



Small-scale entrepreneurs in the urban water and sanitation market

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SUMMARY: *This paper describes the importance of small-scale private sector or NGO providers of water and sanitation in a great range of urban areas in Africa, Asia and Latin America. It includes many examples of where - contrary to conventional wisdom - they provide good quality, low-cost services. Without these operations, large sections of the South's urban populations, including tens of millions of low-income households, would be worse off. Yet these generally operate with no subsidy and have to recover their costs. This paper discusses how public policy can support (or at least not seriously constrain) small-scale entrepreneurs in water and sanitation provision while ensuring checks on the quality and price of the services they provide.*

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Once upon a time, about five years ago in fact, there was a beautiful kingdom with a big public water company which had real-life management problems. The beautiful kingdom advertised far and wide for a private sector prince to carry off the big water problems so that the kingdom could live happily ever after. One day a handsome foreign company appeared and won the hand of the big water company. The handsome foreign company reduced unaccounted for water, raised revenues and legalized clandestine connections. "Now that I've settled all the administrative problems," it asked, "how do I go about extending services to the poor?"

"Oh, no problem," said the beautiful kingdom, "all those poor people have to buy their water from the terrible trucker dragons. They pay 15 to 30 times what you charge for water. They'll open their arms to you."

The handsome foreign company got on its silver charger and rode off to where the poor people lived, ready to kill the terrible trucker dragons and win the poor people's hearts and business. But, to its great shock and dismay, the people wanted nothing to do with the handsome foreign company.

"But I've come to free you from the terrible trucker dragons who charge unscrupulous rates," cried the handsome foreign company.

"What unscrupulous rates? What dragon? What truckers?" asked the people. "We get our water from our own artesian wells

which don't cost us a red cent. We get water from the community well. We get water from the private aqueduct in the next neighbourhood. We average US\$ 50 a year in water expenses and that's as much as we're willing to pay. Why should we pay you more for services we don't really want? Haven't you ever heard of the free market? Can't you recognize a fairy tale when you hear one?"

The handsome foreign company was quite upset to discover that it was facing some competition and it claimed that the beautiful kingdom had not been entirely honest during due diligence. The beautiful kingdom accused the foreign company of bewitching it so that it could see only one kind of private sector participation. But it was too late for either party to withdraw. The enchantment lasted for 30 years and all they could do was renegotiate the contract.

I. WHO REALLY PROVIDES WATER AND SANITATION ?

OF COURSE, ANY resemblance between the events and persons in the above fairy story and the real world - living or foreign - is purely coincidental but it still offers an important lesson to those of us who have fallen under the spell of private sector participation. Putting our faith in the large-scale and savvy operators from Europe or North America, with sophisticated management systems and high-technologies, can lead us to overlook the small-scale and apparently primitive entrepreneurs who are already working underfoot. They are private sector too - the "other" private sector - and sometimes, the little frogs can turn out to be princes in disguise.

Everybody alive somehow obtains drinking water and disposes of waste waters. In most of the cities of Africa, Asia and Latin America, where less than half of the population is actually served by the utility networks, someone else provides the basic services.⁽¹⁾ But little academic or institutional work has been done to understand or to develop the capacity of these "alternative" providers. There are (at least) two reasons for this tendency.

First, state owned water and sanitation utilities usually have a monopoly right to serve customers in their jurisdictions. The formal restrictions on competitive entry into the sector means that entrepreneurs working outside the official system are generally considered illegal, or irregular at best, despite the vital service they provide. Thus, while myths abound, little concrete information exists about what technically operates outside the law.

Second, because they are small and privately owned, the "alternative" providers don't qualify for loans from donor agencies or banks which traditionally have focused on municipal water companies with monopoly rights. While some community based providers and NGOs have co-existed with the utilities, surviving largely on grant support, it hasn't been convenient for either the utilities, the NGOs or their financiers to learn about any other alternative providers, except for their negative connotations.

1. Based on our first study results, we estimate that for Latin American cities 25 per cent of residents depend on independent providers for water and 50 per cent for sanitation. In Africa, the figures rise to 50 per cent for water and 85 per cent for sanitation.

