# 7 The reality of water provision in urban Africa

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It has been six months since Franklin rented his new apartment in Accra, Ghana's capital city, but not a single drop of water has flowed from the taps. Three months before the lease was signed, the landlord had complained to the city's water authorities. A series of visits by patrol teams, coupled with promises that the anomaly would be corrected, came to naught.

Meanwhile, the water bills continued to pour in. When Franklin finally pleaded for "reconnection", the water company insisted that he must pay the accumulated bills – for the entire nine months, during which no water was received – otherwise his apartment would be disconnected for good. He chose the latter and is now waiting for the private operators – who will soon take over management of Accra's water supply – to commence work before daring to ask for water again.

According to the World Health Organisation (WHO), 79 percent of urban Ghanaians have access to water (Table 7.1). If by "access" it refers to a pipe that leads to the house, then this figure may be accurate. But if Franklin's experience is anything to go by, such access is of little practical utility.

A study conducted by Ghana's Institute of Economic Affairs estimated that about nine million people, or 45 percent of the population of Ghana, lack adequate water supply. Of the 11 million inhabitants who do have "access" to a water system, 78 percent live strictly in urban areas. Ghana's 96 pipe-borne water systems have an installed capacity of 670,000 $m^3$/day (IEA Ghana, 8–9) and deliver

Table 7.1 **Population, water supply and sanitation coverage, 1990 and 2002, for six African countries**

| | | *Population* | | | *Water supply coverage (%)* | | | | | *Sanitation coverage (%)* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | *Total* | | *Urban* | | | *Total* | *Urban* |
| | *Year* | *Total (×1000)* | *% urban* | *% rural* | *Total* | *House connections* | *Total* | *House connections* | | *Total* | *Total* |
| Cote d'Ivoire | 1990 | 12,505 | 40 | 60 | 69 | 24 | 74 | 52 | | 31 | 52 |
| | 2002 | 16,365 | 44 | 56 | 84 | 33 | 98 | 65 | | 40 | 61 |
| Ghana | 1990 | 15,277 | 36 | 64 | 54 | 14 | 85 | 35 | | 43 | 54 |
| | 2002 | 20,471 | 45 | 55 | 79 | 24 | 93 | 50 | | 58 | 74 |
| Guinea | 1990 | 6,122 | 25 | 75 | 42 | 10 | 70 | 37 | | 17 | 27 |
| | 2002 | 8,359 | 34 | 66 | 51 | 8 | 78 | 23 | | 13 | 25 |
| Kenya | 1990 | 23,585 | 25 | 75 | 45 | 22 | 91 | 58 | | 42 | 49 |
| | 2002 | 31,540 | 38 | 62 | 62 | 29 | 89 | 56 | | 48 | 56 |
| Senegal | 1990 | 7,345 | 40 | 60 | 66 | 22 | 90 | 50 | | 35 | 52 |
| | 2002 | 9,855 | 49 | 51 | 72 | 40 | 90 | 71 | | 52 | 70 |
| U. Rep of Tanzania | 1990 | 26,068 | 22 | 78 | 38 | 10 | 79 | 30 | | 47 | 51 |
| | 2002 | 36,276 | 34 | 66 | 73 | 16 | 92 | 44 | | 46 | 54 |

Source: WHO-UNICEF (2006)

only 570,000 $m^3$ – about half what Ghanaians demand (*Ghanaian Chronicle* 2006).

In central Accra, a large proportion of city dwellers have access to piped water. But only 18 percent of those on the city's margin are so fortunate. Half of those who lack access to piped water depend on water vendors and 30 percent depend on streams and wells.

Among other things, these details show the inadequacies of relying on statistics provided by governments and intergovernmental bodies such as the WHO, which rely primarily on member governments for their statistics. On the one hand, governments may exaggerate the extent to which they supply people with water by defining the boundaries of the city as those areas which are supplied with water and other municipal services. On the other hand, they may under-estimate actual levels of supply because – for the same reason – they do not recognise as legitimate the informal sector entrepreneurs who supply water and sewerage services.

This is not to say that water and sewerage services are satisfactory in most African countries, or that wide scale improvements are not needed. Rather it is to say that entrepreneurs are filling the water and sanitation gap that has been created both by neglect and excessive intervention by national and municipal governments.

