



UNDP-World Bank
**Water and
Sanitation
Program**

The Potential and the Limits of Private Water Providers:

*Independent Sellers in Francophone
Africa*

by Bernard Collignon

The purpose of the Working Paper Series is to share information in order to stimulate discussion, broaden thinking within the sector, and encourage dialogue among our clients in developing countries. These papers have not been formally published and your comments and feedback are welcome. Please send to: Water and Sanitation Program, World Bank, 1818 H Street, NW, Washington, DC 20433, or via email to: info@wsp.org. Copies of these papers are also available on the Program website: www.wsp.org.

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Introduction

"The Potential and the Limits of Private Water Providers - Independent Sellers in Francophone Africa"

by Bernard Collignon was originally delivered in May, 1998 as a presentation at the Community Water Supply and Sanitation Conference held in Washington by the World Bank, the Water and Sanitation Program and the Economic Development Institute. This translation marks the fifth in the working papers published by the World Bank/UNDP Water and Sanitation Program. This series is directed at practitioners and decision makers actively involved in the provision of water and sanitation services, especially to low-income urban neighborhoods. Papers are selected not only for the interest their themes may spark, but also for their utility and relevance to the issues which face the sector at the practical, working level.

With this paper, which develops lessons from experiences in francophone countries, mainly in West Africa, we continue the Water and Sanitation Program's tradition of sharing the findings from different parts of the world. The first four papers included Raquel Alfaro's "Essays on Public Utility Companies and Service to the Poor" based on the experiences of the municipal water company of Santiago de Chile; Dale Whittington's "The Neighborhood Deal" drawn from studies and plans for an Indonesian urban community; Harvey Garn's "Lessons from Rural Water Projects" which analyzed the World Bank history of water projects in rural areas; and Yoko Katakura and Alex Bakalian's "PROSANEAR; People, Poverty and Pipes" relates the story of Brazil's innovative approach to wide-scale sanitation.

This paper marks a new direction for the working paper series, however, as it introduces the theme of the role of the private sector in service provision for the poor. In this case the private sector does not refer to large scale concessions, management contracts and mergers, themes which have recently predominated in discussions of water provision worldwide.

Mr. Collignon focuses instead on the informal sector and on the small scale providers who have perhaps played a far more important role in service delivery, but who have rarely merited consideration from analysts and stakeholders in the water and sanitation sector. Collignon's paper is based on the combined findings of a series of studies carried out over three years in four different countries by HydroConseil, with the support of Programme Solidarite en Eau (PSEAU). It comes out at a time when analysts in England and other first world countries are suggesting that an open market in water and sanitation service delivery might

not only be possible but might also offer comparative advantages to the traditional monopolistic model. Mr. Collignon's work goes one important step further in demonstrating that the open market is a reality.

Beginning with an analysis of the financial viability of umbrella or national water operations, Collignon's paper suggests that the small scale operator may enjoy an advantage when it comes to providing services in smaller settlements where the national operator with a single service delivery system rarely breaks even. Mr. Collignon goes on to describe the nature and types of informal water servers based on studies in Nouakchott, Mauritania; Port au Prince, Haiti; Kayes, Mali; Dakar, Senegal; Niangologo and Bobo Dioulasso in Burkina Faso. The cities studied range from populations of 12,000 to 2,000,000. In all the cases the following findings remain true:

- Private operators from the informal sector play a significant role in serving the low-income communities
- Private operators and small scale distributors generate an important number of jobs
- Private operators supply water at relatively high prices, but do so in direct response to consumer demand and willingness to pay
- The role of the private and informal sector is reduced as the public sector improves its services.

Mr. Collignon has a special relation with private water servers. During his two years as a professor in the Congo he depended on informal vendors for water and sanitation services. He later studied hydrology and has helped to plan and construct water supply systems in many African countries including a ten year stay in Algeria. As an associate of HydroConseil he has investigated key aspects of water delivery for the poor. This paper recapitulates findings of a long term and path-breaking study which he directed in association with PSEAU.