2. In our studies, we have found that private provider charges range from one-tenth those of the public providers (private water systems in Cordoba, Argentina) to eight times those of the public providers (water truckers in Lima, Peru). Cases have been reported where charges range to over 60 times the public charges but, as most public water companies' prices are subsidized, the actual price is paid through other taxes.

When we do hear about them they are usually cast as the "bad guys" who charge usurious rates.⁽²⁾

Interestingly enough, the entrance of large-scale private operators into the water and sanitation sector has stirred up interest among small-scale private operators. The introduction of large-scale private operators into a sector once considered appropriate only for the public domain has led some to question the long-entrenched ideas about water delivery. After all, if we now admit to the usefulness of some large-scale private providers, why not rethink the role of the small-scale providers?

At the same time, many have questioned the virtue of private sector participation which imitates the monopolistic structures of public companies. What, they ask, is really gained by shifting from an inefficient public monopoly to a private monopoly with a public regulator? Once private sector participation has become accepted in the form of large international companies, it is but a logical step to look at local and small-scale private operators and investors.

As recently as 1996, World Bank sources concluded that "... the efficiency benefits from involving the private sector are closely linked to competitive pressures, rather than deriving simply from

Box 1: The Formal and Informal Sectors Join Forces for Water Delivery

In Bangladesh, the water agency has joined forces with private kiosk vendors and with community groups to avoid unaccounted for water. Over the past year, Dhaka has seen the number of privately managed water points in low-income *bustee* neighbourhoods grow from two to 30. Originally set up through an NGO working under an agreement with the local government engineering department, this programme has left water sales in the hands of either community managed groups or private entrepreneurs who have been accepted by the community. The arrangement favours the water agency which, otherwise, would lose the water to outright theft.

In Abidjan, where the private concession has made a similar agreement with small-scale private operators, SODECI (*Société des Eaux de Côte d'Ivoire* - the water company of the Ivory Coast) controls the resale price of water at public standpoints through the design of the holding tanks. These tanks can release 50 litres at the turn of a handle, activated by tokens which are sold at a fixed price at kiosks or neighbourhood stores throughout the city. Tank operators, who are selected from local residents by SODECI, sell the water and pay a fixed price for refilling the tank. As the profit margin is fixed, operators can increase their earnings by developing new sales or by offering additional services such as home delivery, but not by raising the price of water. SODECI has some 500 such standpoints throughout the Ivory Coast. Besides the standpoints, however, SODECI has recently noticed that there is a fairly large number of informal water sellers, some actually laying down piping running from their houses to their customers' houses and charging customers for water metered at the seller's house. While this can be an excellent business for SODECI (because water charges increase as the amounts are metered), SODECI has recently begun discussions with the association of informal water sellers of Abidjan, recognizing their importance and charging them at ordinary residential rates in consideration of the service they perform for both consumers and for the utility.

3. World Bank (1996), *Toolkits for Private Sector Participation in Water and Sanitation*, Washington DC.

4. Webb, Michael (1998), "Competition in water", paper prepared for the UK Department for International Development, April.

5. Irwin, Timothy (1997), "Private financing of water and sanitation" *The Urban Age* Vol.5, No.2.

6. For copies, please refer to the bibliography here and contact the World Bank's Water Help Desk; e-mail: whelpdesk@worldbank.org; tel: (1) 202 473-4761; fax: (1) 202 522-3228.

7. In Lima, Peru; Cordoba, Argentina; Barranquilla, Colombia and Asunción, Paraguay.

8. Bamako, Mali; Dakar, Senegal; Conakry, Guinea; Cotonou, Benin; Nairobi, Kenya; Dar-Es-Salaam, Tanzania; Kampala, Uganda.

the presence of a private owner."⁽³⁾ Along the same lines, Michael Webb of *London Economics* has recently published a thoughtful paper entitled "Competition in water" arguing that water, like electricity and telephone services, can be provided in a competitive business setting.⁽⁴⁾ Webb, like Timothy Irwin of the World Bank who has written in favour of the "free entry" of independent water providers into the sector, tends to look at the opportunities offered by new technologies.⁽⁵⁾ On another level, most countries in the South have enjoyed free entry and competition in water supply for many years among the informal or, as we say here, the independent providers of water and sanitation.