This chapter analyses some of the primary issues which prevent improved urban access to water across Africa. The region is often characterised as being water-deprived. Yet the main problem is not necessarily physical quantities of water, but the efficiency with which water is used, and the lack of ability to utilize more. Note that although this chapter focuses on urban water, the problems of water scarcity in many rural areas are similar or worse – however, space constraints prohibit detailed discussion of these issues.

## Background

Africa is perceived to be a water-scarce region. Yet the problem is not necessarily an absolute physical scarcity of water, but a relative



scarcity – one of an economic nature. Scarcity in urban areas especially relates to mismanagement by governments. In contrast, markets have been shown to be superior at addressing resource scarcity of all kinds. So why is water still allocated by governments in so many African countries?

Since the time of independence, many African nations (with a few notable exceptions) have viewed provision of water to be the responsibility of government. Motivated by paternalistic considerations and the philosophy of "need", these post-colonial African governments have presented water and sanitation, along with other community services, as basic public services to which all citizens are entitled, and for which generous subsidies (paid from government coffers) are required.

At the same time, economic growth has stagnated in many countries, while cronyism, nepotism and general ineptitude have characterized the performance of many (African) government officials.

In 2000, the WHO estimated that Africa contains 28 percent of the world's population without access to improved water supplies, and 13 percent of the world's population lacking access to improved sanitation (WHO 2000, 6.1). Only 62 percent of people in African countries have access to improved water supplies, and only 60 percent have access to sanitation (these figures include urban and rural access) (ibid.).

In these areas, public water services have typically been assigned to a single city-wide water authority. The ability of governments to deliver water has been negatively affected by a number of factors, many of the government's own making. One problem is that, whether intentionally or not, land-use planning systems are failing to recognize that a growing proportion of Africa's population has moved (and is moving) to urban areas (see WHO 2000, 4.2).

Table 7.1 illustrates, among other things, how urban populations grew between 1990 and 2002 in six representative African countries. Table 7.1 also provides the WHO's estimates of the proportion covered by water connections and sewerage ("sanitation"), for six

countries in this table are discussed throughout this chapter.

Approximately 27 percent of Africa's urban population lives in dwellings on the outskirts of formally recognized "urban" areas, often referred to as shanty towns or slums (ibid.). Because these areas are not formally recognized by the government, they are denied services such as water and electricity that are (nominally at least) supplied by the government. A 1993 study showed that:

> *In most cases, land-use planning defines a city according to fully serviced areas. Those areas where low-income families live without access to water and sanitation, by this definition, are not considered urban land. Similarly, often no cadastral database exists for families living in informal peri-urban settlements. Hence, they are not included in municipal development plans.* (Solo et al. 1993, 19)

The same study outlined the following barriers to improved water and sanitation services (Solo et al, 1993, viii):

- Cities are often defined according to fully serviced areas, which do not always include the poor.
- Planning is by prohibitive zoning.
- Population growth rate is not always taken into account.
- Prohibitive land-use planning distorts the urban land market.
- City planning and building codes define housing without services as unacceptable.
- Legalization and property rights must first be approved before ownership of land is recognized.

Underlying these barriers is the fact that poorer people often are viewed with disdain by government officials and the elite. The poor lack both political clout and legal standing. As a result, they are unable to obtain public services that are ostensibly theirs by right. Moreover, they lack formal title to the land upon which they live. Because of the generally burdensome regulatory environment



and high cost of enforcing contracts through the law courts, the poor tend not to participate in the "formal" economy.

What all of this means in practice is that many urban residents – especially the poor and those who reside in peripheral urban (peri-urban) areas – have insufficient access to water.

## Public versus private provision of water

In many of Africa's large urban areas, municipal water systems are characterised by heavy losses – both financially and of water itself. Given a general failure by the public sector to provide reliable and adequate water at an appropriate price, some governments have engaged private sector water providers to manage the supply.

The broad aims, which have varied in each context, were to increase efficiency, and to generate enough revenue to cover operating costs and thus encourage investment. The arrangements in such situations also varied: in some cases ownership has been transferred to the private company. In others, a lease or a management contract is agreed, under which a company oversees existing infrastructure, ownership of which is retained by governments. The brief case studies below are intended to provide examples of the situation pertaining to urban water systems in African countries.