The study helps us to appreciate the important role which the informal sector plays in serving poor people and brings out a final recommendation, always to carry out a careful study of the existing services systems offered by the private and informal sector before new service systems are to be offered. To quote Vincent Gouarne's paraphrasing of the Hippocratic oath, "the first duty of the practitioner is to do no harm to the water sector." The first step is to recognize the water and sanitation delivery services which are already at work as symptoms of a healthy sector.

Brian Grover
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This paper presents the principal results of a research program piloted by HYDRO CONSEIL to evaluate the current role, the potential of and the limitations on private operators in water distribution in secondary centers and in poor residential districts of large cities". This is not university research; it capitalizes on the experience of eight organizations (NGOs and consultant agencies) engaged in water provision programs in five different countries.

This research work is linked to a broader program of research on potable water and sanitation in peri-urban and small centers coordinated by *pS-Eau*.

The research program comprised two principal fields of study :

- Small towns and villages, with populations of 2,000-20,000; and
- Poor neighborhoods within large cities.

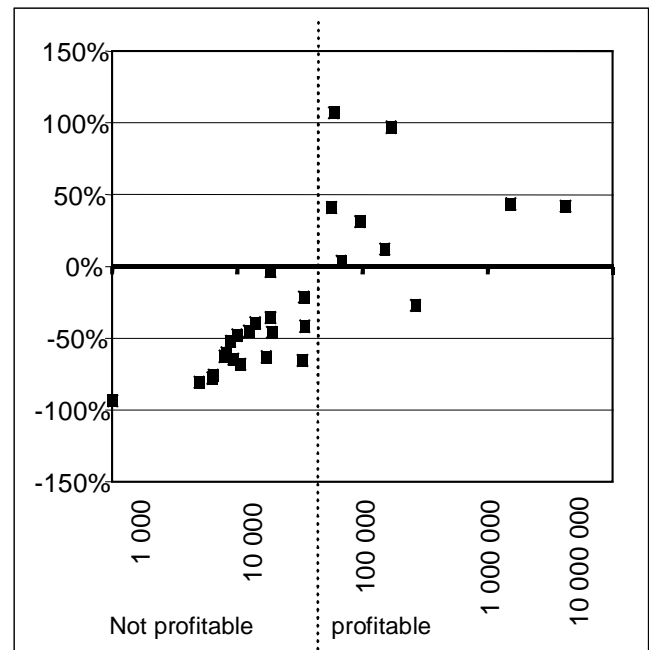
Water Service Companies in Small Towns and Poor Districts of Metropolitan Areas

National water companies rarely develop effective water supply programs in small communities (rural or urban) because they are not considered to be sufficiently profitable. As Table 1 shows, in Burkina Faso all the centers where the annual water revenues are less than 50 million CFA (\$US 80,000) are perceived by a centralized body such as the *ONEA* (the national water and sanitation agency for Burkina) as unprofitable. However a small local concession-holder which would limit its operational costs could probably sustain itself.

As for the inner city neighborhoods, the study was carried out essentially in densely populated districts with permanent housing, and not in shanty towns. The housing in these districts is often lacking in decent infrastructure (no paved roads, for example). While some districts lie outside city limits (e.g., Nouakchott), others are situated in the heart of the city (e.g., Port-au-Prince).

In all cities studied, water services have been delegated by the State to a monopoly enterprise (*SONELEC* in Mauritania; *CAMEP* in Port au Prince; *EdM* in Mali; *SONES* and *SDE* in Senegal; *ONEA* in Burkina Faso). All these are public enterprises, except the *SDE* which has recently been privatized.

Table 1: Profitability of Water Service Operations in Burkina Faso
(*ONEA* data, given in thousands of CFA francs).



Profitability here is measured by the ratio (in percentage) of the operating loss or profit to operational costs. The equilibrium point corresponds to about 50 million FCFA in annual gross sales revenue (\$US 80,000). Centers where gross sales revenue is low are not profitable. All the larger centers (except one) are profitable.

