Water, sanitation and hygiene are vital components of sustainable development and the alleviation of poverty. Across Africa, political leaders and sector specialists are generating new momentum in these important areas. This Field Note, together with the others in the same series, constitutes a timely contribution to that work. It is intended principally to help politicians, leaders and professionals in their activities. As the Water Ambassador for Africa, invited by the African Development Bank and endorsed by the African Water Task Force and the African Ministerial Conference on Water (AMCOW), I commend it to your attention.

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Summary

There is plenty of written material describing the different options for water services in large cities. There is also a large body of knowledge about community management of (mostly small-scale) water supplies. This Field Note looks at the intermediate case of water supply in small towns. Millions of Africans live in small towns or peri-urban areas. These places are generally too large for community management to work effectively, but too small to warrant the involvement of large private companies or water utilities. It is therefore necessary to find new approaches for the management of their water supplies.

In Mali, voluntary-sector Users Associations manage water services in the peri-urban areas. A parastatal organisation gives them technical and financial advice and support. Its costs are covered by a levy paid to it by the Users Associations, calculated in proportion to the volumes of water that they supply. In Mauritania, young graduate entrepreneurs provide water services to individual towns under a contract from the government. Working with the communities, they extend the distribution systems and install private connections. In Niger, a medium-sized private company has financed the rehabilitation of particular small-town water supplies and has taken over their operation, without any external financial support. In Tanzania, Uganda and parts of Niger, small local private-sector companies have won tenders to manage or lease water systems.

These few examples demonstrate a wide range of institutional arrangements. They show the flexibility and dynamism of small and medium-sized water service organisations across Africa. In all cases, the decisions on institutional arrangements rest with the local or national government. The operators generally aim to increase the number of private connections in order to offset their fixed costs against a larger volume of water sold and hence reduce the prices to the consumers. They can achieve economies of scale at the level of single towns. With appropriate professional support and regulation, both non-profit organisations and commercial companies can provide good water services in small towns.
Background on water in small towns

Small towns, large rural villages, peri-urban or auxiliary centres are among the terms used to describe African settlements of between 5,000 and 20,000 inhabitants. The economy in these settlements is mostly informal and the sense of community is diminishing. The proportion of the African population living in centres of more than 5,000 inhabitants has risen from 13% in 1960 to 40% in 1990. It will reach 60% by 2020.

Supplying these centres with drinking water is a sizeable challenge. For example:
• Of 600 rural and peri-urban centres in Mali, with 2.5 million inhabitants, about 200 are currently supplied with water.
• In Burkina Faso, by the end of 1999, only 140 out of 800 peri-urban centres were supplied with water. The National Water and Sanitation Office (ONEA) operates water services in 30 small towns of about 10,000 inhabitants each.
• 330,000 Ugandans live in 45 small urban centres. Between now and 2010, the government has set targets for private connections to increase from 1,400 to 17,100 and for the volume of water distributed to increase from 0.3 to 3.8 million cubic metres.

Drinking water supply in such places relies on a system midway between community management in villages and the commercial services of the urban world. The technology could be an improved source feeding a gravity-flow supply or a submerged electric pump in a well or borehole, powered by mains electricity, a generator or solar panels. Generally, there is a high demand for better water services in small towns and therefore this is a profitable activity even where users have access to free alternative sources (for example private or public wells or hand-pumps). In West Africa, the price of drinking water from such services varies from US$0.15 to US$0.65 per cubic metre.

Demand varies widely. Depending on the type of service, the daily consumption per person varies from approximately 5 to 35 litres. This variation is explained by the fact that, for certain uses such as laundry or bathing, many households continue to use their traditional sources, which are free. The quantity used can also vary by a factor of three between the different agricultural seasons. Public tapstands supply a large part of the population, while others obtain household connections.

As a result of macroeconomic pressures during recent years, most African governments no longer commit themselves either to manage or to extend water supply systems. Community management by volunteer users cannot cope adequately in small towns with growing populations, as they do not generally have the knowledge to renew or extend their networks (see box). Water supply systems for small towns are large enough to apply economies of scale, but too small and scattered for a conventional commercial water company to balance its operating costs. Hence there is a need to find new approaches and methods of managing these water services.