### Dar es Salaam, Tanzania

A 1997/98 study found that the government-managed water system of Dar es Salaam, population approximately three million, had 98,000 connections. In addition, loss rates were horrific: 53 percent of water was "unaccounted-for." Meanwhile, although 88 percent of water production was billed to consumers, only 54 percent of this was paid.[1]

Low income areas were "essentially un-serviced by utilities." Instead, "third party initiatives" filled the gap created by government. These include, "vendor-supplied water services on push-carts, shallow wells belonging to more financially influential residents, and to a limited extent utility water connections in a few residences"

(Wandera 2000, 15). Where such water connections exist, "these residences sell water to neighbors and to vendors who subsequently deliver water to areas of shortage." Sanitation services are also provided by such third party initiatives, "typically by way of traditional pit latrines that are emptied by frog-men" (ibid.).

### Nairobi, Kenya

A 2005 study of government water supply to Nairobi, population three to four million people, shows that the city has 182,295 legal water connections (Gulyani et al. 2005, 4). The system loses approximately 50 percent of its water, including both "technical losses" (i.e. leakages) and "commercial losses" (i.e. unbilled and uncollected revenues and theft). However, the system itself has unreliable data on household water use and losses by households and other entitites, and it has insufficient metering. Thus, "bills are based on presumed consumption. The billings system is poor, collection efficiency (or revenues collected as a proportion of total billed) is 65 percent, and accounts receivable stand at more than two years of billings" (ibid.).

### Conakry, Guinea

In 1989, Guinea extended a private lease agreement for operation of water services to 17 cities and towns, including the capital city of Conakry.

Before the 1989 reforms in Conakry's water sector, access to water in the city was estimated at less than 40 percent (Menard and Clarke 2000, 1). At that time, the city's then population of around one million people was serviced by about 3,100 legal unbilled connections, 10,200 unbilled connections and an (estimated) 4,000 illegal connections (ibid.). Unaccounted-for water was at least 60% in 1983 (ibid. 10).

The pre-reform water system was "almost inoperative," yet it employed a staggering 42 people per 1000 customers (Noll et al. 2000, 25). At the same time, "tariffs did not cover operating costs, much less capital costs" (ibid.) The system was "on the verge of collapse, delivering poor quality water (in some cases through lead pipes) for only a few hours a day" (ibid. 21). Owing to a lack of safe water and sanitation, the city had high infant death rates and frequent outbreaks of cholera (ibid.).



Following the 1989 reforms, "Capacity more than doubled, water quality and service improved dramatically, the population served almost doubled, and coverage expanded from 38 to 45 percent" (ibid. 37). Nevertheless, for several reasons, it seems that weak institutions have created difficulties for the private operator and weakened its ability to deliver the expected benefits: "Guinea's weak institutions made it hard for the government to negotiate and commit to an affordable water tariff with the private operator. These same weaknesses paralyzed operation under public ownership" (ibid.).

The main institutional failures were:

1. "The leaseholder's main risk has been from confiscation of quasi-rents by government and consumers through non-payment of water bills in a legal system where cut-offs are hard to enforce" (ibid ). "Interestingly, rents are not expropriated in Abidjan [discussed below] or Conakry through low consumer prices, but by forcing the operator to supply non-payers, especially the government" (ibid. 39). The government has been "the worst source of accounts receivables" paying only 10 percent of its bill in 1993 (ibid. 31).[2]
2. Despite widespread metering, Guinea's laws "make it hard to disconnect non-payers permanently or penalize persons for illegal connections" (ibid, 31). In 1996, "58 percent of private bills went unpaid" (Cowen 1999).
3. Unaccounted for water (UFW) – an "indicator of the efficiency of a water utility" (Noll et al. 2000, 12) is still very high. "UFW was not accurately measured before reform and remained very high at 50 percent in 1996, because of the inability to collect bills and prevent illegal connections" (ibid. 32).

One reason that Conakry has high water tariffs is "the costs of the system sized for a larger customer base are spread over so few paying connections" (ibid. 34). In 1996, the city had 17,638 legal connections, and 130 stand pipes (estimated to serve 975 people each) (ibid. 31–32). "Conakry's tariff was set to cover the cost of servicing the debt contracted prior to the lease, even though much of this was inefficiently invested. Thus, Conakry has a system with abundant, low-cost water that is priced beyond the means of many citizens" (ibid. 32).