Steps Taken by the State, by Local Governments and by State-Owned Enterprises

In the period from the '50s to the '70s, when many African cities' growth was beginning to "take off", municipalities played a direct role in water distribution, managing the operation of the network and billing subscribers, etc.

Then, faced with a chronic deficit, most municipalities ceded the responsibilities for water service companies to a national State-owned enterprise. However, in most countries, the municipalities continued to manage standpipes for some years to ensure a free, minimal public service for the poorer segments of the population, paid for through general municipal taxes (trading licenses, market taxes, land taxes, etc.). Over the last decade, however, municipalities have gradually abandoned the direct operation of standpipes, since fiscal revenues could not cover costs. Municipalities have let the standpipes gradually close down or they lease the standpipes to private managers – the subject of the present study.

Municipalities now play practically no role, neither in setting tariffs or in designing infrastructure.

Water-related occupations in small centers

We find the following types of operators delivering water in Africa rural and peri-urban centers.

Concessionaires; the Mauritanian example

Over the last five years, there has been a lot of talk in a number of African countries of concessions or leasing small water distribution networks to local operators, private or municipal. As yet, this method of management has been implemented on a significant scale only in Mauritania, where 100 or so small networks – i.e., 50% of the countries' water supply – have already been "concessioned" to private operators. Mauritania is, therefore, the sole country where this method of operation can be observed in real terms. Its characteristics follow:

- all concessions are private, in spite of a 1993 decree which explicitly allows for municipal or State-owned companies to become concessionaires;
- most concessionaires are young professionals, rather than merchants or artisans;
- these concessionaires are natives of the towns or villages whose water service they manage.

"Pompistes" (Pumping station operators)

"*Pompiste*" is a term employed to describe the person responsible for operating the water pumping station that supplies most small centers. The *pompiste* is a mechanic, plumber and electrician, all in one. In Senegal, the *pompistes* often receive in-depth training (six months, full time) from Government agencies.

However, in spite of the major investment involved in a water pumping station, the *pompiste* does not enjoy a high profile among governments and users. Their work is often entrusted to poorly-qualified and low-paid people. This is particularly true in the Kayes region of Mali, where the profession has no status attached to it, and where the majority of *pompistes* earn under \$US 15 a month. The *pompiste* is often the only person in his town with the technical skills required in water pumping. While generally just an employee of the operator of the network, the *pompiste* could conceivably develop a small enterprise offering a full range of pumping services (gas oil, parts and

labor included), and charge according to output (i.e., the number of cubic meters pumped, or the number of pumping hours). Helping certain *pompistes* set themselves up as operators would probably be the least costly way of making the operation of pumping stations more professional, without requiring the presence of a centralized utility company which would be not only expensive but also largely ineffective for dealing with minor breakdowns.

Water Carriers - Carts, Wagons and Barrows

Water carriers using wheel barrows or other wagons transport limited volumes of water (200-600 liters) over distances of only a few kilometers from the points of supply. This method is used extensively in Sahelian towns with a population over tens of thousands (and particularly in three of the towns studied: Kayes, Dakar and Nouakchott). In contrast, the profession (and this type of service) is much less developed in Sudanese¹ or forest regions (Bobo Dioulasso, Yaoundé, Douala, Cotonou, Conakry, etc.), or in towns situated in hilly areas (Port-au-Prince, Praia, etc.). The likely practical and sociological reasons for the success seen in Sahelian towns follow:

- a strong demand for water (a long dry season and limited-supply wells);
- the relatively abundant supply of draught animals (horses or donkeys);
- towns which attract large numbers of farmers and farmers' sons looking for work and accustomed to caring for cattle – an activity seen here as high status.

The purchase of a cart or wagon represents a significant initial investment, often made by a relative already living in the town, who then leases the cart or gives it to a young relative. The animals who pull the cart or wagon may either be bought for this purpose, or brought directly from the water carrier's village. Carting water usually engages recent immigrants, or even seasonal migrants who return to their village each year (sometimes taking the animal with them). For these people, water transport is a supplementary activity in the dry season, or a springboard to other, more stable, work in the town. The typical water carrier is young (under 25), relatively poorly educated, and suffers from a low social standing – the absolute opposite of the standpipe manager who is typically older, well educated and enjoys a much higher social status.

