

A review of progress in seven African countries

Public-Private Partnerships For Small Piped Water Schemes

This field note reviews the first generation of Public-Private Partnerships (PPPs) for small piped water schemes in seven countries: Benin, Burkina Faso, Mali, Mauritania, Niger, Rwanda and Senegal. The field note proposes a framework for moving towards more sustainable piped water PPPs. The framework comprises four building blocks to consider: improving contracting practices, the enabling environment, the capacity of the PPP stakeholders, and information tools and services.



About one quarter of the population living in rural areas and in small towns are served through piped water schemes

Summary

This field note reviews the experience with Public-Private Partnerships (PPPs) for small piped water schemes in seven countries: Benin, Burkina Faso, Mali, Mauritania, Niger, Rwanda and Senegal.

The purpose of the field note is to identify key lessons and success factors from the first generation of PPPs in the rural and small town water sector in Africa to guide countries in their development of national PPP action plans and to inform the implementation of WSP's Sustainable Services through Domestic Private Sector Participation (SS-DPSP) initiative.

Small piped water schemes are of strategic importance as one quarter of the population living in rural areas and in small towns today are already served through piped water schemes.

All the countries have adapted PPP arrangements as an alternative to the community-based management model to ensure sustainable service delivery. PPPs were introduced in the early 2000s to complement decentralization reform.

By the end of 2008, a quarter of the piped schemes were under PPPs. The landscape of private operators is diverse and they vary in size. Private sector participation improves water services and ensures efficiency gains, but challenges remain: ownership of the PPP process by key stakeholders, sustainable service delivery, implementation of effective regulation and sustainable financing of investments.

This field note proposes a framework for setting up sustainable small piped water PPPs. The framework comprises four building blocks: improving contracting practices to ensure win-win PPPs for all parties involved (consumers, asset holders and operators); putting in place an enabling environment for the operators to ensure regulation, access to maintenance and financial services and products; building the capacity of the PPP stakeholders to ensure that adequate asset holding authority and regulation is exercised and to build a professional private sector; and, developing sound information tools and services to improve sharing of lessons, monitoring and reporting in the sector and scheme management.

Introduction

Public-private partnerships (PPPs) are common in the urban utility sector, but were first introduced into the rural water supply sector in the early 2000s as an alternative to the community-based management model, which, after 20 years as the prevailing arrangement for water service delivery, had fallen short in terms of meeting performance expectations especially for piped water systems.

The introduction of public-private partnerships brought with it a framework to address key issues, such as asset ownership, performance monitoring, and regulation of water operators, which until then had remained unresolved in the rural and small-town water sub-sector.

A significant number of rural and small-town water service delivery contracts have been put in place over the past few years, but little analytical work has been done to review this experience. This paper consolidates lessons from the first generation of public-private partnerships and identifies factors that are likely to contribute to the successful scaling up of delivery.

The observations made are based on a desk review of recent rural and small-town studies of public-private partnerships and on an overview of lessons from the implementation of the WSP Domestic Private Sector Participation activities in Africa since 2005. The study includes case studies from the following Western and Central Africa countries: Benin, Burkina Faso, Mali, Mauritania, Niger, Rwanda and Senegal.

The core concept of the original French version of this paper is *'delegation de*



The Refane water tower in Senegal

*gestion de service public*¹, which means essentially delegation of the management of a public service. However the most meaningful term in English was found to be ‘public-private partnership’, hence its use in this publication¹.

The basic concept incorporates all forms of contractual relationship between an ‘operator’ and an ‘asset owner’, whether it is a management, a lease (affermage), or a concession contract. The operator role can be fulfilled by a private company, an association, or a community group, as long as the operator is a legally recognized entity that operates under a service agreement.

Background

Access through piped supply is increasing

About one quarter of the populations living in Africa’s rural areas and small towns are served through piped water schemes. Taken together, the number of people in rural and small towns served by piped water schemes in the seven countries reviewed is nearly 13 million, which in 2008 was approximately 25 per cent of the rural and small town population (see Figure 1).

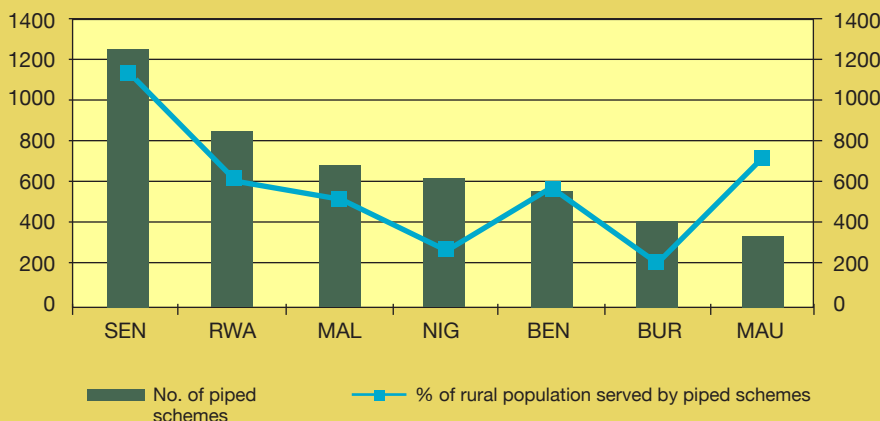
Among the countries surveyed, Senegal has the highest penetration levels in terms of piped water for rural communities: fifty six per cent of the country’s rural population had access to piped water. It is anticipated that by 2015 this will exceed 80 per cent.

The share of piped water is likely to increase in the other countries too, due to the priority given to piped water in respective national Millennium Development Goal plans.

In the sample countries there were 4,800 piped water schemes in operation in 2008. The range of production levels of these schemes varied widely, from 5m³ to 2,000m³ per day, and the populations served ranged from 500 to 200,000. The types of piped water scheme were fairly homogenous across the sample countries and fell into four basic categories according to their size and level of complexity: 1) schemes with a single communal distribution point; 2) schemes with multiple communal distribution points; 3) schemes with multiple distribution points and household connections; and 4) multi-village schemes (see Table 1).

Besides piped water schemes, water can be made available to rural areas and small towns directly from the water source by means of hand pump boreholes and modern wells. These types of ‘point source’ water points are good solutions in places where settlements are scattered and groundwater is limited but shallow. On the other hand piped water schemes are well suited for dense settlements requiring higher levels of water production and where deeper boreholes are needed.

Figure 1: No. of schemes and % of rural population served by piped schemes



¹The paper has been freely translated to ensure the flow in English and French. As a result not all sentences and paragraphs correspond to the French version, but the findings and conclusions are the same.

Consumers generally pay from US\$ 0.5 to US\$1 per m³ of water

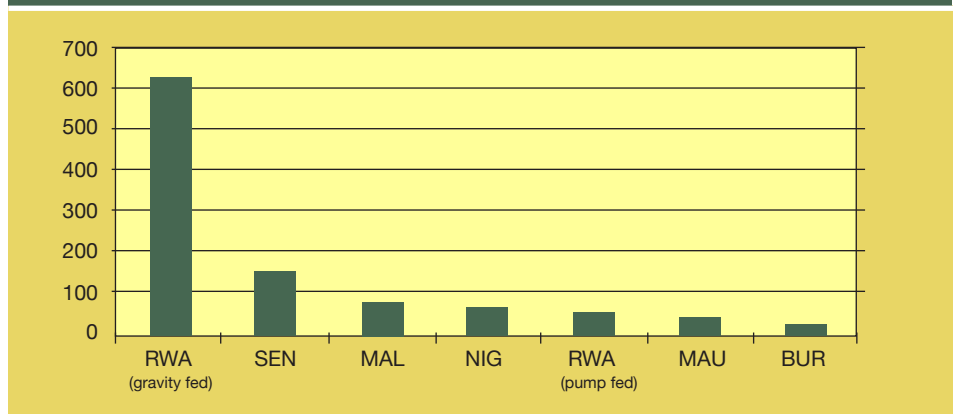
Table 1: Scheme characteristics

Type	Characteristics	Population served	Network length	Storage capacity	Production capacity
Scheme with a single communal distribution point	No distribution network, communal distribution point at the borehole, limited storage underground or at low elevation	500 - 1,000	< 0,1 km	2 - 10 m ³	5 - 10 m ³ /day
Scheme with multiple communal distribution points	Limited reach of the network, stand posts only, limited storage capacity at low elevation	500 - 2,000	< 2 km	10 - 50 m ³	5 - 40 m ³ /day
Scheme with multiple distribution points and household connections	Extended network, stand posts and household connections, higher capacity storage at higher elevation	2,000 - 10,000	2 - 10 km	10 - 50 m ³	20 - 300 m ³ /day
Multi-village schemes	Larger piped schemes with transportation of water to up to dozens of villages	5,000 - 200,000	10 - 250 km	10 - 50 m ³	100 - 2000 m ³ /day

In practice it is often the case that more than one technology type is used within a particular area or settlement: for example the review noted that point sources in villages that were also served by a piped scheme. This overlapping of water source types can pose difficulties in the day-to-day management of water, as discussed below. For piped water schemes, each of the countries in the study has set minimum thresholds for the viability of proposed schemes. In general a piped water scheme is considered to be viable if it serves a minimum of 2,000 people. In countries with very small populations however, the minimum can be much lower, as in Mauritania, where it is 500.