II. A NEW INITIATIVE - THE "OTHER" PRIVATE SECTOR

AS PART OF its work on urban environmental sanitation, the UNDP/Water and Sanitation Programme (WSP) has begun to look more closely at how the non-government and private urban markets work to provide water and sanitation services. As a first step, we reviewed what was available in the field, namely studies carried out by colleagues within the WSP and by others, in particular *Hydro-Conseil* which has worked extensively on independent water providers in Francophone countries under an agreement with the French NGO Programme *Solidarité Eau*. These reviews from Ethiopia, Guatemala, Paraguay, Mali, Mauritania, Haiti, Yemen and Senegal⁽⁶⁾ suggest that the unofficial entrepreneurs in water and sanitation run a wide gamut from monopolistic price gougers to community volunteers on the verge of bankruptcy. They point out many interesting features of private operators on a case by case basis.

Thus, the WSP determined to look at a series of cities, four in Latin America⁽⁷⁾ and seven in Africa,⁽⁸⁾ to determine, among other things, the impact of the independent providers on water and sanitation delivery and their comparative advantages with respect to the large-scale (city-wide) monopoly enterprises (both public and private). Also, from the point of view of investors and risk-takers, what stimulates growth and what obstacles block a growing and private water and sanitation industry.

The third phase of activities, as yet to come, will involve following up on recommendations from the various studies with a view to stimulating a friendly business environment for small-scale private water and sanitation providers. WSP will host a first regional meeting of independent water and sanitation providers in Latin America in the hope of initiating a dialogue between the independent providers and governments to identify ways of opening up markets to legitimate and competitive businesses.

III. FINDINGS - WHAT IS THE "OTHER" PRIVATE SECTOR ?

THE VARIETY OF successful water and sanitation enterprises which emerged from the reviews and studies confirms that there is no single model for providing water and sanitation. Rather, the virtue of the "other" private sector lies in its ability to produce appropriate models to fill every circumstance and need. In direct contrast to the concessions and their hybrids, defined by terms of reference shared and reshared worldwide, the wide range of forms which the small-scale providers have evolved in response to local conditions suggests something close to endemic speciation. Consider:

- Individual families with water and/or sanitation connections who provide services to their neighbours, such as those responsible for 25 per cent of water supply in Bamako.
- Water points and/or latrines managed or owned by individuals, making up the fastest growing form of water provision in Dhaka; by community groups, providing for 30 per cent of Addis Ababa's families; or by NGOs, such as CAMEP in Haiti which hopes to set in place water for the majority of its low-income residents.
- Bulk water supply systems (tank trucks which distribute to cisterns or to individual families) which already supply more than 30 per cent of need in Tegucigalpa, Guatemala City and Lima, and whose use has recently grown in Turkmenistan and Uzbekistan.
- Privately owned and managed public toilets and bath houses; the Indian NGO, Sulabh, has long promoted public bath facilities at subsidized rates but, in Bangladesh and some Indian cities, private entrepreneurs are putting toilet and bath facilities in key locations and running a brisk business. In Bamako, one community owned latrine block was purposely built close to a beer hall and charges more to the beer hall owners - figuring that both their businesses benefit from having a toilet close by. Seventeen privately owned public toilet permits were issued last year in Lima. In China, public toilets have begun, increasingly, to use cleanliness combined with style and light entertainment to draw in customers.
- Private competitive water networks which provide house connections to water and sanitation, sometimes overlapping with competitors such as the *aguateros* who already cover more than 30 per cent of Asunción, Paraguay with some 400 aqueducts run from individual ground wells, each system serving between 50 and 2,000 families; or the small bore developer who put together a private sewer system which eventually covered more than 1,000 families in Malang, Indonesia, before the city hired the developer.
- Closed water systems, with treatment plants and piping networks owned by residents, such as the service cooperatives which cover a quarter of Argentina's urban populations, or new housing and industrial developments on the outskirts of Latin American cities.