¹ "Sudanese" refers here to the climatic zone situated in Africa between semi-arid steppic regions (Sahel zone) and the rain forest (sometimes called Guinean Zone.).

Standpipe managers

This is a formal-sector profession, since managers sign a contract with the water distribution enterprise which is generally State-owned. But, given its public nature, this activity tends to be more monopolistic than competitive. In most towns (Dakar, Nouakchott, Kayes), standpipe managers have lived for a long period of time in their district. They are likely to be people of note, respected and relatively advanced in years, often related to local politicians.

Taking over the management of a standpipe often involves a hefty payment to the water company – opening tax, subscription, advance on consumption, and in particular, repayment of debts run up by earlier managers or by the municipality.

Repair people

When we began this study, we intended to focus on small private operators in maintenance (experts in diesel engines, plumbers, pump repair people, etc.). However, field studies revealed that there are, in fact very few maintenance workers to be found. This is one of the most interesting lessons drawn from this research:

- In the Kayes region of Mali, there are no specialists in pumping station maintenance. Management committees generally call in Government mechanics to fix problems;
- In Senegal, the maintenance of water pumping stations is largely carried out by the *DEM*; for minor interventions (particularly those involving work on pipes), the committees call on plumbers, who are generally not up to the job;
- In Mauritania, regulations stipulate that maintenance should be carried out by the Hydraulics Brigade; in practice, however, concessionaires complain that these brigades lack the materials needed (vehicles, gas oil, spare parts) and are slow in intervening;
- In Cape Verde and Burkina Faso, the maintenance of the networks is directly covered by the Government, by municipalities or by the State-owned enterprise responsible for the networks (*ONEA*).

There are a number of possible explanations for the lack of development of maintenance on the part of the private sector:

- The Government refuses to license private operators to maintain water services, even stipulating sometimes in concession contracts that the maintenance should be carried out by a State service;
- Operators of small water supply systems are often barely solvent, because they do not make enough provision for financing major repairs;
- Water supply systems are often installed within the framework of projects employing Government managerial staff; these people become well known to consumers and consumers turn to them when there is a breakdown.

For the sake of comparison, let us describe a maintenance enterprise specializing in medium-power (10-20 hp) motorized pumpage groups for irrigation, installed in the region of Timbuktu. This enterprise foreshadows a potential maintenance company for water pumping stations. It has four employees, is non-industrialized, and is responsible for the maintenance of 150 motorized pumping groups. Its annual turnover is US\$ 120,000, i.e., US\$ 800 a year by pumping group.

Holders of maintenance contracts

It is tempting to introduce maintenance contracts, in order to boost confidence and improve relations between network operators and private repair people. Such contracts (and even a particular enterprise) have occasionally been “imposed” on operators by donors and creditors, in the context of the *PRS - Program Régional Solaire* (Regional Solar Program). These projects rely on formal operators who are often highly qualified, which constitutes a guarantee of quality, but they distort competition to such a degree that it is impossible to evaluate the system’s real sustainability, as the economic survival of these enterprises depends on projects subsidies.

Water-Related Work In Suburban Districts

The chain of operators

Water distribution in large towns is not the prerogative of a public water distribution enterprise (such as the *SDE* in Dakar or the *SONELEC* in Nouakchott). It involves numerous operators who offer very different services to an extremely varied clientele. The private operators of the informal sector,

by their very diversity are able to respond more precisely to this differentiated demand than are the national enterprises which are monopolies using standardized services.

Operators of varying sizes

In large towns people working in water production delivery cut a wide swath, from the water carrier (earning no more than US\$ 20 a month) to the drill operator (US\$ 3,000 a month), and including public operators such as the *SDE* (US\$ 300,000 a month).