### Abidjan, Cote d'Ivoire

Cote d'Ivoire has the longest running private water system on the continent, operated today by the French multinational company, SODECI. Starting in 1959, Abidjan's water system was managed with a lease contract (ibid. 18). In 1986, the private operator had only 9.8 employees per 1000 connections – which is a small number compared to public sector water systems in the region (Menard and Clarke 2000, 9).

Abidjan (population three million) has a water system that uses a "cost plus pricing regime which passes all costs on to consumers" (Noll et al. 2000, 30). "Metering, billing, and collecting from private consumers are almost universal; the main exception has been large accounts run up by the government" (ibid). As a result, the billing recovery rate is about 80 percent (Lauria et al. 2005, 27). In general, "large volume consumers, who are almost all industrial, cross-subsidize all other users, including government, while small consumers (less than 18 $m^3$) pay least, about a third of the tariff on large volumes (over 300 $m^3$). Consumers in the rural areas within the district are also cross-subsidized" (Noll et al. 2000, 30–31).

### Dakar, Senegal

In 1996, Senegal's water sector was reformed. A public holding company – SONES – is under contract to the country's Ministry of Water to provide water services to the people of Senegal. SONES holds and owns assets, and then leases operating services to SDE, a private enterprise. The effect of this transfer from public to the private sector management has been dramatic. Between 1996 and 2001, the number of clients increased by 35 percent (from 241,671 in 1996 to 327,501 in 2001) (Brocklehurst and Janssens 2004, 21).

By 2000, SDE was supplying 85 percent of households in Dakar, a city with a population of 2.5 million (Collignon and Vézina 2000, 16). Between 1995 and 2002, "private water connections increased from 135,414 to 181,824", a 34 percent increase which exceeded the planned target. Likewise, the number of public standpipes increased by 50 percent (from 940 in 1995 to 1424 in 2002) (Brocklehurst and Janssens 2004, 21). Meanwhile, the billing recovery rate "is more than 90 percent in Senegal" (Lauria et al. 27).

Since 1996, many areas which were previously un-served have been connected to the network, as the system was expanded and extended by SDE, SONES and by private third parties. "Private developers have paid for and constructed more than 50km of water distribution network every year over the last three years, or 60 percent of additions to the network" (Collignon and Vézina 2000, 13). "The entire network increased [by 23 percent] from a length of 4319 kilometers in 1996 to 5330 kilometers in 2001" (Brocklehurst and Janssens 2004, 22).

Although agencies of government – especially municipal governments – initially were averse to paying their own bills, the government implemented "corrective measures to reduce the high water usage of public sector clients, budget annual public agency consumption, and pay government water bills within two months of their being served." As a result, "Senegal is one of the few countries in the region in which the government does, eventually, pay its bills" (ibid.).

*Discussion*

This small sampling of urban water systems in several African countries enables us to identify some of the unifying characteristics of public sector water provision. These characteristics are provided in context of economist Gabriel Roth's observations (1989) about public sector services:

| **Public provision** | **Private provision** |
|---|---|
| High levels of water loss and insufficient metering. | Lower levels of water loss and widespread metering. |
| A lack of competition. | Varying degrees of competition. |
| Prices that do not reflect the actual cost of water processing and delivery.[3] | Prices that reflect operational costs plus the opportunity costs of capital. |
| Heavy financial losses, but a poor ability to recover costs and, thus, little if any ability to fund future infrastructure. | Profitable enterprises that have the capacity and incentive to expand services both geographically and to the existing customer base. |
| Low transparency and accountability to customers/ recipients of the service. | More transparent; operate on the basis of contractual relationships with customers. |
| Rent-seeking by public officials. | Rent seeking limited by obligations to abide by contractually agreed terms. |
| An inability to cope with a dynamic urban situation, in particular, a growing urban population.[4] | Dynamically responsive to changing demands – expanding markets seen as an opportunity, not a threat. |

These conclusions concur with Roth's analysis regarding public sector enterprises:

- First, governments tend to make decisions concerning public enterprises based on political considerations, granting favors to one interest group at the expense, and to the detriment, of another interest group or of society as a whole.
- Second, because such enterprises are in fact government monopolies, they suffer many of the same problems attributed to private sector monopolies. Due to lack of competition, government enterprises are prone to inefficiency. Employees have insufficient incentive to provide the best service possible to customers.
- Third, lack of competition often leads to huge financial losses, which taxpayers are forced to cover. The need of governments in poorer countries to cover billions of dollars in such losses from their budgets has diverted enormous resources from other crucial social needs and contributed to huge debts.
- Fourth, because taxpayers ultimately cover such losses, and because of the considerable political power of workers employed in government enterprises, such enterprises rarely shut down even when they fail to meet public demands.
- Fifth, government economic forecasts are usually based on relatively few "scenarios" or projections of demand and are divorced from market processes. Thus government management of any given industry tends to be based on incomplete or outdated information. (Roth 1987, 4–5)



In contrast to public sector and government-run water systems, the private sector has performed substantially better – even when it has merely been responsible for managing the system.