Piped water schemes that have either a single or multiple communal distribution points represent 50 per cent of the piped water supply-system networks and are found mainly in Burkina Faso, Benin, Mali and Niger. Multi-village water schemes are found mainly in Senegal and Rwanda

Figure 2: Average water production per scheme (m³/ day)



where the types of water sources available, namely high-level borehole flow in Senegal and gravitation systems in Rwanda, suit these schemes.

As shown in Figure 2, the average amount of water produced by the piped water

schemes covered in the survey varies significantly from country to country, ranging from 20m³ per day in Burkina Faso to 614m³ per day in Rwanda.

The water volumes produced in the Rwanda schemes are exceptional, as many



Solar panels for a small piped water scheme in the region of Kayes in Mali

also tend to have higher levels of water consumption per capita per day, and more affordable prices for the consumer. The presence of competing water points, such as wells, hand pumps and surface water, which are less expensive or free, has a negative impact on the level of piped water production. These correlations were found within as well as across all the countries surveyed.

The production of water remains highly dependent on hydrocarbons, although the use of solar power is increasing. There are two key problems (apart from the environmental considerations) with relying on energy generated from hydrocarbons: the price of water is highly sensitive to fluctuations in the price of oil and the operation and maintenance costs of diesel powered systems are high.

In the seven countries surveyed, more than 60 per cent of the piped water schemes are equipped with diesel-powered engines or generators. Depending on the pumping needs and the cost of oil, the energy costs tend to represent between 30 per cent and 50 per cent of recurrent operating expenditure. The price of one liter of diesel can go up to US\$ 2 in the most remote areas. Despite this high cost, the populations of these countries often prefer hydro-carbon energy to alternative technologies, as can be seen by the fact that oil-based power is more common in rural areas.

Table 2: Scheme energy sources across the countries

Energy source	Proportion of the schemes								
	10%	20%	30%	40%	50%	60%	70%	80%	90%
Diesel				BF	ML,NG	●	MR,SN		
Solar	RW,SN	●	MR	BF,NG	ML				
El. Grid	OC	●	SN	BF					
Gravity							RW		
BF: Burkina BN: Benin MR: Mauritania ML: Mali ● : Average NG: Niger RW: Rwanda SN: Senegal OC: Other countries									

schemes are gravity fed. Where pumping is required, the average production level varies between 20m³ per day in Burkina Faso and 140m³ per day in Senegal.

In general the size of the water systems along with the level of the water service

provided gives an indication of the average level of water production, i.e. where there is high water production the tendency is to find water systems with a good number of connections and more often productive use of water for livestock and irrigation. High water production schemes

As an alternative source, solar energy has reached a significant penetration level, although it is still far from achieving its potential. Nearly 20 per cent of the piped water schemes are equipped with photovoltaic pumping systems. This is largely a result of the Comité permanent

Public-private partnerships are a response to the prevailing community-based management model which has dominated the sector over the past 20 years.

Inter-Etats de Lutte contre la Sécheresse dans le Sahel (CILSS) regional solar program which has been supported for over 15 years by the European Union.

When it comes to solar power, Mali is at the forefront since the 1970s with 50 per cent of the country's piped water schemes equipped with solar pumping systems. Following Mali in terms of solar use are Niger, Burkina Faso and Mauritania. While solar power is reliable and easy to use, there are technological constraints that need to be overcome to mainstream solar power. Water solar pumping capacity today is only 70m³ per day for a pumping level of 60 meters for instance. In addition, better management of the demand and better management of ownership by the local population and governments are needed.

Less than 10 per cent of the scheme is connected to a low-voltage grid because of the poor rural electrification penetration in the countries surveyed. Senegal and Burkina Faso show the most favorable statistics. The ongoing rural electrification programs in Senegal, Mali and Burkina Faso should improve this and as schemes are connected to the grid, it should significantly reduce operation and maintenance costs. It is worth noting that Rwanda differs from the other countries, as the piped water schemes there are gravity fed. This is made possible by the mountainous landscape and the strongly flowing water sources that can be harnessed.

Users generally pay US\$ 0.5 to US\$ 1 per m³ of water (in West African francs this is 250 to 500 FCFA per m³). Water tariffs depend mainly on four parameters: 1) the service level (stand post, private

connection), 2) the production costs (energy, maintenance, personnel, taxes and miscellaneous levies etc), 3) the volume of water sold, and 4) the depreciation charges. In some cases the tariffs levied are higher or lower than the range given above: for example, the tariffs applied for small gravity schemes in Rwanda and for very large schemes in Senegal are lower. On the other hand higher tariffs tend to be applied to schemes that are sensitive to diesel fuel costs during a fuel crisis.

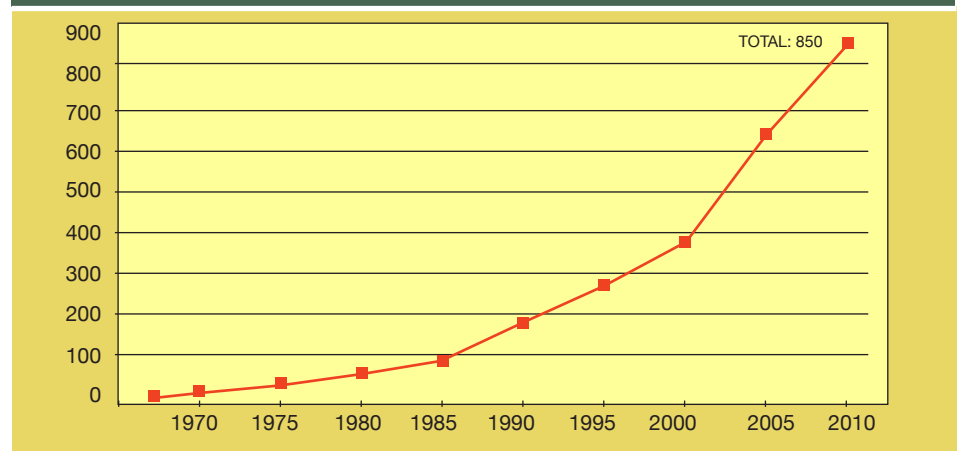
Depreciation charges included in the water tariff are non-cash expenses that reflect the replacement value of assets that have lost value as a result of wear and tear or obsolescence. The proportion of depreciation costs reflected in the water tariff is determined by each country's national policy framework. In Rwanda, Burkina Faso and Mali all depreciation charges are required to be included in the water tariff, whereas in Senegal, Mauritania, Benin, and Niger only the depreciation

charges for equipment and facilities with a lifespan of less than 20 years are included.

In some instances national guidelines for cost recovery do not correlate accurately with the realities of how the water services are provided and sustained over time. In Rwanda a recent tariff study concluded that following the tariff guidelines for full cost recovery was only practical in the case of gravity systems where no pumping or treatment of water was needed. The review noted however that in most countries meter use was widespread and fixed fee billing was becoming less common.

In all the countries surveyed it is usually the case that the tariff varies according to the type of distribution point. The review observed that in some cases tariffs for private connections were lower than those for stand posts, which at first glance would seem illogical, as the level of service for a private connection is higher. However the apparent anomaly lies in the fact that in

Figure 3: The growth of water schemes in Niger



Source: Situation analysis for the development of a WSS guide in the rural water and sanitation sector, June, 2009



A private operator installing a water pump

most cases rural households with private connections cover the full cost of installing the water connection, and relative to household income this can be high: for example the average cost of a private connection in Senegal is US\$ 200. Often, households are charged the same tariff as kiosk vendors, who in turn need to sell water at a higher price to cover their expenses and salaries.

While the cost of producing piped water and water distributed depends to some extent on economic circumstances, the scheme design and the policy dimensions of each country also play an important role. At the system design stage prevailing assumptions about per capita water consumption need to be critically assessed. In the countries surveyed, the per capita water consumption from piped schemes ranges from three to 25 liters per day. This is less than the World Health

Organization's recommended standard of 35 liters per day for each person. Very often households with piped water also draw water from free water points such as wells and hand pumps. Hence, design assumptions of 35 liters per day systematically result in oversized schemes that are unlikely to be financially viable.