Table 2: Typology of private operators, Port-au-Prince

Name	Principal occupation (retailers)	Sector (formal / informal)	Weekly earnings (in US\$)
Street peddler	Retail water sales (<i>bottle, glass</i>)	informal	2-5
Water carrier	Home sales	informal	6-15
Water trucks	Transport and delivery of water to the home	informal / formal	300-600
Fountain-manager	Water sales by the bottle or gerrycan	formal	10-70
Tank owner	Water sales by the gerrycan	informal	20-70
Consulting co.	Design network, construction site supervision	formal	500-3,000
Mason	Construction of tanks, standpipes	informal	50-250
Plumber	Pipe connections, repairs	informal	40-200
CAMEP	Production and sale of water in the metropolitan area (Port-au-Prince)	State-owned enterprise	30,000-50,000

Truckers

This occupation is very developed in Port-au-Prince where we studied it, but we have also seen it in other cities (Assomada and Praïa in Cape Verde, Istanbul, Lima, etc.). The work of these truckers is important in towns where the public sector official network does not cover all districts and where transport by cart is difficult due to distance, steep terrain, etc. (Is it a coincidence that all the towns mentioned above are on hilly terrain?)

The revenue drawn from this activity is limited by competition from other methods of supply (carts, rain water storage, etc.). Truckers must therefore keep a close watch on costs, investing in old trucks, (Port-au-Prince), or by using collapsible tanks which are installed on the truck only a few months a year, when water shortages make prices climb (Cape Verde).

Resale subscribers

Although this practice is absolutely illegal, governments rarely try to stop it, because in the end it is to everybody's advantage. It entails:

- users, who buy water from neighbors;
- subscribers, who share the cost of their subscription with other users;
- distribution companies, because the sales tariff by cubic meter (beyond the "social" bracket) is often higher than the "standpipe" tariff. A manager from *RNET* (Togo) told us quite openly that he considered neighborhood resale a secondary distribution system which was good for his enterprise even if it was, in theory, illegal.

This practice is therefore very widespread in the towns of Cameroon such as Yaoundé (where standpipes were systematically closed in 1992, in response to non-payment from municipalities). It is also very widespread in Port-au-Prince.

Water carriers - rickshaws and hand carried

Water carriers are divided into two distinct groups: those with hand-held carts (rickshaws), and those (a majority of whom are women) who carry the water by hand or on their head. Rickshaw drivers invest much less than owners of carts pulled by draught animals (US\$ 130 a month, as compared to US\$ 500). But their daily revenue is about the same – US\$ 70 a

month. They are particularly numerous in the south of Burkina Faso.

However, people who carry water on their head are right at the bottom of the social ladder, and their income is extremely low. In Dakar, this activity receives no social recognition at all, and it is even difficult to find women who will admit that this is their profession. At Port-au-Prince, where this activity is very widespread in certain districts, it is carried out by young village women who come to the town for just enough time (usually a few weeks) to save enough money to make some small purchase.

Economic Contributions Of Private Water Sector

Potable Water

An analysis of the turnover of operators in five towns (see following table), gives an average budget for drinking water of US\$ 4-9 per person, per annum, which represents 2-3 % of the per capita GNP of these countries. (As we see, this is very different from the rather hysterical figures – 10-15 % of household revenue – announced with great fanfare from time to time in the media by certain public or private bodies active in the poor districts). It will be noticed that this "drinking water" budget is the same in small and large towns. So the fact that the economy is more cash-based in the large towns does not seem to have a determinant influence on the share of their revenue that families are prepared to devote to drinking water.

