Environmental		<p>Environmental aspects are not yet taken into account</p>
Knowledge	<p>Decentralised administration (DRAHRH) provides technical support to the communes</p> <p>Capacity building for communities</p>	
Technical	<p>Quality control of service providers (certification of repair artisans, maintenance workers and small network managers)</p> <p>Existence of service for preventive maintenance</p> <p>Incentive for upgrading (political, commercial)</p>	<p>Large variety of handpump models within the same area: challenge regarding technical know-how and financial mobilization</p>
Social	<p>Handpumps: high degree of user ownership</p> <p>Empowerment of user groups through WUAs</p> <p>Equity of service (access for all)</p> <p>Willingness to pay</p>	<p>Small networks: low level of user ownership</p> <p>Decreasing role of WUAs</p> <p>Users not involved in tariff setting</p>

A1.5 Model performance

Criteria	Rating	Comments
Financial and management autonomy	☺	WUAs are independent in managing cash flow, recruiting staff and paying O&M costs (except for maintenance workers who are hired and paid by the communes)
Demand responsiveness	☺	Local government is responsive to community needs and possibilities; organized consumers control service quality (transparency)
Incentives for expansion	☺	Unserved areas represent an additional market for operators, communes should use part of the operator fee for extension
Professional support	☺	Technical support from the DRAHRH to the communes. However, effectiveness should be enhanced, possibly through NGO support, and extended to service providers
Regulation	☺	Strong legal framework, regulation and control of service providers. In the case of small networks, WUAs control service provided by operator
Transparency and accountability	☺	Water service is managed in a transparent way, control by WUAs (transparency)

A1.6 Conclusions

This model, in which the commune plays a central role, is well suited to Burkina Faso's decentralization strategy. The commune is recognized as the entity responsible for water supply. However, the process of decentralization is still in progress and financial, material and human resources must be effectively transferred from central to local government in order to enable the communes to fulfil their role of contracting authority. The DRAHRH provides technical support to the communes but reinforcing the capacity of the municipal authorities and WUAs, as well as finding a sustainable mechanism for advising the municipalities and private operators, are challenges that should be tackled. Involving NGOs could help to strengthen DRAHRH support and also extend it to service providers.

The responsibilities of each stakeholder are clearly defined in contracts, conventions or protocols. The regulation and control of services provided are based on these contractual documents. Moreover, the mechanism of certification enables the evaluation of the technical and financial capacities of potential service providers (repair artisans, maintenance workers, and network managers).

With regard to water networks, the current trend is for one operator to take over network construction, management and maintenance based on a longer-term contract with the communes (7 years). Network operators are given the opportunity to manage and maintain hand-pumps in their areas of operation.

One of the challenges is to make this work attractive to the private sector, as the profitability of management and maintenance of water supply infrastructure is still weak. This could be done for example by reducing fiscal charges, exempting taxes (even temporarily), decreasing water tariff subsidies, and partly taking over extension costs. Moreover, ways to finance the renewal of infrastructure and equipment should be evaluated.

Cooperation between communes enables economies of scale, sharing means and risks, but it also represents a challenge with regard to operation and organization. Principles and regulations for management models involving a group of communes should therefore be further developed.

In this transition between community and delegated management, care must be taken to maintain effective user representation in the new management models.

Annex A2 The Kosovo case: Management delegation to regional water utilities

A2.1 Institutional arrangements, main actors and features

The water sector in Kosovo has undergone significant changes since the 1999 conflict. Water supply used to be managed by 35 municipal water utilities mainly covering urban areas. The water supply reform introduced in 2002 by the **Kosovo Trust Agency (KTA)** – the UN interim government’s agency responsible for water supply in Kosovo – resulted in the merging of the 35 utilities into 7 **Regional Water Companies (RWCs)**. External donor funding enabled the construction of around 150 water supply systems in various villages. However, achieving sustainable management of these rural water supply systems remains a challenge.

The RWCs have often been reluctant to incorporate these new water supply systems due to the difficulty of obtaining payment from the users. The systems have therefore often been left in the hands of local government. Municipalities, however, do not have the necessary capacity to manage and maintain them. This has resulted in **village residents** being responsible for maintaining their water systems until adequate and professional maintenance can be put in place.