Reasons for setting up public-private partnerships

In Africa's water sector, public-private partnerships came about as a response to the prevailing community-based organization management model. Piped water schemes were relatively uncommon in most of the countries surveyed until the early 1980s, only gaining prominence during the international decade for drinking water and sanitation (1981-1990).

Originally, the schemes were managed at community level by 'village management committees'. This collective approach drew on the experience of the 'water point committees' that had been put in place to manage hand pumps in conventional rural water supply programs. However, since the village management committees were not legally recognized, lacked the necessary skills, and did not apply formal management practices, the schemes often failed or were simply abandoned.

In response to these difficulties, the user association or community based organization (CBO) management model was developed. In Senegal these bodies are called *associations d'usagers de forage* and in Rwanda *régies associatives*. The objective of the CBO model was to entrust piped water management to formal and legally recognized organizations that were well organized, while also involving users

and communities in the management. As a result of the establishment of the community-based model, good practices were introduced into the sector, the most important being the sale of water by volume, and replacement funds (savings for future infrastructure expenditure).

Despite the relative success of the community-based management model in Senegal and in certain parts of the other countries, the model did not meet expectations in terms of performance and sustainable service delivery. There were problems with transparency, citizen accountability, cost recovery and implementation capacity (in terms of both management and investment projects). These shortcomings resulted in unreliable services. For instance, the 2010 sector review in Burkina Faso concluded that 34 per cent of piped schemes were not functioning.

Between 2003 and 2005, in response to these difficulties, governments in these countries began to engage private sector organizations to operate small water schemes as an alternative to the community-based management model. For governments, promoting this new approach has not been easy, especially given the fact that communities do not always trust the private sector. Fortunately there were pioneering initiatives which could be drawn on, such as the introduction of fee-based management by private water scheme managers in Mauritania and Niger in the 1990s. Figure 3 shows the growth of water schemes in Mali. These experiences are still used as benchmark references in Africa today.

Decentralization – An opportunity for public-private partnerships. With countries

Under the generic PPP arrangement, there is a contractual agreement between the contracting authority, the asset owner, and the operator for the delivery of water services.

implementing decentralization reform since the 1990s, the ownership of assets has been transferred from central to local governments. The specifics of decentralization reform vary from country to country: for example some of the countries lack implementation laws, while others have decentralized responsibilities without also decentralizing budgets. Those leading the way are Mali, Niger and Rwanda.

As assets were transferred to local governments, most countries wanted to separate ownership of assets from day-to-day operations to ensure that internally-generated water revenues were ring-fenced and not allocated for expenditures unrelated to water service. Consequently, six of the seven countries, namely Mali, Niger, Burkina Faso, Benin, Rwanda and Senegal, promoted the contracting of services to either a private operator or a legally recognized water user association. Some countries established or are establishing specific statutory frameworks: in Mali, the law requires local government to contract with a legally recognized user association or private operator for service delivery; in Rwanda, the contracting of a private operator is emphasized in the national sector strategy.

level of agreed technical, investment and financial responsibilities of the operator, the contracts vary from simple management contracts, to more complex affermage-lease and concession contracts.

The regulator is independent from the contracting entity and the operator. The regulator ensures contract compliance, acts as an arbitrator of disputes, monitors operational risks and gives guidance on mitigation measures to be taken.

The monitoring or business support agent is in charge of collecting and analyzing operational data, and providing advice and decision-making inputs. The collected data is also used for regulation.

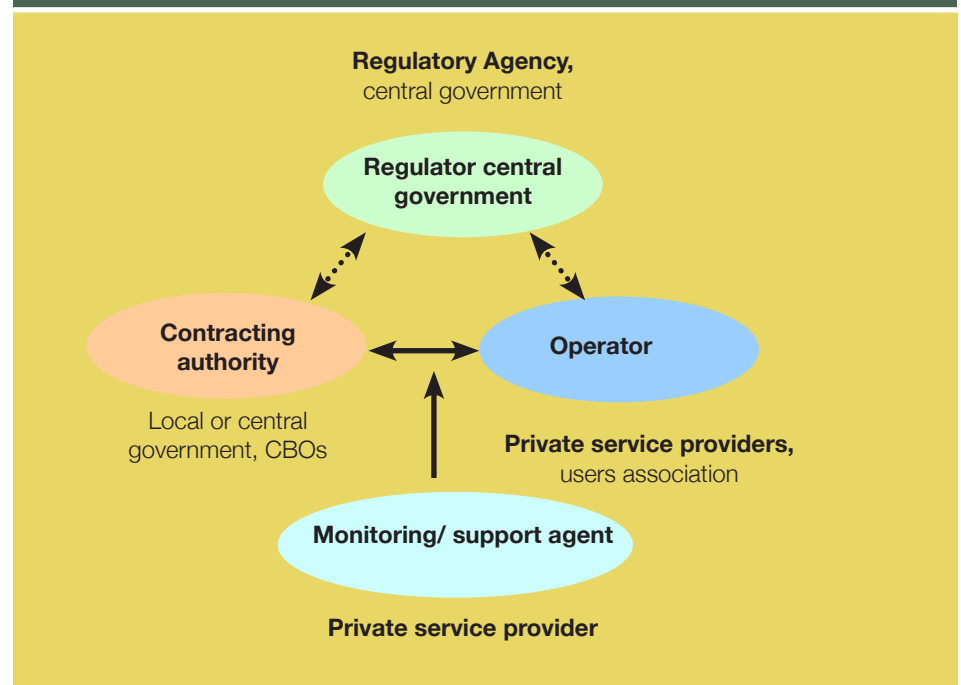
Responsibilities assigned to stakeholders vary from country to country but a generic framework is presented in Figure 4. **Contracting authority is devolved to local governments, but actual implementation varies from country to country.** In six out

Implementing PPPs – Where are we?

Basic institutional and contracting arrangements

Under a generic PPP arrangement, there is a contractual agreement for the delivery of water services between the contracting authority, the asset owner, and the operator. Depending on the

Figure 4: The PPP stakeholders



Common functions and roles

Contracting authority	Local governments
Operator	Private service provider
Regulator	Government services
Monitoring and support services	Private service provider



Women fetch water from a stand post in Rwanda

of the seven countries surveyed (Benin, Burkina Faso, Mali, Mauritania, Niger and Rwanda), the contracting authority has been devolved to local governments. Often however, the asset transfer from central to local government is not automatic, but done case by case. This is how it was handled in Burkina Faso, Mali, Mauritania and Niger.

In practice, local government contract authority is in place only in Mali, Rwanda and Benin. In these countries tendering processes and procurement of services are effectively managed by local governments, which are known as *collectivités territoriales* in Benin and Mali and districts in Rwanda. In Niger, it is mainly the water user associations which contract out the service delivery to a private operator and in turn exercise the role of contracting authority. This function should over time be transferred to local government as it gains the capacity to take ownership of the asset. In Benin, tripartite contract arrangements

exist between the local governments, water users associations, and private operators. The water user associations are therefore formal participants in the decision-making process.

In Mauritania, the central government, through the ministry in charge of water, still remains the contracting authority. In this case central government has given the regulator, *Autorité de Régulation* (ARE), the authority to put out tenders and recommend operators to the ministry as the devolution of the contracting authority to local governments in accordance with the legislation is not yet effective. Recent projects such as PIR Brakna and *Projet Eau Gorgol Guidimakha* (PEGG) are, however, paving the way for the devolution of contracting authority to local governments in Mauritania.

In Senegal water services remain under the authority of the central government's ministry of water. The Water Services and

Sanitation Act (SPEPA) of 2008 however permits the transfer of contracting authority to local governments (*communauté rurales*) on a case-by-case basis according to criteria to be defined in a decree.

Private sector participation – The heart of reform. Participation by the private sector is central to the reform process in nearly all the countries. The contracting authorities can contract services out to private, public or community-based organizations, although most of the countries explicitly promote private operators. Consequently, most of the contracts in Benin, Burkina Faso, Mali, Niger and Rwanda are now given to private operators.

In Mauritania, *Agence Nationale d'Eau Potable et d'Assainissement* (ANEPA) is a private non-profit association that has been created to develop and monitor rural and semi-urban water supplies. In effect ANEPA remains under government control since it receives annual subsidies equivalent to two-thirds of the cost of water from the government. At the local level, ANEPA awards contracts to private scheme managers, which in most cases are individuals, not firms. In 2008, ANEPA had some 225 scheme managers under contract. The revision of the Mauritania Water Act in 2005 has put the monopoly position of ANEPA in question and opened up the system to all private operators, making it more competitive.