Table 3 Water Stocks

	Niangologo	Kayes	Bobo Dioul.	Dakar	Port-au-Pri.
<i>Population</i>	12,000	55,000	450,000	2,000,000	2,000,000
<i>Country</i>	Burkina F.	Mali	Burkina F.	Senegal	Haiti

Water stocks (given in liters per person, per day) and volumes distributed

Average stock	l/d per pers.	11.1	28.1	24.5	37.7	55.0
Vol. distributed	m ³ /day	133	1,544	11,036	75,400	110,000
Of which:						
- home connect.	% volume	37%	64%	74%	86%	24%
- standpipe	% volume	63%	36%	26%	14%	1%

Annual turnover (TO)

TO State-owned enterprises	FF	138,600	469,500	15,170,000	65,540,000	11,000,000
<i>share of total TO</i>	%	32%	31%	67%	79%	16%
TO standpipes	FF	76,420	450,700	2,573,733	16,550,000	1,400,000
TO carriers	FF	216,000	587,200	4,800,000	918,600	3,900,000
TO tank managers	FF	0	0	0	0	30,000,000
TO trucks	FF	0	0	0	0	18,800,000
TO private drilling	FF	0	0	0	0	4,000,000
<i>share of total TO</i>	%	68%	69%	33%	21%	84%

The private operators

Small private operators (carriers, standpipe managers, truckers, etc.) play an extremely important role in providing drinking water.

In the five towns studied, **private operators in the drinking water sector earn between 21% and 84% of the added value of the entire value chain branch, even though they are usually to be found inside the informal sector.** No economic analysis of this water service should be undertaken without taking private operators into account.

The role played by private operators (in terms of volume distributed and value added) is generally greater in small centers than in large towns. The town of Port-au-Prince is an exception to this rule, because the role of the public sector in the distribution of water has atrophied.

Small-scale water distribution is an activity which generates a large number of jobs. There are many more jobs with private water distribution operators (3-15 times!) than in concessionaire enterprises (public or private). Staff employed represent 2-4 per thousand of the population of the towns concerned, i.e., 1-3% of regular jobs.

Table 4: Jobs created by private operators

Number of jobs	Niangologo	Kayes	Bobo Dioul.	Dakar	Port-au-P.
State-owned enterprise	4	50	400	1,390	450
<i>share of jobs</i>	6%	25%	25%	32%	9%
Standpipe managers	12	75	182	1,000	90
Water carriers	50	75	1,000	2,000	2,000
Tank managers					2,000
Truckers					500
Drill operators					20
<i>share of jobs</i>	94%	75%	75%	68%	91%

Summary

Private operators carry out most of the retail resale

Private operators are particularly involved in retail sales, downstream from the State-owned enterprise (public or private) which in theory has a monopoly on water production and distribution. The only instance we found of a private operator in charge also of large-scale water production, is that of the private boreholes in Port-au-Prince.

A service which complements the State-owned enterprises

The service offered by private operators complements that offered by concessionaire enterprises which have difficulties reaching low-income populations. Private operators fill in public service "gaps".

Although this service is expensive if calculated as a unit price per cubic meter, it is successful because it responds well to demand, even in the poorest districts

The service offered by private operators is often very expensive for the end user (US\$ 1-10 per cubic meter). But a gross comparison with the average price per cubic meter as sold officially (US\$ 0.4-0.7) is not very satisfactory, since private operators sell water in very small quantities (most often, less than 10 liters per day per person), directly to the home (i.e., without the losses to the user of time, energy and comfort that a trip to one of the public watering places would entail). And this is precisely the service many people are willing to pay for.

Where have the municipalities gone?

For the last ten years, municipalities have been almost totally absent from the public provision of drinking water, even in the case of matters that would normally fall under their jurisdiction (planning of new investments, ensuring that specifications are followed, etc.).

Do informal markets necessarily involve Mafia-like behavior ?

Informal market connections with local Mafiosi or cartels vary considerably from one town to another,

depending on how rigorously organized the public service is, and on the support it receives from the Government.

In Port-au-Prince, where the Government plays only a limited role in many areas (including water supply, education, health and even security), private operators have set up small local monopolies (drilling operations, private tanks and even "public" standpipes) which they are prepared to defend by force.

However, in towns such as Dakar and Bobo Dioulasso, where there is a good, well-organized public service and where the law reigns, there seems to be no connection at all between the informal water trade and the Mafia. There are probably a number of illegal practices (bribes, favoritism) involved with the allocation of standpipe concessions, but there does not seem to be any inherent violence.