Some drawbacks of community management

Community management is an extremely effective concept, especially for small-scale supplies, but its limits should be noted. Being inexperienced, community-based water committees tend to manage their water supplies at the least cost. They do not try to optimise their functioning, for example by extending systems to sell more water and attain economies of scale. On the contrary, their approach is generally to minimise expenditure, sometimes even at the expense of preventive maintenance. The accumulated savings remain in a bank account.

Community management in principle makes it possible to reduce the salaries of the operation and maintenance workers. However, the actual management is often in the hands of a small group that may not be representative of all the users. This small group often monopolises control of the finances. Then the community management approach may translate into a compromise between the interests of the different social groups in an area. In the event of misappropriation, close social relations make sanctions difficult, and non-payment for water by some is perceived as normal. When a major breakdown occurs, the community may not be able to deal with it, because the savings have been spent for another purpose.
Examples and analysis of the experiences of small and medium-sized operators

Governments generally involve operators from outside the public sector, whether non-profit associations or commercial companies, in order to improve efficiency of operations and transparency of accounting. The simplest form of delegation is a management contract, in which the operator simply runs the water services and can be paid on merit, according to the results. Alternatively, the operator can raise the finance for the household connections and the extension of the distribution system. This financial commitment constitutes a form of lease contract.

The following experiences in five different African countries — Mali, Tanzania, Niger, Mauritania and Uganda — illustrate these types of approach.

In Mali, a unit established by the government supports and advises Users’ Associations

In Mali, the government’s National Water Directorate contracts the operation of small-town water supplies to civil society groups called Users’ Associations (UAs). The UAs work closely with a government technical unit called the Council for Supply of Treated Water (CCAEP), based in Bamako. Communicating by radio, CCAEP routinely records operational details, guides the work of the UAs and, in the event of a breakdown, can dispatch spare parts. CCAEP also checks the monthly accounts of each operator, and its staff visit biannually to verify the condition of the water supply systems and to balance the operating accounts with the General Assembly of the UA. Each UA contributes to CCAEP a surcharge of US$0.025 per cubic metre of water produced.

This arrangement brings together the voluntary work of a local association and the expertise of specialists. The improvement in financial management is impressive. On comparing the results of six operators that have been working with CCAEP for between three and six years with those of three operators not working with CCAEP, it is noted that:

• Those working with CCAEP have an average gross operating surplus of nearly US$7,000 per year, and redeem an average US$1,300 after capital allowances; those not working with CCAEP make a loss on both counts.

• Those working with CCAEP have, an average, five times more net available funds.

Between 1996 and 2000 the average price charged by UAs to their customers fell in real terms from US$0.55 to US$0.30 per cubic metre; the variation between the prices charged by different UAs also reduced.

The model poses an apparent paradox: a surcharge allocated to support and advice does not entail an increase in the price of water. On the contrary, the system makes it possible to identify and resolve the problems that are beyond the competence of the local operator. The latter has to observe the schedule of preventive maintenance. The result is that breakdowns are less frequent and last for shorter periods. The volume of water sold increases and the unit cost of water produced falls.

Tanzanian districts own their operations and contract out the water service

In Tanzania, district governments are the owners of their water sources and infrastructure. They co-finance, with the help of the central government, the construction of infrastructure. For example, the Morogoro District drinking water programme comprises 22 separate water supplies, of which 14 serve more than 5,000 people and the biggest serves 28,000 people; the majority of people use public topstands. The water supplies are supervised by Water and Sanitation Boards, which come under the district government. These boards contract out the actual
management of the services to private water companies, some of which employ paid staff and use external auditors.

In this institutional structure, there are three types of contracts, linking the four partners involved:
• The district and the ministry responsible for water sign a memorandum of understanding stipulating the co-financing arrangements.
• The district creates, by decree, the water authority (Water and Sanitation Board). A performance contract indicates the tariff policy and the level of service to be guaranteed.
• The Water and Sanitation Board selects, through tender, an operator which signs a management contract.