Unlike in the other countries, in Senegal, water user associations are the main providers of piped water services, however private operators are not excluded. The process of delegating the service to user associations began in 2000 when the government entered into interim service agreements (*licence d'exploitation*

The great majority of the PPP arrangements adopt affermage-lease principles. The operators are generally given limited financial responsibilities.

provisoire) with 183 piped water user associations (called ASUFORs) under a pilot reform project that later led to the contracting principles under the *Service Public de l'Eau Potable et de l'Assainissement* (SPEPA) act. Whilst the decree for implementing the SPEPA act is pending, another 178 service agreements were expected to be granted in 2009.

Regulation still largely under ministry control. The regulatory function remains under the ministries in most cases. In the countries where the regional water services departments are relatively well established, namely Benin, Burkina Faso, Mali, Niger and Senegal, these departments play an important advisory and arbitration role among local stakeholders (users, operators, local governments) and act as the de facto 'local' regulator. There are some sector regulators in place

in Burkina Faso, Mali and Niger, but they do not generally intervene in rural areas and often the regional water services departments intervene on behalf of these regulatory agencies. The review noted however that ARE in Mauritania (as of 2006) and the Rwanda Utilities Regulatory Agency (RURA), as of 2008 have monitored contracts themselves under their own budgets.

In Senegal, the water ministry's division for operations and maintenance (DEM) plays the dual role of contracting authority and regulator. For this reason the authority to award contracts has not been transferred to local government and the sector remains largely unregulated.

Mali and Niger have business development service (BDS) providers in place and Senegal is piloting a mobile-2-web support

service that can facilitate monitoring and regulation. A system collecting, analyzing and communicating information on key operational performance indicators is indispensable for regulating contracts. The scope of such a system should be national and (unlike systems for monitoring finite projects) this system needs to be sustainable.

Mali has since 1993 experimented with business development service providers and since 2004 two (soon to be three) BDS providers – known locally as *suivi technique et financier* or STEFIs – have been providing technical and accounting assistance and advisory services to the local government contracting authorities and the operators. The BDS are provided on a cost recovery basis to more than 130 operators and the cost of the service is included in the water tariff (in 2008 this amounted to FCFA 20,

Table 3 : PPP stakeholder overview in by county

Country	First PPP in place	Asset holder/ contracting authority	Regulation authority	Water provider profile	No. of PPPs in place (2009)	Performance monitoring system
Benin	2006	LG	MIN	PSP	130	TBI
Burkina	2009	LG	MIN	PSP	125	TBI
Mali	2006	LG	MIN/REG	PSP	20	"STEFI"
Mauritania	1994	CG	REG	PSP; ANEPA	350	"CMSP"
Niger	1990	LG	MIN	PSP	298	"BCC"
Rwanda	2004	LG	REG	PSP	230	TBI
Senegal	2000	CG	MIN	CBO	183	"MANOBI"

PPP = Public-Private partnership **LG** = Local Government **CG** = Central Government **MIN** = Ministry **REG** = Regulator **PSP** = Private Service Provider **CBO** = Community based organization (*) with service provider agreement **TBI** = To be implemented **STEFI** = Suivi technique et financier: Technical and financial monitoring **CSMP** = Chargé de mission de service public : Responsible for public service mission **BCC** = Bureau de conseil et de contrôle: Advising and controlling office **MANOBI** = A Senegalese ICT provider **PSP** = Private service provider **ANEPA** = Agence nationale de l'eau potable et de l'assainissement: National agency for safe water and sanitation



Operator checks readings on a bore hole meter

equivalent to about 4 US cents per m³). In Niger since 2006 similar services have been provided by service providers called *bureau de conseil et controle* or BCCs. The cost of the Niger services varies from FCFA 25 to 52, which is between 5 and 10 US cents per m³ depending on the region. Currently about 20 per cent of the schemes in Mali and Niger are covered by these services, but the governments are making efforts to extend the services to all schemes in the respective countries.

In Mauritania the government is piloting a PPP monitoring system called *chargés de mission de service public* known as CMSP under the Eau Gorgol Guidhimakha project, supervised by ARE. The functions of the CSMP will not only include the monitoring, control and advisory services provided by the STEFIs and BCCs in Mali and Niger but will also engage the CMSP in co-management of infrastructure replacement. ANEPA on the other hand monitors the performance of the private operators using a few limited parameters, in particular

Box 1: *mWater* Services in Senegal

The basic mobile-2-web performance monitoring service in Senegal aims to improve ASUFOR (CBO operators) management of small water schemes. It was developed by a Senegalese ICT provider, Manobi SA, in partnership with the Water Ministry's Directorate of Operation and Maintenance. This service uses a dedicated mobile phone with an application – *mWater* – which allows a water scheme manager to forward weekly information from a mobile phone. The information covers: (i) the bulk water meter index, (ii) the saving and current account balances of the ASUFOR, and (iii) the number of days when the service is not available. An alert function is integrated into the telephone which allows the manager to report the malfunction by SMS to the local water services department (Brigade) and the maintenance operator.

Data sent to the Manobi SA mobile-2-web platform is archived, treated and analyzed using four indicators: level of production, financial reserves, malfunction rate, and savings/ water production over the past 12 months. Each month respective water scheme managers receive a report on their cell phones with different coloured 'traffic lights' for each of the indicators (green = OK, orange = To Monitor, red = Alert). The full report including performance charts and comments can be e-mailed or downloaded online by the ASUFORs.

The service was successfully tested in 2008-2009 with 52 ASUFORs in Senegal and is currently being scaled up. In Mali the service is being adapted to facilitate the collection of operational and financial information collected and treated by the BDS providers (STEFI).

It will include mobile-2-web accounting and billing modules. Rwanda and Niger are also planning to introduce mobile-2-web services. The services also facilitate regulation as much needed information is made available to the regulator in a timely manner and as the services penetrate the market they will improve governance and transparency in the sector.



PPPs bring about service improvement and efficiency gains

based on water production which is the basis for the calculation of the license fees to be paid by each operator.

In Senegal DEM monitors the performance of many schemes and publishes the results on a weekly basis. DEM is also implementing a mobile-2-web service called *mWater*, which is provided by a local information and communication technology (ICT) provider, Manobi SA. The services were successfully piloted in 2008-9 among 52 operators and at the time of writing, DEM was extending the service to other operators.

Number and type of PPP contracts and operator profiles

In the countries surveyed about a quarter of the piped water schemes are under PPP contracts and this should increase to a third once some of ongoing projects are completed. There are great variations in the form of these contracts, but other than those in Senegal, all of them include private operators.

There are more PPP contracts in the countries that initiated the partnership processes early. Mauritania and Niger introduced public-private partnerships in the early 1990s and have the highest PPP penetration rates (100 per cent and 50 per cent of the piped schemes respectively). With the presence of the non-profit agency ANEPA, the case of Mauritania is atypical, but at local levels, water services are managed by individual private operators that started to appear in 1995.

In the other countries where the PPP processes were introduced in the early 2000s, between 5 per cent and 30 per cent of the all piped schemes are under



Office where customers can pay their bills in a village in Senegal

public-private partnership arrangements. The great majority of the remaining schemes are managed by water user associations or village committees.

The PPP penetration is expected to grow rapidly in Benin, Mali and Rwanda, where national action plans are being implemented to rationalize and accelerate this process. Rwanda's target for 2012 is that 50 per cent of the country's piped schemes (there were a total of 840 in 2008) should be under private management against 20 per cent in 2009. Studies were carried out in Niger and Rwanda in 2009 to get a better understanding of issues and challenges associated with the PPP process, and a similar study was under way in Benin in 2010.

The great majority of the PPP arrangements adopt management or affermage-lease principles. The operators

are generally given limited financial responsibilities. Most of these arrangements have been put in place using generic contract models made available to local governments/ contracting authorities by sector ministries: this is the case in Benin, Burkina Faso, Mali, Mauritania, Rwanda and Senegal. Under these arrangements, the operator takes on all the operating risk and rewards. The operator is responsible for billing and payment collection, and absorbs operational expenditures such as those for energy, maintenance, repairs, and personnel.

The operator also pays a lease fee to the contracting authority to cover depreciation and replacement costs, and other charges such as provisions for network extensions, BDS/ monitoring services, and municipal taxes. Gross income is calculated by subtracting operational expenditures and fee/tax payments from revenues.