- Truckers with private wells providing quality water when public service companies' water is of doubtful quality as in Dhaka and, of late, in Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan.
- Sewage removal services - septic tank emptiers - night soil carriers, responsible for 95 per cent of the sanitation provided in Abidjan, in Dar es Salaam, in most sub-Saharan cities in Africa and in most of China as well.
- Private waste water treatment plants, such as SIBEAU in Cotonou which charges septic tank emptier trucks to receive and treat sullage, dumping produce into the ocean after a secondary treatment.

The studies suggest firmly that the "other" private sector - in all its various forms - continues to be a major provider. In the Latin American cities, some 25 per cent of the population depend on independent providers for water and about 50 per cent depend on private sanitation businesses; these percentages appear to rise in secondary cities and towns. In Africa, the numbers are higher with at least half of the families living in the capital cities relying on private suppliers of water and about 90 per cent depending on private sanitation businesses. In the majority of cases studied, the "other" private sector appears to be growing faster than the public or official provider.

Although there is a tremendous variation in terms of price and quality of service offered, from superb integrated systems, whose charges are even lower than the subsidized tariffs of public utilities, to water distributors who provide water of dubious quality at up to eight times the public tariff, the independent entrepreneurs share some impressive characteristics in terms of operational efficiencies:

- they recover their costs fully and are financially sustainable - or out of business;
- they have virtually no unaccounted for water;
- they require no public subsidy, borrowing or debt.

Among the independent providers there are clear evolutionary patterns, moving towards more efficient organization and technology as local economies and legal frameworks permit. As with other businesses, water and sanitation can be as simple or as sophisticated as the business environment permits. When the situation allows for free entry and open competition, we find that new technologies develop, prices drop and the quality of service improves as providers scramble to compete for customers. It is notable, for example, that in the past ten years, the traditional water vendors of Mali, women who carried jars on their heads and sold by the quart or cup, have almost all been displaced by carters, pushing up to four oil drums of water in wheelbarrows. During the same time frame, the water carters of Ciudad del Este in Paraguay went from donkey-drawn carts to trucks and then to underground piping for house to house connections.

Documenting the efficiencies among the small-scale provid-

ers has cast serious doubts on some long-entrenched assumptions, such as the economies of large-scale water system operators, the natural monopoly of water supply and the notion that water should be owned, produced and distributed as a public good. It has also refuted some stereotypes about the "other" private sector and private entrepreneurs in water and sanitation:

- Small-scale water and sanitation enterprises are not simply marginal peculiarities with limited replicability. In Guatemala City, over 200 independent operators are responsible for service provision to over half of the population of the metropolitan area. When allowed to flourish, the small-scale entrepreneurs are efficient, competitive and replicable - requiring no subsidies or monopolistic conditions.
- Water vendors are not dependent on the public sector for water supply. The Guatemala study shows that truckers - some 50 are registered - have their own sources of water or purchase water from other private wells. But the public sector may be dependent on private distributors to reach certain neighbourhoods.
- They are not limited to areas where ground water is easily accessible (as in the Guatemalan and Paraguayan cases). Almost all of the urban population of Sana'a, Yemen and about a quarter of Lima's depend on small-scale private companies for their water supply despite difficulties in finding water sources.
- They are not limited to one particular income group. Private servers tend to deliver water and sanitation predominantly at the upper and lower-income levels - but the Paraguayan case, also Sana'a, Dakar and even some upstart servers in Barranquilla, Colombia show that when monopolistic regulations do not stifle their development, and when the public or principal companies do not underprice their services (through government subsidy mechanisms), small providers reach middle-income families as well.
- Private entrepreneurs are not bound geographically to particular parts of the city. While there can be collusion and division of areas, small businesses crop up and compete where needs appear. During six months of the year, *aguateros* deliver water in trucks to Lima's most well-to-do neighbourhoods, when rationing hits even the heart of town.
- The private providers are not simply stop-gap businesses. They tend to transform their operations and find new markets when public services are extended.