Following Kosovo’s independence, KTA was disbanded in June 2008, and a new framework is currently being established. According to OSCE, “it remains to be seen what effect the closure of the Kosovo Trust Agency, i.e. the withdrawal of the only international regulatory institution supervising the water sector in Kosovo, will have on the level of functioning and professionalism of the regional water management after June 2008.” Responsibility for water utilities is now with the new Kosovar institutions, currently the Ministry of Economy and Finance. However, in the longer term, municipalities are likely to be responsible for water utilities.

In order to ensure professional management and maintenance of the rural water supply systems, as well as to guarantee access to safe and affordable drinking water, a new management model has been developed in the South East of Kosovo. It consists of entrusting licensed RWCs with the management and maintenance of the rural water supply systems. A **Memorandum of Understanding (MoU)** has been formulated to establish the rules for incorporation of the rural water supply systems into the RWCs. It defines roles and responsibilities of each stakeholder – municipality, RWC, and village water users – who must all sign it. The MoU specifies that the RWC will take over system maintenance while the beneficiaries will pay for water consumed according to water meter readings. The municipality is responsible to ensure that both parties (RWC and village users) respect the agreement.

One of the standards set by the RWCs regarding rural water supply is to reach a fee collection rate of at least 80%. A lower rate would not allow RWCs to have the financial capacity to maintain the water supply systems. In villages where the MoU has been signed, the 80% benchmark has been successfully achieved.

A2.2 Stakeholders' functions

Stakeholders	Household	Village council	Regional Water Company	RWC's Board of Directors	SHUKOS	Municipalities	Water and Waste Regulatory Office	Institute of Public Health	Ministry of Economy and Finance	Ministry of Environment and Spatial Planning	Development banks	Donors	NGOs
Functions													
Planning									X				
Financing construction	25%					25%						50%	
Ownership						Assets				Water resources			
Management of funds		Construction phase	Operation Maintenance Extension			Constr. phase							Constr. phase
Tariff setting							National tariffs						
Regulation		MoU	MoU			MoU	National legal framework	Water quality		Water resources			
Controlling / Reporting				X			X						
Operation			X										
Maintenance			X										
Replacement / Extension			X										
External support					Lobby, advice						Advice	Advice	Advice

A2.3 Stakeholders' map

Currently, four **Ministries** are involved in the water supply sector:

- Ministry of Economy and Finance (Management of the Regional Water Companies)
- Ministry of Environment and Spatial Planning (Owner of Water Resources / Law on Water Resources)
- Ministry of Health (Setting and controlling of quality standards through Institute of Public Health)
- Ministry of Local Government (Responsible for Municipalities)

The **Water and Waste Regulatory Office** is an independent body responsible for tariff setting, licensing public companies providing water, monitoring the performance of RWCs, and reporting to the national parliament.



The **Municipalities** are in charge of preparing and implementing the local development plans, including for the WS sector. The representatives are elected by the citizens. The main task of the municipalities is to provide services to the citizens. They collect taxes that are used for capital investments. Municipalities are owners of the assets (WS infrastructure). About 25% of the investments for construction in the WS sector are covered by the municipalities (there is no contribution from central government).

The **Regional Water Companies** are in charge of the management, operation and maintenance of WS infrastructure. They are contracted (and licensed) for a certain period by the Water and Waste Regulatory Office.

A2.4 Strengths and weaknesses

Area	Strengths	Weaknesses
Economic	RWCs have one common source of funds	No participation of users in tariff setting Lack of transparency regarding planning of extensions
Institutional	Existence of legal framework (incl. ownership and roles) Availability of “Strategy of Water and Health” (National Plan 2005-2015) Availability of mid-/long-term planning (-> local development plans) Administrative flexibility allowing specific regulations (-> MoU between municipality, village council and RWC) Vulnerable people protected by the legal framework Municipalities are represented in RWC’s Board of Directors	Relationship between the municipalities and the RWCs (the Ministry of Economy and Finance manages the RWCs, not the municipalities) Regulatory framework does not address the differences between the urban and rural situations Lack of institutional capacity Low user influence. Very difficult to claim the right of access to safe water (especially for rural populations and, in particular, for vulnerable people or groups) MoU does not define quality of service Reporting and documentation not in place yet
Knowledge	Competence available (management, technical aspects) Capacity building / lobbying organization (SHUKOS)	Weak local capacity
Technical	Availability of spare parts	
Social	Access for all Social pressure for water fee payment	Urban interests dominate Absence of pro-poor mechanism