The private sector still plays a major role in water distribution, but this role diminishes when the public sector improves its service

In Africa, the share of the water market and of jobs taken by private operators is inversely proportional to the performance of the national enterprise which has the water service concession, at least for middle-class clients.

An enterprise such as the *SDE* in Dakar, private and free from the burden of infrastructure (which is the responsibility of the *SONES*), provides quality service in practically every city district, except for "informal" shanty towns. Sales tariffs are sufficiently high to allow the enterprise to finance extensions of the network towards new districts. Informal sector operators work only on the margin of the *SDE*, ensuring water supply to construction sites and home delivery, which concerns only a small percentage of families. In this case, the private sector's share of the turnover from water distribution activities does not exceed 20%.

However, an enterprise such as the *CAMEP* in Port-au-Prince provides services to only half the districts and to only 13% of families. In addition, the network is open only a few hours a week in each district. In these conditions, private operators play a much greater role, with their activities representing 80% of the turnover of the sector.

Recommendations

The activities of private operators should always be carefully studied before new services are offered.

Private operators (and in particular those from the informal sector) are perfectly adapted to the needs of low-income populations. One of the best ways of analyzing demand, therefore, is to study services provided by these operators.

Projects should be carefully thought out; their nature is more harmful than helpful to the private operators

Although private operators play an extremely important role, "project" dynamics do not really provide them with effective support :

- project planning is restrictive, and does not correspond to the needs of enterprises;
- those designing and piloting projects are national or international functionaries who find it difficult to anticipate the concerns of entrepreneurs;
- the rigidity of criteria involved in decision making in a "project" structure encourages enterprises to adopt, temporarily, the language of the "project" and of its presumptions without any internal changes.

Promote competition

The dynamism and performance of a private operator depend first and foremost on the competition he faces. So it is completely paradoxical to see certain programs promoting monopolies. These monopolies are clearly not very healthy, and can lead to numerous abuses (unjustified tariffs, centers ignored because they are considered "non paying", etc.).

One example of such abuse can be seen in the standpipe managers of Nouakchott. Here the number

of standpipes is notoriously inadequate to meet the needs of the population. The turnover in standpipes is rare and their managers are able to get away with charging illegally high tariffs. These managers tend to protect their local monopoly by preventing new standpipes being built.

Have no delusions as to feasibility of "formalizing" informal sector framework.

Following the study of private operators in Nouakchott, Tidiane Koita addressed the problem of the atomization of the informal sector, its lack of organization, and its "anarchy", all of which make it very difficult to integrate it thoroughly with a universal, optimum public water service. This observation, on the difficulty of "formalizing" a good number of economic activities in Africa was also made in other domains.

Do not prosecute subscribers who resell.

Although resale subscribers do not always provide as good a service as public standpipes, their service does complement an inadequate public service. It should be remembered that resale subscribers respond precisely to demand and that because of them, the water service cover rate can be increased significantly (as they make the service accessible to a greater number of users), with public investment clearly much lower than in the case of standpipes, few maintenance expenses and no land conflicts.

Guarantee the legal security of operators

One of the most important factors driving private operators to stay in the informal sector and putting a brake on their investment is the lack of legal security, and the absence of a state of law. How can operators invest when they can be expelled, nationalized on the spot, at the snap of a finger? The Government must guarantee that laws are respected, and particularly leasing or concession contracts and the property rights of private investors. For their part, informal sector operators will move into the formal sector and will then constitute a source of extra tax and social revenue.

References

HYDRO CONSEIL is a hydraulics consulting company specializing in problems of water distribution to low-income populations, in small towns and in the poor districts of large metropolitan areas.

In addition to two members of its permanent team (Bernard Collignon and Bruno Valfrey), HYDRO CONSEIL works with numerous operators who are extremely knowledgeable in each of the areas of study, having worked with programs for improving water service where private operators play a major role:

- Mauritania: Bernard Gay, Rodolphe Carlier (*GRET*), S.A.O. Moulaye Zeine, Mohamed Tourad (*GRET* and *TEN MIYAH*) and M. Tidiane Koita;
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