IV. FINDINGS - SOME COMPARATIVE ADVANTAGES

A CLOSER LOOK at the water and sanitation entrepreneurs may well bring about some changes in the traditional wisdom. For example, the small-scale entrepreneurs follow the recommended business practices far closer to the letter than the large-scale monopolies. They are certainly "demand responsive". They

Box 2: Treating Waste Water for Profit

SIBEAU in Cotonou is one of the very few waste water treatment plants in the whole of Africa. Since 1990, it has treated 240-300 cubic metres of sludge each day, making a big difference to the city environment and to the quality of ocean water. In the vast majority of African cities, however, waste water treatment is a fantasy for the future, far too expensive for any municipal government to entertain. How then can it be that private entrepreneurs have built a waste water treatment plant in one of Africa's poorest cities? And how can it be that they are actually making money from it ? In this case, SIBEAU's owners invested their own funds to build a private treatment plant which receives sullage from septic tank truckers who pay approximately US\$ 25 to unload at the plant. SIBEAU gives primary and secondary treatments to the waste water before dumping it into the ocean. The obvious question - why should the trucks line up to pay to dump their contents when they could just as easily find an empty field or dump it into the ocean themselves - has several answers. Perhaps they risk a fine if they are caught dumping illegally; perhaps the costs of carrying their loads out of the city and into the night are too high, thus preventing them from making more profitable pit-emptying rounds. Whichever, SIBEAU recognized the market and makes it easier for trucks to pay and to dump than to do otherwise; so much so that SIBEAU is making a comfortable profit from its charges.

charge market prices, covering costs and respecting the willingness to pay. They provide appropriate solutions in appropriate places, assume all investment risks and they reach the poor.

a. Customer Service Quality

Working as they do in competitive environments, the success of the private operators depends on creating customer loyalty particularly when the competition includes public operators offering subsidized rates. Theoretically, one would expect a different quality of client treatment depending on who holds the contract and who pays, that is, when a contract is with the municipality (as in the case of Colombian small enterprises) as opposed to directly with clients. However, in the former case, as long as the payments come directly from the client, the focus appears to be on customer relations; the entrepreneur takes pride in knowing customers personally. In Paraguay and Argentina, the *aguateros* count their rapid response to technical problems - same-day service - plus their flexibility and their readiness to listen when customers have difficulty meeting payments among the reasons for their success. The independent providers at all levels appear to lend themselves to making payments easier and giving credit when customers need it; they are better, perhaps, at personal public relations than the large companies. Truckers in Lima build up community relations by helping out with other services - for example, lending their trucks to bring in electrical equipment or other items. Asunción's *aguateros* supply water free to schools, health centres and churches. And the water carrier in Barranquilla forms personal relations with her clients (like the one in Uruguay whose well was sealed over by the private concession when local families continued to favour the carrier over formal connections).

b. Lower Rates

The private water systems - both the competitive businesses and the closed and cooperative aqueducts - sell water at lower prices than the public providers (most of which subsidize water prices for low-income sectors). Prices can be lower still when the private providers are actively competing for markets. In Cordoba, Argentina, the independent companies sell water for as little as one-third the price of *Aguas Cordobesas*, the official company; in Paraguay, the *aguateros* compete very favourably despite the subsidies offered by CORPOSANA; and in Barranquilla, Colombia, several full service companies emerged but only one, it must be admitted, selling below the Triple A's rates. Also, even though they charge lower rates, the independent providers enjoy a higher income-to-expense ratio than the monopoly companies (a public utility in the case of Asunción and privately owned concessions in Baranquilla and Cordoba.) This suggests that the independent providers' operations are more efficient and more cost-effective than the large-scale official companies - a point we return to below.

c. Varied Services

The water entrepreneurs have moved into the production and sale of ice, soda water, flavoured waters and other related products in all the cities we studied. Their knowledge of markets (consumer habits) and their efficient production systems give them an advantage in discovering and developing new products.