Each operator is paid a set amount plus a series of incentive measures. For example:
• The production of water is remunerated in proportion to the volume sold.
• Maintenance of the system is remunerated in accordance with its length.
• Recovery of bills is remunerated in accordance with the number of customers paying their bills.
• A unit bonus is provided for each new connection made.

According to projections, a typical operator’s profit margin is about 10% to 15% of the operating cost, and the operation is profitable after six years. The price of water charged to the users is expected to reduce.

Private operators in Niger have become active in several ways

Sector policy in Niger now favours the contracting of water services to private operators. Three types of contract coexist in the country:
1. Formalising a local initiative

A Nigerien company, SONEXIE, manages the water supplies in six centres in the north of Niger. SONEXIE started when its current director was told by the local chief in one village that the water supply had broken down and there was no project to assist them. He then worked with other local entrepreneurs to repair and replace some of the equipment. The same situation recurred in other places. To formalise their investment in this growing market, the group founded SONEXIE as a company. SONEXIE has capital of about US$6,500. The commissioning communities are shareholders in it. Their shares are financially insignificant, but entitle them to certify the annual financial report. The operator depends on economies of scale, even if in certain cases the selling price of water has to be reduced. SONEXIE aims to break even within its first five years.

In order to make the agreement signed with the community leaders official, the ministry responsible for water devised tripartite contracts between the ministry, local government and the contractor. These contracts set the price of water. In all cases, the assets remain the property of the state. Because the company had financed the rehabilitation work, it was entrusted with managing the water services for a fairly long period of time (five to six years).

2. Tendering for competition

Following an invitation for tenders for the operation of water supplies in eight centres, many bidders expressed their interest. Among them were independent entrepreneurs, businessmen and retired civil servants. The contracts were signed with six successful bidders (two of whom each won two different contracts).

Consumers Associations protect the interests of consumers in their capacity as the consultative groups, closely collaborating with the regional governments’ technical departments. This approach avoided grouping together many town supplies into a single contract. The advantage is that each community has a local operator with which it can negotiate and discuss in the event of problems.

The contracts stipulate that 30% of the turnover is deposited in a bank account for the renewal of infrastructure, 68% goes to the operator to cover its operating costs, 1% is allocated to the Users’ Association, and another 1% to the financial audit of the operation.
3. Entering into a large contract with a multinational company

The government felt that a single large contract was the appropriate method to serve the largest towns and cities. So in June 2001, the Niger National Water Company, SPEN, contracted to Vivendi the operation of water services in the capital Niamey and 50 centres, the smallest of which had 10,000 inhabitants.

Mauritanian operators reinvest part of their profits in the improvement of the systems¹

In 1995, the president of Mauritania prioritised the employment of young graduates. This gave an opportunity for the Directorate of Water to replace the existing water service operators by new ones. These young graduates were chosen primarily for their level of education, each one of them becoming the concessionary in his or her area of origin. All the country’s 250 pumped water supply schemes progressively came under private management, except 12 schemes managed by the state monopoly.

Mauritanian concession contracts are simple management contracts for one year, renewable at the discretion of the government. Some of the operators finance, from their own funds, major repairs and renewals. Extensions of the systems are generally financed either by the individual households or by the local government, supervised by the operators.

Overall, these young entrepreneurs have managed to extend the systems (by 150% on average) and to encourage more private connections. They benefit from strong social legitimacy and operate like commercial micro-enterprises. Less than 10% of the contracts were terminated after one year, and the average duration of contracts is four to five years.

In Uganda, small companies concentrate on cost control and efficient billing

Under the Ugandan Government’s sectoral reform and decentralisation programme,² the district governments favour contracting the management of several town water supplies to a single operator. Following an invitation for tenders that elicited 41 responses, the ministry responsible for water concluded management contracts with two Ugandan private operators, covering a dozen small towns. The contracts came into effect in July 2001.

Kalebu Ltd (see box) has the contract to supply water to five towns with an average population of 40,000 whose

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¹ The arrangements in Mauritania are being studied in depth by the Water and Sanitation Program, which plans to issue further publications on them.