A2.5 Model performance

Criteria	Rating	Comments
Financial and management autonomy	☺	RWCs are independent in their management. They are advised and controlled by the Board of Directors and by the WWRO.
Demand responsiveness	☹	RWCs policy is to provide water for all. However, users are not represented in the Board of Directors and there is no user association that could express a demand
Incentives for expansion	☹	RWCs now focus on urban areas. Expansion is hardly noticeable.
Professional support	☺	SHUKOS (the RWC association) organizes training courses, workshops, etc.
Regulation	☺	There is a regulatory body (WWRO) setting water tariffs, and licensing and monitoring RWCs. However, this rather focuses on urban areas. In order to fill this gap, the model presented developed a MoU between the RWC, the municipality and the village council.
Transparency and accountability	☹	RWCs are monitored by WWRO, an independent body. However, rural water supplies are seldom managed by RWCs.

A2.6 Conclusions

The post-conflict institutional framework puts the Regional Water Companies at the core of the water sector. They are responsible for management, operation and maintenance of water supply systems. However, they mainly cover urban areas and are reluctant to take over rural water supplies due to the difficulty in collecting water fees. Rural water supplies are therefore often managed by village residents. In order to improve rural water supply, a new framework has been introduced in the South-East of Kosovo. It is based on a Memorandum of Understanding between the RWC, the municipality and the village council. It specifies the roles and responsibilities of each party. It states that the RWC will maintain the system if a collection rate of at least 80% is reached.

The main strengths of this water supply management model are the existence of a legal framework clearly defining the roles and responsibilities of the various stakeholders, mid-/long-term planning (local development plans) that includes water supply, an independent regulatory body, a lobbying organization (SHUKOS: RWCs' association) providing technical support to the RWCs, a legal framework protecting vulnerable people, and social pressure to pay the water fees based on the 80% collection target specified by the MoU. The main weaknesses are the fact that the MoU does not specify the quality of the service to be provided, the lack of involvement of civil society actors, and the fact that the role of municipalities appears to be weakened in the new water framework (in development since the KTA withdrawal in June 2008) as the Ministry of Economy and Finance is now responsible for the RWCs.

The preparation of the post-KTA water framework represents a good opportunity for extending aspects of the MoU to the national level (RWCs taking over the maintenance of rural water supply systems), creating incentives for system extension, reviewing the tariff setting procedure to enable cross-subsidizing of rural water supply systems, enabling civil society actors to be involved in the water sector and participate in the decision-making process, promoting employment and income generation (for example by using local human resources in rural areas for operation and maintenance), improving coordination of external support agencies, and promoting decentralization of service delivery (through stronger involvement of municipalities).

Annex A3 The Tanzania case: Private initiatives to provide water services

A3.1 Institutional arrangements, main actors and features

In general, private initiatives to provide water services develop where public water supplies do not exist. Private entrepreneurs selling water often have in common that they:

- are respected members of society,
- took the initiative to improve the water supply system,
- did this with very little support from the government agencies,
- invested their own money,
- make a (modest) profit,
- employ caretakers,
- and do not attempt to maximize profits.

Current problems are

- lack of security for their business. If the government or an NGO steps in, the business might be endangered
- earnings are not sufficient to cover renewal or expansion costs
- the entrepreneurs could stop anytime, leaving the consumers without a supply.

Reaching 100% water coverage is an enormous task. The question is whether private ownership and management is a viable alternative for effectively increasing coverage. The potential of small-scale private providers is analyzed here, based on the case of Kennedy Masinga in Berege, a rural village of Mpwapwa District in Tanzania.