d. Capacity to Grow with Demand

The independent providers increase their service delivery as demand grows, not in response to injections of outside capital. Public operators and concessions tend to expand services in spurts (when loans from the World Bank, IFC or private financiers are secured). At these times, the public operators and concessions can drive the independent operators out of the market - at least for a while. In between these periods of expansion, however, consumers must wait - sometimes years- for domestic water services. The independent operators manage to find new customers within days or weeks of their emergence. In Lima and Barranquilla, the truckers and water carriers know about new settlements well before the municipal planners have detected their existence. Even sophisticated network operators like the *aguateros* try to set up delivery systems in advance of population growth. Their ability to stake a fast claim in a developing area gives them a lead over their competitors.

e. Capacity to Reach the Poor

The independent providers appear income and class-blind when it comes to seeking out customers. Their poor customers are clearly willing to pay the prices charged or the providers

would be bankrupt. The fact that they set their prices to cover their costs gives the independent providers a tremendous advantage over the public sector companies which tend to undercharge and, therefore, cannot afford to serve the poorer population groups. By the same token, independent providers either charge nothing for connections or defer connection costs over time to draw in low-income customers in the hope of securing their business in the long run. Private concessions, on the other hand, have been stymied in their attempts to extend services to poor neighbourhoods because the poor cannot pay for connections up front. (The experience of *Aguas Argentinas* in Buenos Aires is a case in point.) While the independent providers may cut back on investments when feeling insecure about their business future, they do not appear to be put off by issues of illegal tenure, customer's income levels nor by population size when they move into a new territory. The truckers and water carriers in Lima and Barranquilla are quite unfazed by difficult terrain and wretched conditions for delivering water in slums.

f. Flexible Technologies

Also in their favour, the small-scale entrepreneurs appear to play a special role in introducing innovative technologies, market approaches and administrative systems. Small-bore sewer systems, for example, were first introduced into Buenos Aires by IIED-América Latina⁽⁹⁾ who were in touch with a private entrepreneur from Colombia, and first appeared in Malang, Indonesia as the brain child of a small-scale entrepreneur who had read about them and decided to try them out. While large-scale companies tend to be discouraged by the risks and costs implied by new technologies (and, by implication, of abandoning the use of existing technologies), small-scale entrepreneurs have nothing to lose by trying out something new.

Small-scale entrepreneurs, both by virtue of their size and their consequent ability to get closer to clients, have developed simpler and appropriate charging mechanisms, from offering their clients credit to charging on a daily basis like the "water women" in Dakar. In Guatemala City, the first system of "paying-as-you-go into your bank" was introduced by a community owned and operated water company - ACOVA - serving some 7,500 families. Small-scale entrepreneurs have also devised simple contracts with communities to guarantee service in return for exclusivity - a form of mini-concession on a neighbourhood basis.

Transfers of knowledge might actually be simpler at the small-scale entrepreneur level than at the large-scale one. The rapid spread of private standpipe services throughout Bamako began when some women visited relatives in the city and asked about the standpipe business. An NGO which promoted a fibreglass latrine for sale in Dhaka was overcome when cottage industries sprung up copying the model and selling it on the streets at a fractionally higher price - but with free installation.

9. See Schusterman, Ricardo and Ana Hardoy (1997), "Reconstructing social capital in a poor urban settlement: the integrated improvement Programme, Barrio San Jorge", *Environment and Urbanization* Vol.9, No.1, April, pages 91-119.

V. WHEN THE "OTHER" PRIVATE SECTOR CAN WORK AT ITS BEST

THE VIRTUE OF the independent private sector is that it makes contracts with customers, not with governments, and it is at its best when entrepreneurs must compete for clients and assume the full risks of their own investments. There is clear evidence that providers improve their performance when the possibility exists that another provider can win over their customers. Like the public sector companies, the formal or official private sector makes contracts with government. When such providers compete for concessions, it is not clear that service quality improves.