² See Blue Gold Field Note 3: Water and Sanitation Sector Reform in Uganda.
number of private connections varied from 170 to 250. The systems function independently of each other, with a team of about six employees per centre. Their accounting methods and procedures are identical. The technical results are encouraging, with a billing rate that has reached 98% and a recovery rate in the order of 90% of the amounts due.

However, the operator has experienced difficulties with its partners. For example, applications for private connections had already been received over several months. It was agreed that the ministry would administer a contract for subsidising and managing about 300 private connections per town. The operators’ financial planning assumed that these connections would be made within three months. But the ministry was still calling for tenders months later. It appeared that the ministry had overlooked an essential aim: to attain, as far as possible, economies of scale for each of the towns. This may have been only a frustrating consequence of bureaucratic procedures. However, the resultant delay failed to take advantage of the resourcefulness of the Ugandan entrepreneurs who had already proved themselves.

Lesson

Local small and medium-sized organisations are a viable option in small towns

The middle ground between community-managed rural water supplies and large urban utilities is not yet sufficiently documented or understood. The examples given here from several African countries show that local small and medium-sized organisations, either non-profit or commercial, present a viable option in that intermediate area of small-town water supplies.

In the different countries described, and in one case in different places within the same country, different institutional arrangements have been chosen. The choice of operator and contract rests with the local government and, ultimately, the people served. The important factor in choosing a successful system is to recognise the capabilities of the various types of organisation and the conditions that will enable them to operate a good-quality service to the people. The viability of this service depends on clearly written contracts that define the operator’s financial autonomy and obligations.
Economies of scale can be achieved in a single town

The financial viability of a small-town water supply service depends on the ability of the operator to attain the appropriate economies of scale with regard to the fixed charges. Much of the economy of scale occurs through offsetting fixed charges against the largest possible volume of water sold. To this end, the priorities should be to minimise breakdown times and increase the number of private connections. However, this does not automatically mean that the largest operators are always the most cost effective. For example, in Niger, an annual turnover of about US$4,000 appears to be the break-even point for small operators. In terms of the volume of water sold, this threshold lies between 10,000 and 15,000 m³/year.

This illustrates a simple principle: a small operator with modest operating costs, which will be satisfied with fewer benefits, can achieve profitability at a lower turnover than a large company with high overheads. It is not always necessary to combine a number of small-town supplies into a single operator’s contract. Well-publicised benefits of scale such as buying fuel wholesale or having technically qualified staff to cover several centres contribute only marginally towards reducing the operator’s unit costs.

Non-profit water companies need professional support

A water supply operator does not have to be a commercial company. Non-profit organisations, such as the Users’ Associations in Mali, can also manage supplies. The important characteristic of the operator is not whether it aims to make a profit but whether it performs its task well.

In the case of non-profit organisations, they generally need some external professional support because they tend to have few professional staff themselves. The additional cost of external professional support is compensated for by the less frequent breakdowns, improved bill collection and other efficiency gains based on this advice. Thus professional support actually contributes towards lowering the unit cost (and hence the price to the users) of water. It is more expensive to leave a community group to fend for itself without support.

Regulation and audit are important functions

Both the competition at the time of issuing the contract and the measures contained in it tend to lower the price of water. Competition between candidates should therefore be encouraged. Once the contract is signed, the government can:

• Carry out audits to verify the financial accounts and note the technical state of the installations.
• Review the implementation of the contract, showing the evolution of the performance indicators over time.
• Annually publish performance indicators for all the country’s water supply services (benchmarking).

There is a real risk of overcharging, especially if the operator has a monopoly. It is therefore important to put in place not only checks and balance as near the users as possible, but also a regulating mechanism to ensure adherence to the contract. Both public authorities and local community-based organisations can audit the water services and compare technical and financial offers. It is in this way that free competition between candidates for operating the services can be ensured.
The Water and Sanitation Program is an international partnership to help the poor gain sustained access to improved water supply and sanitation services. The Program’s main funding partners are the Governments of Australia, Austria, Belgium, Canada, Denmark, France, Germany, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom; the United Nations Development Programme, and the World Bank.

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References