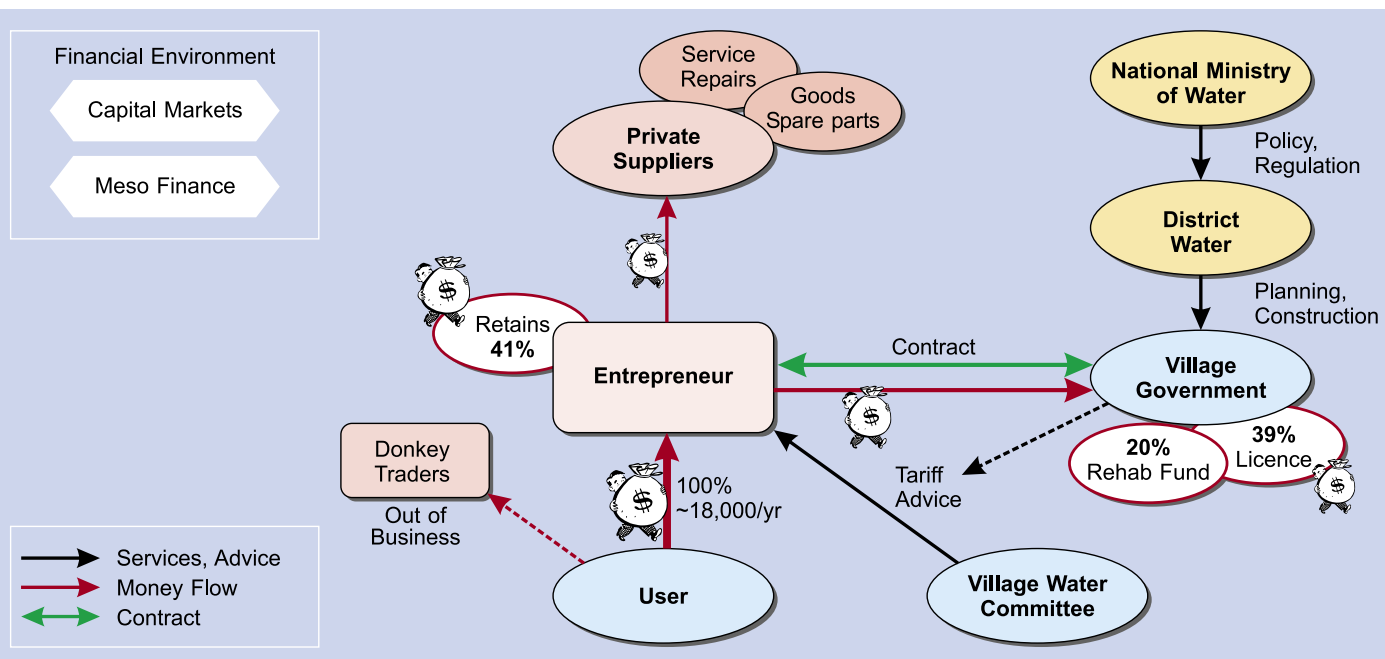
Kennedy Masinga, owner of a water point in Tanzania

© Skat

A3.2 Stakeholders' functions

Stakeholders	User	Village Water Committee	Village Government	Entrepreneur	Private supplier	District Water Department	National Ministry of Water
Ownership				X			
Management of funds			X Rehab. Fund	X Management, O&M			
Tariff setting		Advises on tariff	Approves tariff				
Regulation							Policy Regulation
Controlling / Reporting						Monitoring	
Operation				X			
Maintenance				X	Service repairs, spare parts		
Replacement / Extension			X				
External support							

A3.3 Stakeholders' map



A3.4 Strengths and weaknesses

Area	Strengths	Weaknesses
Economic	<ul style="list-style-type: none"> No subsidies Cheaper & better than carrying water by donkey Economically viable Income generation 	<ul style="list-style-type: none"> Difficult access to capital No credit available for upgrading (renewal) of the system Weak financial framework
Institutional	<ul style="list-style-type: none"> Tariff set in consultation with water committee and village government Contract between village government and entrepreneur Non-existing government function fulfilled 	<ul style="list-style-type: none"> No quality control (water, facilities) No auditing of village share of the water income Risk that initiative might be killed in future when an NGO or the government again brings water to the village Weak legal framework Lack of transparency, accountability Lack of legitimate user representation Dependency on one person Limited scope for scaling-up and extension
Environmental		Weak environmental framework
Knowledge		Weak or little support in technical and administrative issues
Technical	<ul style="list-style-type: none"> Technology OK, supply chain possible, O&M is done, extension possible Adapted to the context 	Pump and engine very old
Social	<ul style="list-style-type: none"> Social profile of entrepreneurs Social control Demand-responsive Access for all, pro-poor, poor get water free 	

A3.5 Model performance

Criteria	Rating	Comments
Financial and management autonomy	☺	Entrepreneur is completely independent in his management (managing cash flow, paying O&M costs, etc.)
Demand responsiveness	☺	This model encourages the entrepreneur to meet the users' demands.
Incentives for expansion	☹	Earnings are not sufficient to cover extension costs.
Professional support	☹	Professional support (for technical and administrative issues) is weak.
Regulation	☹	Tariff is set in consultation with water committee and village government, there is a contract between village government and entrepreneur, but weak legal, financial and environmental framework.
Transparency and accountability	☹	Lack of transparency and accountability

A3.6 Conclusions

The Tanzania case shows that the model works despite all the weak points! However, it needs an entrepreneur with initiative who is willing to provide a service to the community and at the same time wants to make a living from his work and investment.