## The right kind of "privatization"

Opponents of private water ownership and management claim that access to water is "a human right" and that water itself is a "common good." They specifically oppose the sale of water to multinational corporations. The following is a typical example:

> *Water belongs to the Earth and all species and must not be treated as a private commodity to be bought, sold and traded for profit. Because the global water supply is a shared legacy, protecting it is a collective responsibility – not the responsibility of a few shareholders.*[5]

These opponents claim that privatization is the process by which public utilities are sold to large private companies, or are given leases to supply water through existing infrastructure. While this is one way in which water has been privatized it is by no means the only way and it is often not the best way.

If governments do choose to sell existing infrastructure to private companies or to extend management leases, it is important that this process occurs in an open and transparent manner – for example through an open auction.

Failure to do so often leads to cronyism, with government monopolies being transferred to members of the ruling clique or to a foreign corporation that has paid a bribe to public officials. The company may retain the monopoly over service, and it is plausible that this may increase the price of water such that the poor cannot afford it. A foreign-owned company will tend to repatriate its profits, to the benefit of shareholders which typically are located elsewhere.

But to criticise private ownership and management of water on the basis of such corrupt transfers is hardly fair. In fact, the criticism should more fairly be directed at the government which pushed through the "privatization." Moreover, these problems will in most cases have existed long before the privatization, and continue to plague not only the urban water systems but economic development in the country more generally.

This is not to excuse poor behaviour in terms of contract negotiations or the other complex procedures involved when businesses deal with government. However, it is important to recognize that privatization does not occur in a vacuum; privatization itself will not overcome a poor institutional setting in which governments are unaccountable, corrupt and inept.

Opponents of privatization continue to claim that governments can supply adequate, reliable high-quality water. However, on the basis of the small but representative sample of countries and cities considered in this chapter, this is incredibly naïve or disingenuous. When water is under public management, the poor generally do not



receive high-quality, reliable supplies of water (at least, not from the government suppliers). Residents of informal settlements on the periphery of urban areas typically lack formal title to their land and are excluded from ever receiving such water (Collignon and Vézina 2000, 43; Lauria et al. 2005).

While some connections may receive government subsidies, these tend to be households that are moderately wealthy (ibid.). The poor often do not benefit from government-subsidized water at all. For instance, although Nairobi's government water kiosks receive subsidized prices from the municipal utility,

> *[The kiosks] are neither providing the quality of service desired by users nor achieving the utilities' objective of subsidizing costs to poor households…[The] kiosk owners charge, on average, a price that is 18 times higher than the subsidized prices at which they receive water from the utility* (Gulyani et al. 2005, 26).

Based on evidence from Côte d'Ivoire and Senegal, Lauria et al. (2005) conclude that in terms of targeting the poor, "subsidizing connections is probably better than subsidizing consumption." This is because "if connections are subsidized, the users will pay for consumption" (27).

Moreover, the opponents of private water provision seemingly fail to recognize, or ignore, that in the absence of state-provided water, the poor in many if not all African countries are in fact paying for their water. They buy it from informal entrepreneurs, who supply water and sanitation services to their fellow citizens because they make a profit from so doing. Though this "profit" is unlikely to amount to millions of dollars, the fact that poor individuals buy and sell water and sanitation services from each other demonstrates that a market does exist. The profits of these mostly one-man operations "are largely reinvested in the water or sanitation business or in other local economic activities" (Collignon and Vézina 2000, 15).

One likely reason that poor consumers purchase water from these informal vendors is that they can use their time more efficiently in

other pursuits. Likewise, the vendors have specialized to fill a particular niche which was previously untapped.