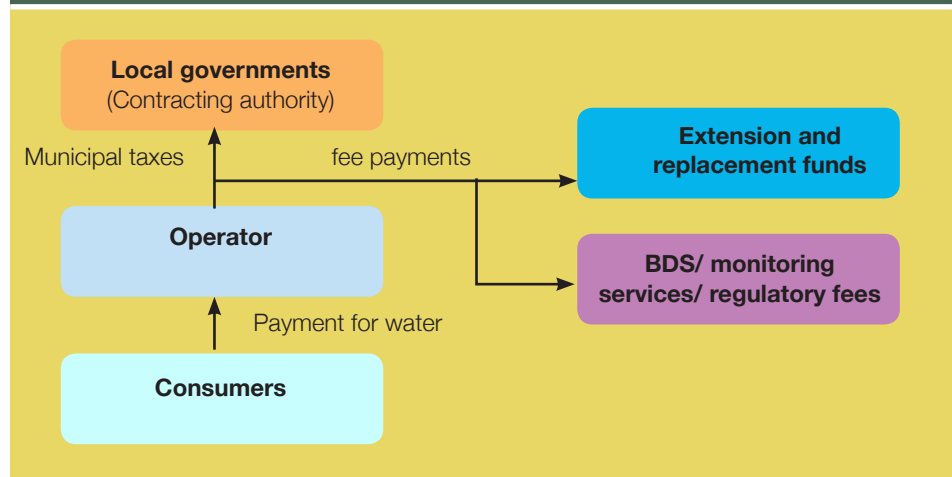
In the majority of cases, lease fees are paid on a monthly basis in proportion to the number of cubic meters of water produced or distributed. In Rwanda however fixed lease fees are used. Generally, the lease fees are deposited in a 'replacement and extension fund', which is a bank account in the name of the contracting authority. To ensure that money is used appropriately some funds require the signature of both the contracting authority and the operator.

In Benin, Mauritania, Mali and Rwanda the lease fees often include the non-cash depreciation charges for the pumping and energy equipment. Hence, the operator does not directly bear the financial responsibility of replacing the most critical equipment in a piped water operation. In that regard, these PPP contracts do not really meet the criteria of what is generally understood to be an affermage-lease contract. The contracts are also shorter than normal, ranging from one to five years, rather than five to fifteen years.

In Senegal ASUFORs are granted 'interim service agreements' stipulating that they are responsible for replacing the pumping equipment. These are effectively simplified forms of affermage-lease contracts. Management contracts between ASUFORs and individual managers exist and are usually 1-year fixed fee-based contracts.

PPP contracts in Burkina Faso correspond the most closely to affermage-lease contracts. Energy and pumping equipment is the responsibility of the operator under 5-year renewable contracts. Except for local government taxes, the contracts do not provide for any lease fee payments to the asset owner, which are the local governments. In Rwanda, PPPs were put in place by districts with no specific

Figure 5: A typical PPP financial flow chart



guidelines other than those defined in the procurement guidelines and sectoral policy, which deal particularly with the principle of cost recovery. PPP standards and model contracts were introduced as a result of evaluations of the PPP projects carried out in 2007 and 2009.

In Mauritania, other than the recent PPP contracts signed between central or local government and private operators, the contracts signed between ANEPA and individual scheme managers are management contracts that fall under a contract between the State and ANEPA.

Defining operators. Operators are usually individual entrepreneurs, economic interest groups (also known as *groupement d'intérêt économique* or GIEs), non-governmental organizations (NGOs) or very small businesses. The largest group is that of self-employed entrepreneurs. Individual entrepreneurs, such as shopkeepers/traders and retired civil servants, generally reside in the service area and are entwined

in the local social fabric. In Niger, Rwanda and Mali nearly 50 per cent of the operators are individual, self-employed entrepreneurs. In Mauritania almost all the schemes are managed by self-employed individual operators. The reason often cited for the preference for individual entrepreneurs is that they reside in the service area and are known locally. They are not 'foreign'.

The GIEs², NGOs and very small enterprises are most often locally established or established especially for a particular PPP. They are often run by former water user association representatives who are willing to continue operations under a PPP arrangement. In Niger, the category of operators covers 44 per cent of the operators, and 60 per cent of the schemes are run by operators that run more than one scheme.

²A GIE is a legal entity whose activities must be ancillary to those of its members, and, as with a partnership, any profit or loss it makes is attributed to its members. Thus, although it is liable for VAT and employees' social insurance, it is not liable for corporation tax. There is no limitation of liability to capital; the GIE can only be an accessory to a member's main activity; and a GIE has a specific mission and a predetermined lifespan.

Key service delivery sustainability risks persist: structural operational imbalances, poor maintenance support and management capacities



A private water connection reduces the distance a young girl has to make to fetch water in Senegal

There are also larger companies operating water schemes. These are most often consulting companies or firms carrying out works in the water sector that wish to diversify their operations. These are regionally or nationally established small and medium sized businesses, which in some instances are supported by an international business partner (with one case in Burkina Faso and Rwanda respectively). Larger operators make up less than 10 per cent of the total number of private operators, except in Burkina Faso where they constitute a hundred per cent of the operators. The large operators tend to come forward when a number of schemes are bundled under one tender, such as under the regional solar program in Niger and the reform implementation program in Burkina Faso.

In Senegal, operating leases are held by users associations, which in turn sometimes contract a self-employed

entrepreneur to run the day-to-day services in return for a fee that includes a variable element based on the amount of water produced or sold. This is very similar to a management contract.

In Burkina Faso, Mauritania, Niger and Rwanda, several schemes within a geographic area are in some cases entrusted to the same operator. The advantage of this is the economies of scale achieved and the fact that it can interest larger bidders with greater experience and capacity. This clustering under a single operator may come about if an operator wins several successive tenders in the same area, as is the case in Niger, or if several schemes fall under one tender as in Rwanda, Burkina Faso and Mauritania. In Burkina Faso and Niger operators manage on average five to ten schemes each. One operator in Niger operates 24 schemes. In Rwanda, where each scheme is generally larger, the average is three schemes per operator.

PPP achievements

Public-private partnerships bring about service improvement and efficiency gains. The efficiency gains are achieved through improvements in billing and collection (mainly because formal operators are less subject to social pressure than socially-entwined community based organizations) and through more proactive and responsive asset management, which in turn limits losses in the event of leakages etc. The separation of functions also makes it relatively easier for the contact authority to hold the operator accountable. In terms of service quality, The review noted that private operators are better organized to respond to the demand for private connections. The review describes several experiences to illustrate this.

A piped scheme assessment conducted in Niger in 2009 covering 200 schemes, which made up over 30 per cent of the schemes in the country at the time, concluded that although private operators do not solve all the problems, they perform better in terms of numbers of malfunction level, replacement fund accumulation, and quality of reporting.

In Mauritania the remarkable number of household connections (about 32,000) put in place between 1994 and 2004 without any external subsidies is the proactive conduct of the self-employed scheme managers. Similar results were noted in Rwanda in 2009.

In Burkina Faso the government attracted international, professional companies through 'build-operate-transfer' tenders without any major impact on the price of water.

While limiting the role of local government in service delivery, public-private partnerships

strengthen local governance. In all the countries surveyed, water is a primary concern of citizens, and therefore also of elected leaders, with their tenures often judged by the performance of the water sector. We note that decentralization has given local governments the opportunity to sit at the heart of the decision-making process in the water sector, which was not the case under the community-based management model.

As PPP principles include the ring-fencing of internally generated funds and local governments are not involved in service delivery, transparency and checks and balances are imposed.

PPP challenges:

PPP assessments have been carried out in Benin, Mali, Niger and Rwanda between 2008 and 2010. Despite evidence of achievements, the studies reveal four major challenges in terms of implementing private-public partnerships on a larger scale. These have to do with: ownership of the PPP process by local stakeholders; risks to the sustainability of service; establishment of an effective regulatory system; and sustainable financing of infrastructure investments.

1. The PPP process needs to be owned by the stakeholders involved i.e. each stakeholder assumes respective responsibilities. Despite the overall policy framework, local stakeholders remain reluctant to contract services out to the private sector. These concerns need to be understood and responded to so as to ensure that local stakeholders engage in and own the PPP process.

Resistance to private operators. The introduction of private operators had

been resisted by water users associations in many places. Until the early 2000s, management by user associations had been promoted through significant capacity building exercises. Despite being much criticized, the community-based management model has shown results, especially in Senegal. These community-based organizations have also become important role-players in local development due to their capacity to finance social investments such as cyber coffees, ambulances etc as well as important events and festivities. The review noticed that in some places, in order to encourage the community to take 'ownership', people had been told that the water assets 'belonged' to them.