Because it is a personal initiative it cannot be initiated from outside, however if a conducive environment can be created in which such initiatives are encouraged and at the same time properly monitored, a larger number of local businessmen/women might take up water supply as a business.

Process steps for the implementation of small-scale providers and potential support are summarized below:

Process steps	Challenges	Possible support
1. Get "inspired"	We need more investors Consider multiple use of water (e.g. income from sales of water for irrigation could be used for drinking water)	General business and management training Information campaigns that show that private service provision is viable
2. Develop a business plan	The enabling framework is necessary The water context (water source and water quality, available and affordable technology) is important Low entrepreneurial skills might be a big challenge	Hydrogeological maps will be helpful A policy dialogue on different political levels is necessary Business plan competitions or least subsidy tenders are ideas for the future
3. Convince the community/municipality	How to market the idea?	
4. Find funding	Legal status of service provider is crucial (as well as) Access to financial services	Consider: Investment grant, Meso-Credit (see e.g. www.myC4.com) Remittances from abroad Basket funds for private operators
5. Contract with community/municipality	Transparency and representation are important points to consider	Capacity building of the community might be necessary A contract might facilitate getting funding

Process steps	Challenges	Possible support
6. Invest to build the infrastructure	Consider a continuous source of energy (for pumping) Supervise construction to secure quality	Professional trade associations might play a role Debt relief for failed entrepreneurs might help them
7. Manage money	Seasonal demand must be taken care of, cash flow problems	Capacity building! Technical support from technical department in government Monitoring water use, environment and quality
8. Maintain the system	Environmental issues and water quality are challenges	Capacity building!
9. Scale up	Water users' interests determine further action Convince donors to finance media campaigns	Public-private hand washing campaign as a model?

Annex A4 The Weinfelden / Switzerland case: A municipality-owned utility in charge of the water supply network

A4.1 Institutional arrangements, main actors and features

Weinfelden is a small town of about 10,000 inhabitants in the north-eastern part of Switzerland near to Lake Constance. Administratively Weinfelden is a **municipality** with a municipal assembly of 30 members (elected for four years) as its legislative body. In the municipality, electricity, natural gas, communication services and drinking water are provided by the **Technische Betriebe Weinfelden (TBW)**, a multi utility company, organised in 2002 as a public enterprise under private law with a share capital of 5 million Swiss Francs and fully owned by the municipality. The 35 staff of TBW are responsible to ensure the water supply in the municipality for 365 days a year and 24 hours a day. During the concession period the TBW has the exclusive right to operate the water supply, together with **private sector providers**. In return, they are obliged to serve all living and working areas in Weinfelden. The TBW can define the water price, but it has to be endorsed by the municipal council. The TBW is obliged to inform the municipality about all operations related to water supply.

The first water supply network was established at the end of the 19th century by a water committee. Once the system was built, the water committee was dissolved and the whole project handed over to the municipal administration. At that time TBW was organised as the technical operations unit of the municipality. To meet the increasing demand, more reservoirs and pumps were installed, leading to a decrease in groundwater level, putting the supplies of neighbouring communities at risk. It was therefore decided in 1964 to create a **regional water supply organisation** – a network of several villages managing the regional water resources - to ensure that the most feasible water sources are developed for the group of communities (having about 30,000 inhabitants).

Before the reorganisation in 2002, the water supply facilities were fully integrated in the municipal administration. Daily politics influenced the work heavily. Sometimes decisions were taken by administrators and politicians without the necessary experience and know-how. The political processes caused significant delays, hampering management. Long-term planning was difficult because politicians are elected for four year terms and every four years the staff were given new instructions. In order to allow for more autonomy and proactive decision-making on charges in a dynamic market, TBW was reorganised into a public enterprise. Now the whole infrastructure has been transferred to the new organisation. If the TBW should become insolvent, the water supply infrastructure would revert to the municipality.