The right kind of privatization should acknowledge the informal economic activity which – at least according to one quite comprehensive study ("Independent Water and Sanitation Providers in African Cities: Full Report of a Ten-Country Study" by Bernard Collignon and Marc Vézina) – is already occurring in many urban areas of Africa today (discussed below). Likewise, it should enable that informal activity to become formalised. As noted elsewhere in this volume (Robinson, chapter 8), privatization is a necessary but not sufficient condition for achieving better allocation of water.

True private provision of any good, including water, means that the private sector and the private sector alone – which encompasses entrepreneurs of all sizes, and not just multinational corporations – is able to satisfy the demand for that good. Entrepreneurs play a key role in supplying those goods and services. They identify an opportunity to solve some form of scarcity – such as supplying water to fellow residents of a slum. They seize upon that knowledge and use it to provide goods and services to customers in exchange for payment. At a very basic level, such as that observed in the informal economy of African cities, such specialization in economic activity is the key to economic development.

When buyers and sellers strike a deal in a market, "The resulting contracts convey much information to all concerned" (Kasper 2005, 8). This is the genesis of market competition: "Profitable pioneers thus find imitators, who either copy the technology (diffusion) or improve on it. Further potential entrepreneurs are informed as to what inputs can best be bought where and when, and so on. Other buyers may be inspired to obtain the product, too, and they also find where best to shop for it" (ibid.).

Thus, the word "entrepreneur" does not refer to the size or the scale of the business, but rather, to the nature of its role in coordinating the use of resources in a society. Economist Israel Kirzner refers to this as a "competitive entrepreneurial discovery process" (Kirzner 1984, 416). An entrepreneur fulfils a complex role in a market and as economist Wolfgang Kasper observes, no one should take the entrepreneurial discovery process for granted:



> *[The entrepreneur] must discover where to obtain the raw materials and components, how to assemble them in a cost-effective manner, how to distribute and service the product, how to train workers in appropriate skills, and how to finance all of these costly efforts. And he constantly faces the threat that other entrepreneurs will enter the market, and take his market share and profits. This implies a wide-ranging and complex knowledge search about conditions in an interactive and ceaselessly changing world* (Kasper 2005, 6).

The phenomenon by which entrepreneurs provide goods and services demanded by consumers is often referred to as the "market process," which is characterised by both the entrepreneurs who make it happen and, equally importantly, the environment in which those entrepreneurs are able to operate.

Many governments around the world have failed abjectly to create an enabling environment for entrepreneurial activity – of all sizes, shapes and forms – to take place. The following is an example of some of the obstacles in Ghana which prevent entrepreneurs from conducting business in a manner considered "legal" by the government:

- Entrepreneurs can expect to go through 12 steps to launch a business over 81 days on average, at a cost equal to 78.6% of gross national income (GNI) per capita. They must deposit at least 27.9% of GNI per capita in a bank to obtain a business registration number.
- It takes 16 steps and 127 days to complete the process [of complying with licensing and permit requirements for ongoing operations], and costs 1,549.7% of income per capita.
- It takes 7 steps and 382 days to register property. The cost to register property is 3.7% of overall property value.

- For a medium-size company to pay taxes in Ghana, entrepreneurs "must make 35 payments, spend 304 hours, and pay 45.3% of gross profit."
- It takes 23 steps and 200 days to enforce contracts. The cost of enforcing contracts is 14.4% of the debt. (Doing Business 2006)

Economists refer to these as "transaction costs"; they are essentially the costs of "doing business" in a setting in which property and contracts are protected by the state. To contrast with Ghana, in New Zealand it takes two procedures and 12 days to establish a business and costs of 0.2% of per capita GNI, with no bank deposit necessary.

Meanwhile, obtaining a license takes 7 procedures and 65 days (actually relatively long compared to the OECD average of 14 days) and costs 29 percent of GNI per capita. It takes two days and two procedures to register property and costs 0.1 percent of the value of the property. For a medium sized company in New Zealand, paying taxes requires 7 procedures and takes 70 hours (though companies are taxed at 44.2 percent of gross profit, which is similar to Ghana). Meanwhile, it takes 19 procedures and 50 days to enforce a contract, with the cost being approximately 4.8 percent of the debt owed.

When the transaction costs are as high as they are in Ghana, they clearly put entrepreneurs off doing business in the formal economy. This does not mean that Ghana and other countries in a similar situation lack transactions. What it means is that many or even most transactions take place in the "underground" or informal economy.