In cases where basic ownership and management questions have not been clearly resolved, contracting out to the private sector is often seen as unfair by

community organizations which have managed the assets over many years. If the use of a private contractor is enforced without the consent of community organizations it leads to opposition. Another common community fear in relation to handing over asset management to a private operator is that tariffs will be raised, but in fact these generally remain unchanged, with the primary focus being on increasing efficiency.

Local governments need to monitor contracts. Given that local governments exercise the role of contracting authority, they should be at the heart of contract monitoring. The review noted however that once contracts are signed local governments tend to focus only on ensuring that lease fees or taxes owed to them are paid. Other performance indicators are not monitored and feedback is not provided on operator activity reports, which

Box 2: The diversity of PPPs – three successful experiences

As a result of the Yungwe-Bikore 'design-rehabilitate-finance-operate' tender (a piped network of 250 km serving 190,000 people) a private operator, Aqua Virunga, was established in Rwanda. Aqua Virunga employs about 40 people and the costs of scheme rehabilitation, amounting to US\$ 250,000, have been met using initial equity injections supported by a participating loan from the Dutch water fund.

In the small town of Moribabougou (8000 inhabitants) at the outskirts of Bamako in Mali, a company called Zeina Hydro built a scheme in less than two years with a production capacity of 250 m³ per day, 50 km PVC with more than 400 household connections. Zeina funded all the investments using equity capital and internally generated funds (connection fees).

The Ndiass multi-village scheme in Senegal is a successful example of a user association holding the lease contract and contracting a private manager to run the scheme. After proactive management the scheme now produces 365 m³ per day and serves about 20,000 consumers through 650 household connections (in addition to stand posts). Ndiass has become a national benchmark in Senegal.

Contracting practices should be improved to ensure win-win PPPs for all parties

in turn encourages operators to ignore compliance with contract requirements. In Rwanda, for instance, the PPP process is often seen as an opportunity for local governments to offload their water service responsibilities. Local governments generally put more emphasis on the development of new infrastructure than on the quality of existing services.

2. Risks to sustainable service persist.

Major risks to the sustainability of services persist in the form of structural operational imbalances, poor maintenance support, and lack of management capacity. If PPP processes are to proceed, these issues, identified in recent studies in Mali, Niger and Rwanda, need to be urgently addressed.

Financial operating imbalances. Regardless of the type of operator, schemes are often not financially viable, and are structurally loss-making. This is because some water schemes are simply too small to generate a profit, and in some cases PPP feasibility studies were not carried out prior to contracting out services. These problems tend to occur in situations where tendering is restricted to operators from the service area, as the operators may have inadequate experience in water service delivery.

A PPP assessment in Niger shows that operators would sign contracts without first doing assessments of their own, and the difficulties would arise once the contract had commenced. Another problem is that contracts are often drawn up using incorrect assumptions. For instance, many pre-feasibility studies use consumption norms to guide business planning (typically 20 liters per day per capita), rather than actual consumption

levels, and as discussed earlier there is usually a discrepancy, with consumers often using less than 5 liters per day per person. A factor that is frequently overlooked as well is competition from alternative water sources such as traditional and modern wells, or hand pump operations (these are often included in lease contracts, but the contracts generally don't specify the terms of operation and they can be a source of competition to the formal operator).

During the first two or so years it is common for operators to have operating deficits (negative cash flow) as potential consumption has not picked up yet and growth projections have not been met. In Benin the study found that it may take two to three years before growth projections are met. This needs to be taken into account in revenue projections with, associated response measures if needed.

Preventive maintenance difficult or absent. Maintenance is of strategic importance as

diesel generators are used in more than 60 per cent of existing water schemes. For effective maintenance, operators need access to spare parts or technicians with the right experience (typically at 1000 hours, 3000 hours, 6000 hours etc). Although medium to larger operators are likely to have the capacity to carry out preventive maintenance, small or less experienced operators have to rely on external service providers. In Niger it is reported that only 8 per cent of the operators do so. The issue of securing an adequate maintenance service is high on Niger's agenda as the lack of maintenance increases the risk of early malfunction and system breakdown.

Poor management capacity. Limitations in management experience are found amongst community based organizations and private operators, especially self-employed, individual operators that are selected because they have local knowledge. This was found to be the case



Community members discuss the performance of their water provider in Senegal

in Rwanda, Niger and Benin. Without initial support to build capacity, these operators have difficulty performing basic accounting tasks (keeping track of income and expenditures, bank account transactions and cash management) and preparing activity reports.

3. Establishing effective regulatory systems. Effective regulation is challenging in the rural and small-scale sector. In most of the countries surveyed, the regional water services departments usually play an arbitration and mediation role in conflicts between users, or within users associations. However regulation also involves anticipating and preventing litigation through the systematic monitoring of performance indicators. As discussed above, several countries have made progress in this respect (BDS in Mali and Niger, the regulators in Rwanda and Mauritania). Nevertheless, none of the countries surveyed has an operational regulatory system covering its national territory, or sufficient capacity to effectively exercise regulatory authority.

There is no national analysis and evaluation system in place in any of the countries and no systems have been set up for the collection of national performance indicators. While regular gathering and processing of data about operations is a prerequisite for any regulation process, in these countries there are technical (logistics, communication) and financial (assumption of operation costs) constraints in relation to the establishment of a nationwide data collection system. The challenge of setting up such a system is all the greater in countries where the schemes are geographically scattered. To build nationwide data collection systems, lessons can be drawn from the BDS provided in

Mali, Niger and Senegal, described above. *Limited capacity to exercise regulation.* Three interdependent factors explain why contracts are not regulated: the already mentioned absence of national-level data collection systems; the inappropriate institutional set-up for rural areas; and finally, a lack of training for the staff members expected to carry out regulation tasks. In practice it is the staff of regional water departments who very often end up performing a regulatory function, despite the existence of regulatory bodies. The interventions of regional staff are informal, which means they are constrained in what they can achieve and enforce, and that they may lack the required skills. The 2008 BDS (STEFI) assessment points out that neither regional nor national water services consult the reports submitted by the BDS providers when carrying out regulation tasks.

4. Sustainable infrastructure investment financing is limited. Even with the introduction of private operators, financing of investments remains difficult. This is often because governments fail to follow through on their commitments, or because the private operator is unable to provide the needed financing. This is especially critical: we note that often local governments seem keen to offload ‘problem cases’, where extensive rehabilitation and new investments are needed, to the private sector (Mali is one example).

In Mali and Senegal, a study showed however that the most pressing investment needs would amount on average to around US\$ 100,000 per scheme. There is also appetite in the local microfinance and banking industry to participate in the financing of such infrastructure investments. For this to happen on a large

scale, however, governments need to put in place leveraging mechanisms that could be used to facilitate the project preparation phase, co-finance investments to ensure affordability and limit the impact on tariffs, and provide partial portfolio guarantees to banks. The governments of Mali and Senegal are currently developing such leveraging mechanisms, while drawing on the experience of the Microfinance and Output Based Aid project for small providers in Kenya (see Box 3).

The rural water financing mechanism in Rwanda which has just been designed is also an opportunity to extend the PPP experience to the local financial sector by using the financing mechanism to co-finance investments and provide the funding for upfront transaction preparation.

Towards more sustainable small piped water PPPs

One vision, one intervention framework

The development of coherent public-private partnership action plans supported by key development partners can strengthen the PPP process. In order to succeed, several thematic interventions are needed. Effective regulation cannot be attained without appropriate information systems, and sound PPP contracting cannot lead to the expected results without a stable enabling environment. The sector would benefit if all the development partners supporting

An enabling environment for the operators to ensure regulation, access to maintenance and financial services and products should be in place

PPPs (such as NGOs and bilateral and multilateral donors) pooled their resources in a more coherent way.

PPP action plans should be developed to set out a sequence of objectives and articulate the outputs and the timeline for each activity. Activities can be regrouped thematically or geographically to reflect the available support and the objectives of the various development partners.

The action plan needs to be flexible and should not enforce the pooling of resources where this is not attainable, but it needs to be coherent enough to ensure that each partner can articulate their contribution and what they expect from the others. The government must lead the process and ensure that it is aligned with sector policies. Mali attempted to do this by developing a coherent three-year action plan in 2008 (see Box 4). The plan is anchored in the Poverty Reduction Strategy Paper (PRSP) and national water program objectives and is supported by AfD, DANIDA, UNICEF, PPIAF and WSP. Similar initiatives are underway in Benin, Niger and Rwanda.