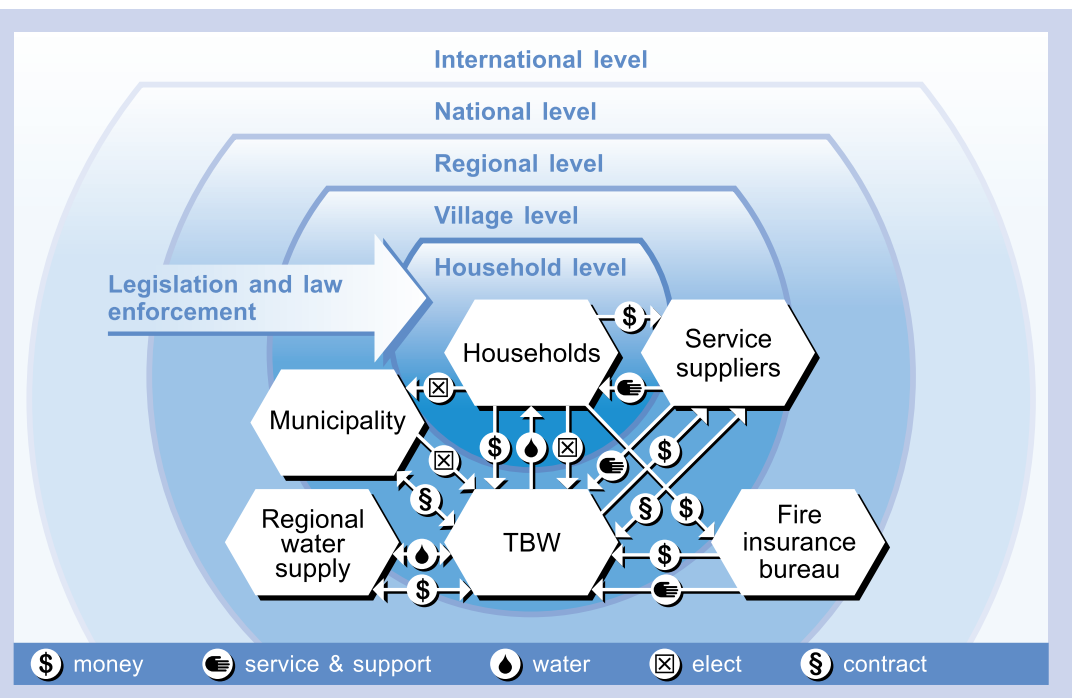
UV water treatment plant
Burg Hard

© Technische Betriebe Weinfelden AG

A4.2 Stakeholder's functions

Stakeholders										
	Households	Industries	Service suppliers	Technische Betriebe Weinfelden (TBW)	Municipality (Municipal council)	Regional water supply body	Fire Insurance Bureau (Canton)	State water analysis laboratory (Canton)	Environmental protection agency (Canton)	National government
Functions										
Planning				X		X				
Financing construction	X	X					X			
Ownership (OS)				X						
Managing funds				X		X	X			
Setting tariff					X approves tariff					
Regulating							Water quality	X		X
Reporting				X						
Operation				X						
Maintenance			X	X						
Replacement			X	X						
External support										

A4.3 Stakeholders' map



The main stakeholders in Weinfelden and their interactions.

Source: Saladin, 2002

The **TBW** is the most important stakeholder for the water supply of Weinfelden. It is (by concession) the legal owner of the network from the sources to the water meters. It is also responsible for the management, operation and maintenance of the network. The person responsible for the water supply network was originally a member of the community who had no specialist technical knowledge and who was elected by the communal assembly. However, nowadays, the caretaker is a highly specialized professional. Water meters in all households are read twice a year by temporary staff hired for this purpose (mostly housewives). Households are charged for water according to their consumption. The management of TBW consists of the director, the commercial director and the technical director. The management is supervised by the board consisting of representatives of the municipal assembly, the municipal council and selected other members. They are elected until they resign and they are compensated for their work.

The **regional water supply** organisation is an association concerned with planning and implementing a common water distribution network in the region. It was constituted by two corporations (public water bodies outside the administration) and the municipal administrations of fourteen villages. The member villages paid for the construction of the regional network and also split costs for the new infrastructure investments needed for the regional network. The network consists of around 30 km of connecting pipes between the village networks.

If the development of a new area is planned, the extension of the water supply network is part of the planning procedure. **Developers or their architects** must submit their plans for any new development to the TBW. The section decides on the technical details and charges a one-time connection fee to the **house owner** based on the plot size. Once the house is connected, ownership of the supply piping is transferred to the TBW which is then responsible for operation and maintenance of the entire network.