Why are formalized institutions so fundamentally important in reducing the costs of transacting in markets? Kasper explains that institutions "create a degree of certainty for entrepreneurs, which enables them to concentrate on the technical and commercial knowledge search of innovation." Likewise, these institutions "allow entrepreneurs to economise on searching for many types of knowledge about potential risks in that they establish a trustworthy legal and social environment. Thus, they facilitate the entrepreneurial mobilisation of capital, labour, technology, skills and natural resources" (Kasper 2005, 23).



Economist Gabriel Roth explains that markets deliver superior results because "the private sector, taken as a whole, has an excellent information base" which helps to determine the real cost of goods and services through prices. Private provision of services introduces competition "and thus avoids many of the problems of government monopolies". This is especially true in terms of the quality and cost: "Services must meet customer demands and therefore tend to be of appropriate quality. And production tends to be in the most cost-effective manner" (Roth 1989, 5; for more in-depth explanation see Morriss, this volume, Chapter 2; Robinson, this volume, Chapter 8).

## Africa's informal water entrepreneurs

As noted above, high transaction costs discourage businesses from operating in the formal economy. In the context of water services, the public sector in many African countries has failed to provide all sectors of society with high quality water at a low cost. The state then compounds this problem by imposing all manner of restrictions against private provision, ensuring that where the poor do get water it is being supplied by informal companies at a relatively high price.

As noted by Bernard Collignon and Marc Vézina (2000, 39) in their study of water and sanitation in ten African countries, "the vagaries of unpredictable political and economic conditions found in most countries" are the foremost concern of any African entrepreneur. Most of these businesses involved with water and sanitation services they studies "remained in the informal sector." That is, they are not registered with government authorities because of government barriers to doing business.

The evidence collected by Collignon and Vézina suggests that a plethora of entrepreneurs operating completely in the private sector – albeit in the informal, extra-legal economy – are getting around the water scarcity and dearth of sanitation services which have been created by their governments. For water services, "independent providers are dominant in six of the ten cities studied and play

a major role in the others, serving most of the low-income areas in all cases."

This is particularly important with sanitation services. As noted by the study's authors, "Most households in African cities – 70 to 90 percent overall, and virtually all poor households – deal with their own waste by building their own latrines or septic tanks or hiring others to do it." The public sector is "generally not involved in this area, [so] private providers dominate the market and offer services tailored to customers' needs and incomes, for the tasks that households choose not carry out themselves: masons who build latrines, manual latrine pit cleaners, suction truck operators for septic tanks, and manual or mechanized drain and latrine ditch cleaning services" (Collignon and Vézina 2000, 24).

In all ten of the cities studied by Collignon and Vézina, "manual latrine cleaners and suction truckers are well organized and widespread" (33). Private toilet operators are successful in five of ten cities.

Entrepreneurs in the informal sector are familiar with their customer base, since they are providing services to people who live around them in a similar situation – in the slums of African cities. They are likely to live and operate in "illegal" dwellings – whether slums or shanty towns. Their jobs are far from glamorous, and hard work. Because generally they are unable to acquire loans from banks and financial institutions (for example, because they lack formal title to their land), they seek loans from family members when they want to start a business.

A characterization of such an individual,

> *shows a versatile man, risk and publicity averse; capable of raising important sums of money when necessary, but without a logo or a front office. He seeks no loans from the bank, nor does he pay the city business tax, if he can avoid it. He can and does cover many bases, depending on what is most profitable today. His relations with other providers are opportunistic, governed by the practical advantage conferred, with little inclination (at least so far) to control or restrict the free operation of market forces* (Collignon and Vézina 2000, 37).



Most of these entrepreneurs are individuals, but some have even become medium-sized businesses. Their individual revenues may not amount to millions of dollars – but the scale of these transactions does not matter. The fundamental point is that poor people pay those entrepreneurs to provide water and sanitation in slums where they live together.

The evidence suggests that the informal sector is more responsive to demands of individuals – and sometimes it has been so successful that government kiosks have been put "out of business", as it were. An interesting case study of Mtwara, a coastal city of approximately 123,000 people in Tanzania (Wandera 2000), revealed that the municipal water utilities began with good intentions to run government-sponsored water kiosks. However, these often resulted in poor service – for a variety of reasons. One of those was that the kiosk operators were not investors in the kiosks, nor were they paid a sufficient wage for their operation services. For consumers of water, even if this water was in principle "cheaper", it was often not available at the right time and/or place due to erratic service from the utility.