As with its counterpart, quality from the "other" private sector depends on an efficient regulatory system, but one which is based on performance not on technical standards. The conditions in Paraguay offer a good example. SENASA, the health ministry's water quality division, tests the water from the private operators on a regular basis (at least once every six months when the *aguateros* pay a commercial tax). SENASA also settles disputes between customers and providers, offering an office where clients can complain of shut-offs, of poor pressure or discontinuous service. Thus, the *aguateros* are encouraged to devise the best technological system for providing services; for example, they are not forced to conform to the same pipe diameter, whether serving 50 or 2,000 customers. In other countries, where regulators set technological standards rather than performance standards, there is little encouragement for experimentation and a clear disincentive to search for better solutions even though the end product may not be up to standard.

a. Where the Public Sector and Private Sector Maintain Separate Operations

In many ways, the public sector is the worst offender in terms of forming consortia with private operators. The public sector has to resist the temptation to join forces with the private providers and - above all - to subsidize the operators. The public sector can offer healthy competition, as in Cordoba or in Asunción, but mixed ownership arrangements appear to reduce the incentive for service growth or improvement.

b. Where Association, Mentoring and Local Culture Permit Networking and Professional Consciousness

The success of the *aguateros* in Paraguay is due in large part to their own ability to create a trade association and, before that, to establish a sense of association, albeit informal, and to overcome the very real sense of illegitimacy and guilt which befalls independent water providers in other countries. To a similar extent, the cooperative movement in Argentina has flourished because it was encouraged and applauded from the time of Juan Perón. It has stagnated, however, as a result of long-term legislation which sets a tariff structure allowing for operators to charge operational costs and a 25 per cent profit margin.

The 25 per cent margin may seem generous, but for two factors. First, with inflation rates that are never less than 10 per cent and which sometimes have been as high as 1,000 per cent in the past fifteen years, the profit margin can easily be eclipsed. Second, and perhaps more important, the tariff structure does not allow for depreciation or for recovery of investment costs. Thus, any new connections or network expansions must either be paid for in advance or covered from the profit margin of 25 per cent. The *aguateros* of Cordoba are coming to terms with the official company, *Aguas Cordobesas*, only because they have also formed a long-standing trade association which can speak for their mutual interests.

c. Where Physical Conditions Permit

It is quite obvious that the availability of good quality ground water, such as abounds in Paraguay, spurs the development of the independent private provider. This has also been helped by the fact that the major pipelines were laid before the city's streets were paved and that they are located on road shoulders where repairs can easily be effected. However, the physical conditions do not make the case alone. There are over 60 wells on the outskirts of Lima but not one inside the city because of legal restrictions. And in Colombia, where both surface and ground water is of good quality, the technologies for extraction and mini-treatment are lacking.

Box 3: Competition Makes for Better Services

The *aguateros* of Paraguay compete for markets among themselves and also with the public water company, CORPOSANA, and with rural and peri-urban water committees, the *juntas de agua*. There are few *aguateros* who do not overlap with at least one other provider who is always ready to extend services farther into the other's territory, as long as there are willing clients. There are several streets in Asunción with as many as four different pipelines, served by as many different *aguateros*. Of course, the *aguateros*, the water entrepreneurs, must keep on providing excellent and low-cost services or their clients will move to the next provider. The situation keeps *aguateros* in close contact with customers. Since businesses tend to be small, losing even one customer is serious for the *aguateros*. But, interestingly enough, the *aguateros* wouldn't have it any other way. When they were asked recently by SENASA to join in an upcoming rural water project run by water committees, they agreed but asked that the water committees allow for multiple entry in each jurisdiction. That way, they explained, they could compete with each other for customers and could spend their time working their systems. Otherwise, they would have to go after the politicians and that would mean leaving the systems behind. Many would prefer to avoid the classic concession experience because it tends to imply a contract for the operator who is willing to spend the most money to impress the politicians - which means the wealthiest contractor. "And then," says one *aguatero*, "they come looking for us to sub-contract to anyway." Several *aguateros* mentioned that they preferred to keep their systems small. Anything over 1,000 connections and they have to rely on middlemen and lose personal contact with the customers, rather flying in the face of economies of scale theories. To increase services, they are looking into adding sewer systems for small groups, rather than extending their aqueducts.