The TBW reports to the **municipality** (municipal council). The council also approves the water tariff and investments above a certain limit. The municipal council is elected by the **citizens**. Citizens also have the possibility of influencing operations by making a complaint to the municipal administration, for example if there is some concern about the water quality.

There are a number of **private companies** working in the water sector in the region. The TBW mostly employs individual workers who are available when needed for repair jobs. As required by quality management procedures, the workers must demonstrate their skills (by means of certificates) before being engaged.

The process of **industrialization** was important for the water supply network in Weinfelden. It enabled people to produce cast iron pipes, valves and pumps locally. Enterprise taxes were an important source of income for the municipality, contributing to financing network construction. Industrialization also created private wealth, which enabled the financing of the start of the water supply network before the municipality stepped in.

The **fire insurance bureau** of the Canton (state), a semi-public institution, uses part of its funds to subsidize the main distribution lines and reservoirs. It may cover 10-20% of the capital costs depending on the importance of a specific network component for fire-fighting purposes.

There are two governmental organizations (at the level of the Canton) involved in the water sector: the **state water analysis laboratory** and the **environmental protection agency**. The laboratory is responsible for testing chemical and biological parameters of the water in the supply network. The environmental protection department is responsible for the enforcement of the groundwater protection regulations.

A4.4 Strengths and weaknesses

Area	Strengths	Weaknesses
Economic	Fire insurance contributes to the financing of construction	High costs (US\$800 connection fee + US\$200 per flat; US\$125 yearly fee per flat + US\$1.15 /m ³)
Institutional	Multi-utility (can use synergies to reduce costs) Technical Operations: lean staff structure (a minimum of employees, additional tasks are contracted) Planning at regional level Extension of water supply is integral part of planning Regulation: municipal council approves water tariff and investments	
Environmental	Water quality control Groundwater protection regulations enforced	
Knowledge	Personnel continuity Regular training	
Technical	Quality control (certified qualifications needed before engaging private suppliers) Continuous network renewal (1-2% per year)	
Social	Citizens' participation through municipal council (elected by citizens) and direct feedback High level of public trust (direct contact with customers)	

A4.5 Model performance

Criteria	Rating	Comments
Financial and management autonomy	☺	The Technical Operations unit is independent in its management (managing cash flow, recruiting staff and contractors, paying for O&M costs)
Demand responsiveness	☺	Direct contact between Technical Operations unit and customers (high public trust), direct feedback from customers
Incentives for expansion	☺	Water supply extension is an integral part of any new housing development plan
Professional support	☺	Association of water network caretakers provides training and opportunities for knowledge exchange
Regulation	☺	Municipal council has to approve the water tariff, groundwater protection regulations are enforced
Transparency and accountability	☺	Technical Operations unit is supervised by a committee which is elected by the village council.

A4.6 Conclusions

The factors of success identified in the Weinfelden water supply management model are:

Range of responsibilities of the Technische Betriebe Weinfelden: the combination of different tasks, in this case operation and maintenance of water, gas, electricity and television cable networks, enables savings in time and energy.

Lean staff structure: the TBW employs only as many people as are needed to run the 24h emergency operation plan (two people of the unit are specifically responsible for the water supply network); contractors are hired for additional tasks.

Staff training: Staffs are trained in periodic courses by professional associations (Association of Caretakers and Swiss Association for Gas and Water).

Standardized qualifications: Potential contractors have to show a qualification from a certified institution.

Continuous renewal of the network: Every year, 1-2% of the pipes are renewed in order to keep water losses as low as possible.

Trust: All the TBW staff have direct contact with customers. Moreover, the unit organizes guided tours around their facilities for schools and other interested institutions and groups.

Competition: Repairs and maintenance of house connections are carried out by small contractors. The TBW contracts house connection repairs to the company which undertook the initial construction of the house connection as the customers prefer to deal with only one company. Competition amongst service provider is thus mainly based on quality of work and reliability of service rather than on price.

Regional planning: There is a regional water supply organisation aiming at planning and implementing a common water distribution network. This ensures that the most feasible water sources are developed and made available to the group of communities, and costs are shared.

In Switzerland, a decentralized system has been in place for a long time. Municipalities therefore have the skills, as well as the financial and human resources necessary to manage their water supply systems. This model would thus be difficult to implement in a region where municipalities may have decision-making power but lack human and financial resources to successfully manage their water supply system. Moreover, industrial development played an important role in financing the system as enterprise taxes were an important source of income for the municipality which could then use part of this income to subsidize network construction.