Building blocks for PPP action plans

Based on observations and on this review, a framework comprised of four building blocks that countries can use to move towards more sustainable piped water public-private partnerships is proposed (as depicted in Figure 5 and described in detail below). These building blocks are: sound contracting practices; a supportive enabling environment; adequate capacity among PPP stakeholders; and appropriate information tools and services. The framework, which continues to be developed and refined, is not a blueprint

Box 3: Financing small provider infrastructure investments – the K-Rep Bank experience in Kenya

K-Rep Bank's *Maji ni Maisha* program provides loans for water infrastructure to communities where consumers are willing to pay for clean and safe water. Investments financed under the program can include: development or rehabilitation of small piped water systems; development of water sources such as boreholes, springs or rivers; construction of water purification and storage facilities; and, installation of metering, billing, technical and financial management systems to improve the efficiency of water supply services. The key features of the loan program are: loans from KES 5 million to KES 10 million (about US\$ 75,000 to 135,000), covering up to 80 per cent of the project cost against a cash equity investment by the community of 20 per cent of total project cost. The maximum loan tenure is 6 years and for successful projects there is an infrastructure subsidy of 40 per cent, available from the World Bank Global Partnership on Output-Based Aid (GPOBA) program. USAID DCA provides the partial portfolio guarantee to K-Rep to enable them to respond to the demand from the local water operators without taking on too much risk.

Source: K-Rep Bank *Maji ni Maisha Handbook: Financing investments in Water*.

and needs to be adapted to each context. Some countries may already have implemented some of the suggestions made. The review emphasizes that performance assessment should be an ongoing process and hope that the suggestions made here will serve as a stepping stone in future reviews and that a platform is created to ensure that experiences are shared among countries.

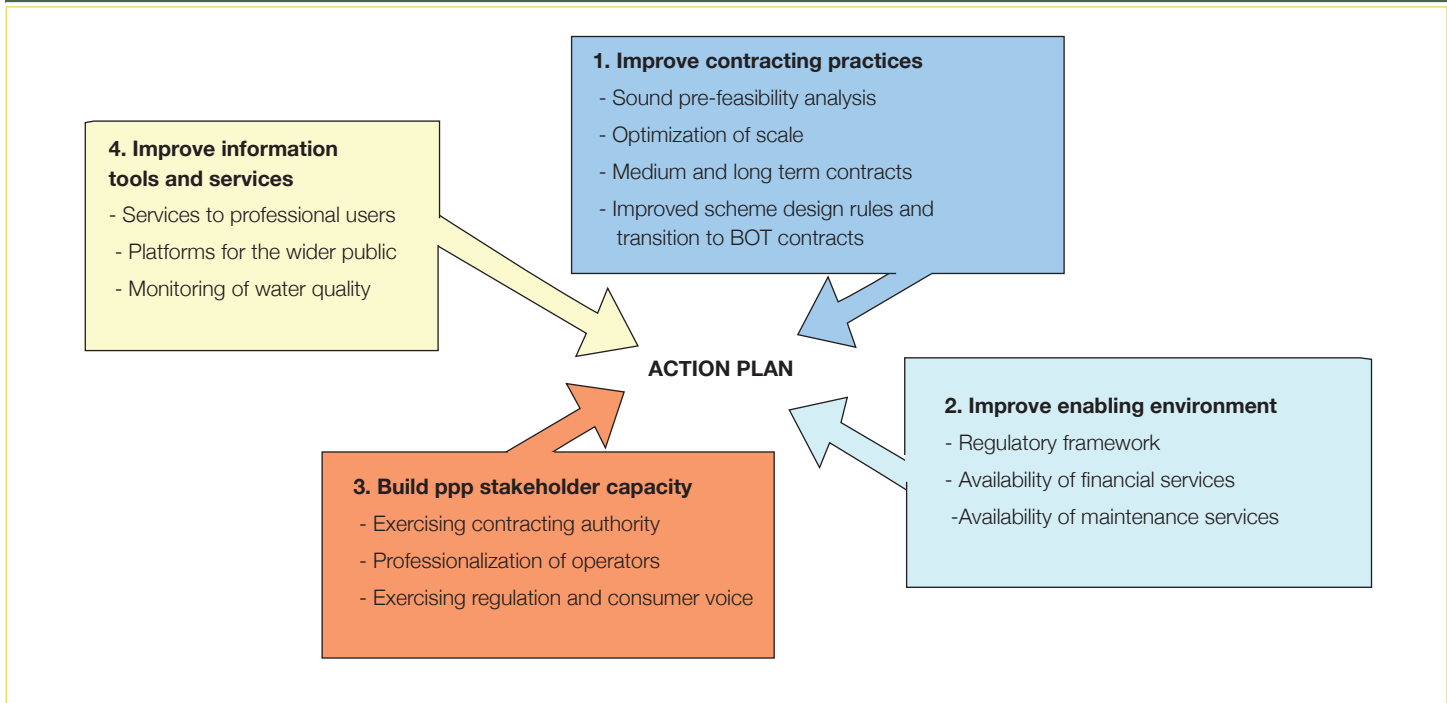
Improve contracting practices.

The public-private partnership process aims to increase the number of contracts through taking feasible measures to ensure sustainable water services. The entity responsible for contracting out water services must ensure that the contracting conditions allow for appropriate and sustainable arrangements to be put in place. This means that under the service

agreement it must be possible for a private operator to generate reasonable revenue, and for the operator to provide an affordable service. While this might seem obvious, The review noted that systematically this has not been the case, which has resulted in fragile partnerships with a number of stalemate contract terminations (in Benin and Rwanda, for instance). In order to mitigate these risks, the following actions should be considered:

Sound PPP pre-feasibility analysis. Prior to contracting out services, detailed *technical diagnostics* of the schemes are needed as well as development of a *business plan*. The technical diagnostics of the scheme should include an inventory of existing infrastructure, and an updated network plan, and it should identify necessary rehabilitation works and investment needs. This information should be attached to

Figure 6: Building-blocks for developing PPP action plans



the tender documents. This information is not so important for new or recent installations, but it is crucial for projects involving infrastructure that is more than three years old. The business plan provides guidance on the setting of tariffs/ lease fees so as to optimize the financing arrangements (internally-generated funds, operator equity/ debt contributions and subsidies). It is important to remember that schemes should be viable regardless of the operator profile. The profile of the operator is irrelevant to the success of the scheme if it is structurally unviable. The business plan (turnover and financial profitability) should guide the contracting authority in terms of operator profile and contract choice.

Size optimization: Bundling schemes under a single contract. This option is particularly

attractive where there is a concentration of small schemes that may not individually be financially viable, or which, on their own, offer limited potential revenues. Bundling schemes within geographical clusters can make public-private partnerships more robust as certain fixed and variable costs can be rationalized and shared across schemes and larger transactions will attract small to medium sized operators. This has been successfully piloted in Burkina Faso, Niger and Rwanda.

In practice, bundling of schemes is simpler if they fall under a single contracting authority, and more complex when cutting across several contracting authorities, in which case inter-local government structures need to be put in place. WSP, in

collaboration with the African Development Bank, is currently exploring the scaling-up of such bundling under the FRUGAL (Forming Rural Utility Groups and Leases) initiative. Pilot projects are expected to be implemented in 2011.

Medium to long-term contracts are needed. Current PPP contracts are too short and place limited financial responsibility on the operators, as investment provisions are included in the lease fees, with the contracting authority responsible for carrying out the investments. It should be noted however that in reality, operators are more often in the best position to carry out investments due to their skills and experience. Current contracts are generally too short and do not encourage

The capacity of PPP stakeholders needs to be built to ensure that adequate asset holding authority and regulation is exercised and to build a professional private sector

operators to invest their own resources. Contracting authorities therefore need to be encouraged to put in place true affermage-lease arrangements of at least 10-15 years. These should incorporate concession elements to ensure that the private operators can participate in the financing of extensions and connections and pump and energy equipment replacements, and if possible also the replacement of heavier infrastructure, such as boreholes and storage facilities.

Scheme designs need to be improved and build-operate-transfer (BOT) contracts should be explored. We notice that there is little optimization of systems, which may be either under or over-designed, and there are often technical shortcomings in the construction of the systems. This needs to be improved, as public-private partnership cannot resolve these issues. Build-operate-transfer contracts could respond to this and offer several advantages: the infrastructure is new and constructed by the operator that will run the services; the operator has a better understanding of the viability of the system; equipment and infrastructure mobilized for the construction phase can be used during the operations phase and so reduce construction and running costs; and during the construction period the operator can establish sound consumer and stakeholder relationships. The transfer back of the installations at the end of the contract period preserves the public character of asset ownership. As discussed above, build-operate-transfer contracts are currently being piloted in Burkina Faso.