Regulations which prohibit or condition private ownership of infrastructure will - obviously enough - keep independent operators (including community groups or small-scale providers) from getting financing or risking their own capital for laying down piping or for buying sound technical advice. Too often, the laws involving private sector participation have been written with a single fixed scheme in mind. In Peru, the recent law defining the management and administration of water purports to open the sector to private participation but it actually gives municipalities and the local utility companies the right to sell water and sanitation services only to another monopoly company, with up to 100 per cent private ownership. Aside from the fact that few private operators or investors are apt to compete with, participate in and/or manage large local water companies, the focus on only one kind of private firm puts a damper on potentially healthy small-scale and entrepreneurial efforts where competition already exists.

VI. TOWARDS A NEW PARADIGM FOR WATER AND SANITATION SERVICES

FURTHER STUDY OF the "other" private sector in water and sanitation may challenge traditional viewpoints and bring out new considerations for sector reform allowing for free entry by small providers, particularly in countries in Africa, Asia and Latin America where needs are varied and single monopoly providers are rarely able to satisfy a full city population. However efficient the large-scale monopoly companies have proved in the USA and Europe, it is hard to find similar examples or replicable experiences in these regions. A single provider may operate efficiently in a city where everyone can pay for - and wants - a standard metered water connection and a sewer hook-up but a range of providers might offer the optimal combination of services when needs and conditions differ from one neighbourhood to another, or indeed from one household to another, as is often the case in cities in the South.

By the same token, the idea of competing small-scale providers reinforces the recently broached idea that delivery of water and sanitation services need not be monolithic in structure; in other words, the same company need not carry out all related functions to guarantee optimal efficiency. As we have seen, the entrepreneurs have moved into different parts of the service cycle: some distributing water, some producing and reselling it, some simply charging and administering the sale for others.

Finally, recognizing and understanding the role of small-scale providers will lead to a rethinking of the usual regulatory mechanisms; from a focus on price caps, subsidy issues and quality control to one of encouraging competition and sharing information. Admittedly, this flies in the face of some traditional thinking about water services and of long-entrenched public sector policies. Rather than let the customers test their water at the tap and seek out the server who best meets their needs, regulations have historically focused on designing a single large-scale

system which focuses on production and not on reaching diverse needs or communities. When people can't afford the costs of the high-standard systems, public policy dictates subsidies for the minority who do get water to their houses. The rest must still pay the high prices and buy less water as a result.

Applying subsidies and encouraging official monopolies, for example, can cause small providers to operate on a shoestring or put them out of business altogether. Sometimes, the best intentions of the public sector can have negative effects. Efforts to "organize" small-scale entrepreneurs, rather than letting them compete, could force a monopoly onto small-scale entrepreneurs and create barriers to entry. Regulations might, instead, refocus on those concerns which, originally, led to network water supply systems, for example, control of water quality at the tap and the provision of pressure points in case of fire.

The parable which introduced this paper alluded to a familiar refrain in the water sector. *In cities of the South, the poor pay for water five, ten, 15, 35 times that which the wealthy households, who are connected to the public aqueduct, pay.* While the story generally leaves us, like the shining foreign knight, gasping at the outrageously high charges levelled by the small-time water sellers, it ought to leave us wondering about what people really pay for water and sanitation - both to the private entrepreneurs and to the public aqueduct - and why. The news from Guatemala demonstrates clearly that water truckers' costs go up in direct relation to the distance they travel and to the number of alternative water sources available to the inner-city communities. Where competition is high, the truckers charge the same as the water company charges its unsubsidized customers: about 12 times less than the same truckers charge the out-of-town customers who rely on them as a sole source. But no one can match the water company's subsidized prices. Even the water company finds it can't repeat its own performance. It serves less than half of the metropolitan area's population and is lagging behind the rate of natural increase in population. In this case, the best way to help the poor doesn't seem to be to expand the water company's coverage and to kill off the water truckers but, rather, to encourage more small-time entrepreneurs to enter the market and to compete. Going back to that fairy story then, we close with a moral:

- Don't send out the dragon-slayer until you're sure you've found the right dragon.

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