ANNEX B

List of workshop participants

List of workshop participants

Ttl.	Firstname	Lastname	Institution	E-mail 1
Mr.	Md.	Akhtaruzzaman	WSP South Asia	makhtaruzzaman@worldbank.org
Mr.	Khalid	Azami	Helvetas Afghanistan	khalid.azami@helvetas.org
Mr.	Erich	Baumann	Skat	erich.baumann@skat.ch
Mr.	Jean Mathieu	Bingbouré	PAR	bingbourejm@yahoo.fr
Mr.	Assefa	Biru	Ministry of Water Resources	assefa.biru2lu@gmail.com
Ms.	Sylvia	Brunold	Agridea	sylvia.brunold@agridea.ch
Mr.	Albert	Bürgi	Helvetas Zürich	albert.buergi@helvetas.org
Mr.	Francisco	Carranza	WSP Latin America	fcarranza@worldbank.org
Ms.	Alice	Chabi Guiya	Helvetas Benin	alice.chabi-guiya@helvetas.org
Mr.	Yacouba	Diallo	Helvetas Mali	yacouba.diallo@helvetas.org
Mr.	Kaspar	Grossenbacher	Helvetas Zürich	kaspar.grossenbacher@helvetas.org
Mr.	Reto	Grüninger	SDC Central America	reto.grueninger@sdc.net
Mr.	Hans	Hartung	FAKT	hansfhartung@aol.com
Mr.	Pierre-Olivier	Henry	SDC Mozambique	pierre-olivier.henry@sdc.net
Mr.	Neil	Herath	Helvetas Sri Lanka	hslneil@yahoo.co.uk
Mr.	Halidou	Koanda	CREPA Burkina Faso	koanda.halidou@reseaucrepa.org
Ms.	Ursula	Kocher	Caritas Switzerland	ukocher@caritas.ch
Mr.	Koussé	Koné	Helvetas Mali	kousse.kone@helvetas.org
Mr.	Tobias Mathis	Lorenz	Stiftung Wertevolle Zukunft	tobias.lorenz@wertevolle-zukunft.de
Ms.	Nicole	Lovett	Diageo	nicole.lovett@diageo.com
Ms.	Agnes	Montangero	Skat	agnes.montangero@skat.ch
Mr.	Chris	Morger	Intercooperation	chris.morger@intercooperation.ch
Mr.	Christian Jaurès	Moulouki	Helvetas Burkina Faso	christian.moulouki@helvetas.org
Mr.	François	Münger	SDC HQ	francois.muenger@deza.admin.ch
Mr.	Laurent	Nicole	Swiss Humanitarian Aid	actaln@bluewin.ch
Mr.	Olivier	Normand	International Secretariat for Water	coquillat@wanadoo.fr
Mr.	Jerome	Rihouey	WSP Africa	jrihouey@worldbank.org
Mr.	Roger	Schmid	Skat	roger.schmid@skat.ch
Mr.	Ahmad	Shah	Helvetas Afghanistan	ahmad.shah@helvetas.org
Mr.	Ram Mani	Sharma	International Secretariat for Water	rammanis@gmail.com
Mr.	Hendrik	Smid	Deutsche Welthungerhilfe	hendrik.smid@welthungerhilfe.de
Mr.	Bruno	Valfrey-Visser	Hydroconseil	valfrey@hydroconseil.com
Mr.	Paul	Van Beers	WatSan Consult	info@watsan.com
Mr.	Antonio Manuel	Vasco	Helvetas Mozambique	antonio.vasco@helvetas.org
Mr.	Astrit	Vokshi	Community Development Initiatives	astrit.vokshi@cdi-kos.org
Mr.	Christian	Zurbrügg	Eawag/Sandec	christian.zurbrugg@eawag.ch

“Is community management enough to sustain the Millennium Development Goal efforts?”

This question was raised to initiate the debate at the Aguasan Workshop 2008, a 5-day event gathering water specialists and development practitioners from all over the world. Although the community management model is by far the most widespread approach for rural water supply services in low-income countries, it has often failed to deliver the expected level of sustainability. Hence there is a strong need for re-examining the approach as well as for investigating alternative management models.

This report synthesizes the main workshop outcomes. It describes an analytical framework that can be used to assess the potentials and limitations of rural water supply management models, as a first step towards enhancing the sustainability of rural water supply services. It also highlights key ingredients for success in managing rural water supply services.