Strengthen enabling environment. Sound public-private partnerships can only exist within a sound enabling environment with



A maintenance provider at work in Senegal

the right incentive structures. We suggest three immediate areas that should be addressed: regulation, access to sustainable financing for infrastructure investments, and professional maintenance services.

A sound regulatory framework is needed. Without control and monitoring, the various parties are not encouraged to perform, but regulation often falls short due to lack of resources and skills or simply pressure to regulate. Several countries are addressing this however, and Mali for instance is adopting a regulatory framework for public-private partnership.

The focus is on identifying roles and responsibilities, tools and procedures for data gathering (technical and financial),

analysis and feedback and adopting ICT solutions and BDS to reduce the cost of regulation and to make it effective. But in order to regulate comprehensively, governments need to make sufficient resources available for regulating rural contracts, not just those in urban areas and small towns.

Sustainable financing of small provider infrastructure investment. Operators need access to finance to carry out rehabilitation and to develop the infrastructure. The local financial sector has expressed an interest in participating in such investments, but to achieve this at scale, it needs to be structured and government needs to play its role: providing guarantees, co-financing etc in addition to the other

elements listed in this paper. This has been successfully done in Kenya, with development also underway in Benin, Mali and Senegal. Extending public-private partnerships to local financial institutions will not only attract more resources to the sector, but also provide more reliable funding, as donor funding is often ad hoc and governments may fail to meet commitments. The participation of local financial institutions will instill market discipline in the financing and promote good corporate governance in the sector.

Professional maintenance services need to be strengthened. As over 60 per cent of the schemes use diesel generators, professional maintenance services are critical for the continuity of services, especially where there are self-employed or small operators with low internal capacity. There is still much to be desired in terms of ensuring the availability of good quality consumables such as lubricants and spare parts, as well as the skills needed to undertake more complex maintenance services, such as engine overhauls and pump replacements. Attempts need to be made to decentralize and localize the supply chain while ensuring competition 'in or for the market'.

The project to transfer preventive and curative maintenance services to more than 500 schemes in the central zone of Senegal is an example of an innovative approach to maintenance supply among the surveyed countries.

Strengthen PPP stakeholder capacity. As capacity issues are ongoing, sustainable capacity building solutions need to be put in place for all stakeholders.

Transformation of citizen voice and user associations. As the private sector

replaces user associations in the day-to-day management of schemes, water user associations can play a key role in representing the voice of consumers and citizens. For instance, associations can represent the public in investment planning and in monitoring water quality. Training and outreach may be needed in order to ensure that associations can successfully play this new role.

Exercise of asset-holding authority by local governments. Given the new asset-holder role that local governments are required to fulfill, it is important to build their capacity to carry out tenders, supervise contracts and fulfill their obligations. As piloted in Mali, support packages, including model contracts and tools, can be developed to assist local governments to prepare bidding documents, and the services of consultants can be engaged to help local governments carry out pre-feasibility studies. It is envisaged that in the medium-term local water departments will provide more of this type of support.

Professionalization of operators. Capacity constraints at the level of the operators have been identified in all the countries surveyed, especially since many operators are individuals from within the services areas as opposed to larger operating companies. The capacity limits are technical, administrative, and managerial. As in a Rwandan pilot project, capacity building can be organized around training or improvement modules for each key functions/ posts: stand post vendor, meter reader, pump operator, plumber, accountant/ treasurer, manager. The training uses standardized tools and learning materials. In order to ensure sustainability, the training modules should

be incorporated into the services provided by existing training organizations, and operators should be required to pay a partial fee to contribute to the costs.

Implementation of effective regulation. None of the countries surveyed has an operational regulatory system covering its national territory, or sufficient capacity to exercise the necessary regulatory authority. As mentioned, in most of the countries regional water services departments very often serve as de facto regulators. In that respect, it is necessary to clarify functions and roles and set up capacity building programs, especially at local level so that personnel can master the complexities of PPP contracting and regulation

Strengthen information platforms and services. For public-private partnership to be successful, information flows need to be ensured and business support services are needed. In our sample countries we identified several initiatives in this direction, which could be built on, notably the accounting and technical advice services provided on a cost-recovery basis in Mali and Niger and the introduction of ICTs in Senegal and Mali.

Information and monitoring services. A sustainable data collection, analysis and evaluation system is essential for the monitoring of public-private partnerships. This requires three preconditions. First, for the organizations in charge of regulation, there must be enough people with the necessary skills to deal with data collection: in terms of both the quantity of data and the frequency of collection. This is difficult to balance, however, as schemes are scattered over extensive areas. Secondly, sustainable financing is needed to meet operational expenditure

Sound information tools and services to improve lessons sharing, monitoring and reporting in the sector and scheme management need to be developed

for the systems. Currently, cost recovering services, where operators and de facto end users pay, appear to be the only reliable option, as public resources are scarce and also less consistent, despite issues around the recovery of BDS fees. Thirdly, the system needs to be officially adopted by the authorities and all stakeholders in order to reach a scale that ensures cost-effectiveness. The BDS provision in Mali, Niger, and Senegal, as well as alternative approaches, such the 'management center' for the federation of water schemes (ADAE), which supports 22 water schemes in Burkina Faso's Bobo Dioulasso region, can serve as inputs for further reflection about how to develop a national information collection and monitoring platform.

Citizen engagement and transparency.

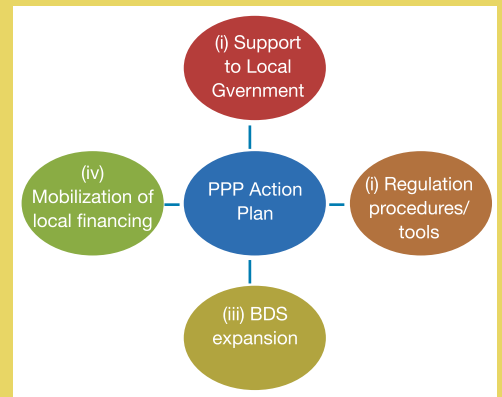
There is still a lot of room for improvement in citizen engagement, which will benefit the PPP process if it is well managed. For this purpose, public information portals could be used to ensure cost-effectiveness. Countries can learn from the relative success of the Senegalese Millennium Development Goal water program, PEPAM's internet portal experience in engaging citizens in the sector, especially at local level. WSP is currently supporting the WatSan platform (an internet site with online tools) that will enable countries in Africa to develop rapidly and host their own free country WatSan internet portals to: i) improve governance efforts in the sector at all levels of decision-making by providing public information on access to safe water and sanitation at relevant levels, which in turn will encourage transparency and accountability by providing a channel for dialogue with citizens; ii) provide continued monitoring of installations, including rural and semi-urban water schemes; and iii) allow effective resource allocation based on reliable and regularly updated data.

Box 4: The small scheme PPP action plan in Mali

Since 2008, the National Water Department in Mali (DNH) has supported the efforts of municipalities to adopt alternative solutions to the community-led management model in rural and small town water supply. This is in an effort to professionalize water services by forming partnerships with the local private sector. As a result, 21 small piped water systems are under private management, covering a population of about 300,000. Another 25 public-private partnerships are underway.

DNH is currently implementing a coherent public-private partnership action plan with support from AfD, Danida, UNICEF, PPIAF and WSP to ensure the success of the PPP process. There are four key components to the PPP action plan: i) Local government support: Municipalities receive support for carrying out bidding processes (scheme diagnostics, business planning etc); ii) Regulation: DNH is implementing a regulatory framework with adapted tools, procedures, and monitoring/ control measure to ensure that the public-private partnerships put in place are effectively regulated; iii) Scaling up business development services.

Currently 132 water systems are audited (technically and financially) by two private BDS providers on a cost-recovery basis. This is now being scaled up to include the majority of the 700+ small piped water schemes. To enhance BDS services and facilitate information collection and sharing in the sector, mobile-2-web services are being piloted; and iv) Financing of rehabilitation and scheme expansion needs: As rehabilitation and expansion of services have been identified as one of the key bottlenecks to successful public-private partnership, DNH is exploring partnership options with microfinance institutions and local banks, so that operators and municipalities can gain access to funds on a sustainable basis for their investment programs. This is especially important in a sector in which donor funding often goes towards creation of new systems.



Source: Action plan for the development of WSS centers operation in rural and semi-urban areas, National Directorate of hydraulics, February 2009

Monitoring water quality. In all the counties water quality indicators are included in the public-private partnership contracts, but the quality testing provided in the contracts is rarely undertaken, as access

to laboratories is limited and unit costs are high. In addition, water quality monitoring needs to go beyond the technical aspects and also include hygiene.

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