So in place of poor service offered by government kiosks, private water connection holders "installed holding tanks…and offer[ed] more reliable retail services." Specifically, "the private water sellers are able to cushion themselves from the utility's service interruptions by using the water in holding tanks as buffer supplies." Where such private connections exist, "the [government] kiosks…are closed due to lack of market" (Wandera 2000, 40).[6]

A similar case study of Arusha, Tanzania, concluded that third-party interference with water retailers should be limited to regulatory price measures, and even this "must be kept within the constraints of the prevailing market forces." This is based on the author's conclusion that water retailers are "adversely affected by non-commercial institutional impositions" (ibid. 31).

From their survey in urban areas of Kenya, Gulyani et al. (2005)

conclude that those households "are acting largely as informed and rational economic decision-makers". Moreover, "there is a well-established private market for water," and that it is "similar in nature to the market for a consumption good – it works on price and quantity, all else being equal." Survey respondents, regardless of age, wealth or gender, "understand the value of water, treat it as an economic good, and have moved away from any erstwhile notions that it will be available from a public source at low or no cost" (28).

## Conclusion

The poor in African countries generally lack reliable supplies of clean, piped public water as well as sanitation services. But this chapter has demonstrated that their demand for those services is being met in part by informal entrepreneurs. They view water and sanitation services as a commercial opportunity, unlike the government's approach which tends to view these extra people as a burden on existing systems.

It is a truly remarkable feat that informal entrepreneurs and their business activities are able to fill a gap created by public sector water and sanitation systems. They supply a large proportion of water, and 70 to 90 percent of sanitation services to the low-income residents of at least 10 African cities.

Sadly, many governments across Africa seem to be averse to "bottom-up", decentralized solutions to the supply of water and sanitation. As a result, these informal entrepreneurs are often castigated by government officials and the ruling elite. This helps explain why governments fail to recognize that their cities are growing. The new urban areas deserve to be legally recognized – especially in light of the fact that Africa's urbanization is projected to continue for the next few decades.

The evidence considered in this chapter seems to refute the conventional wisdom about water and sanitation, which normally suggests that the poor simply lack water and sanitation altogether.



Most importantly, it shows that governments can undertake simple policy reforms to enable those activities to occur, without creating further demands on government coffers.

If governments were to focus on reforming economic and institutional conditions more generally (a strategy which would have widespread economic and social benefits), then it is likely that decentralized entrepreneurial activity could offer an enormous potential to solve existing problems. As Collignon and Vézina (2000) observe:

> *Supporting independent providers is thus perfectly in tune with current institutional and economic trends in Africa, and it does not imply a choice between city-wide entities and independent operators. The central and municipal governments' roles are rather to see that these two kinds of providers complement each other in the marketplace and that fair competition is encouraged. Given the choice, users can be trusted to judge for themselves where to take their business.* (60)

While public sector water systems often tend to view extra people as a burden, entrepreneurs view those extra people as an opportunity. By creating an enabling environment for entrepreneurship – such as removing artificial barriers to legal business ownership, and ensuring the application of the rule of law – entrepreneurs would be empowered to provide all levels of service, small or large.

Reforming land tenure systems – especially by enabling the poor to own their property in areas which are considered marginal, such as slums and shanty towns – would also greatly improve the situation. African governments must undertake reforms that broaden economic opportunities in general. This is the way to enable ordinary Africans to have reliable, affordable, high quality supplies of the most basic necessity of life: water.

## Notes

1. Based on figures from the Tanzanian Ministry of Water, cited in Wandera (2000), Table 5, p. 14.
2. Noll et al. (2000, 31) note that "the introduction of meters drastically reduced government consumption and the intervention of the French aid agency in 1996 helped the government and the company settle their cross debts and keep down arrears."
3. In the absence of market competition and the market process, it is impossible to say whether these prices are 'too high' or 'too low'.
4. Between 1990 and 2002, all of the sample African countries depicted in Table 7.1 experienced a growth in their urban populations and similarly, a decline in rural populations.
5. A quote from the website of one of the organizations which campaigns against privatization and business more generally. Online: http://www.citizen.org/cmep/Water/activist/articles.cfm?ID=9589

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