

## Reforming Without Resourcing: The Case of the Urban Water Supply in Zambia

By Hulya Dagdeviren and Simon A. Robertson

### I. Introduction

Public water supply systems have increasingly been subject to commercialisation or corporatisation in the developing world. This method is sometimes used as a surrogate for privatisation in circumstances where existing systems of provision are unattractive for multinational water companies. By reforming the public sector in the image of independent and self-sufficient private enterprises, the chief aim of commercialisation is to improve the efficiency of operations often associated with the private sector.

Reforming public utilities to improve performance is certainly very commendable, whether it be to enhance their financial viability, service quality or service coverage. Problems arise when policies are derived from a prototype developed elsewhere and copied without regard to the social, economic and political conditions in which they are to be applied. Often, failure to consider context specificity may lead to one set of goals, such as financial viability or efficiency, being emphasised to the detriment of another set of goals, such as affordability, extension of service coverage and so on.

This Policy Research Brief outlines the process and outcomes of commercialisation of the water supply in Zambia, with a view to extracting lessons for low-income economies elsewhere. For a full account of this case study, see Dagdeviren (2008). The crux of the conclusions is that commercialisation inhibits the development of service provision when implemented in an environment where social policy objectives, such as affordability of supply and expansion of network access, are a prime concern. This inherent flaw should be remedied by means of substantial investment and other revisions to the tariff structure.

### II. Background

In Zambia, commercialisation of the water and sanitation system (WSS) started in the late 1980s against a backdrop of economic decline, falling incomes, increasing poverty and high national indebtedness. In this period the water sector was under enormous pressure to meet growing demand, while the geographically limited and deteriorating infrastructure required significant investment for maintenance and network extension.

The process of reform has been spread over a period of two decades and has involved numerous measures, including:

- regional decentralisation of the water supply network;
- creating autonomous public companies to operate the system;
- using new management practices that emulate the private sector;
- curbing overstaffing, and improving billing and revenue collection;
- eliminating transfers from the government to the sector, especially for investment;
- ring-fencing the providers' cash flows;
- using commercial principles in setting tariffs; and
- reducing subsidies to users.

The goal of all this has been to enable providers to achieve full cost recovery, including the cost of operations, maintenance and investment, without recourse to the use of government funds.

The water sector reforms in urban Zambia began with the corporatisation of the WSS in Lusaka in 1989 and continued with a period of "tariff rationalisation", as well as legislative and institutional changes from 1992 onwards. The process accelerated after 2000 when the regulatory body, the National Water Supply and Sanitation Council (NWASCO), became operational and nine more "commercial utilities" were established as autonomous enterprises. They assumed WSS responsibilities previously entrusted to local authorities, but



Photo by Arjun Kartha.

remained under the ownership of those authorities. In 2005, these utilities served about 40 per cent of Zambia's total population and 86 per cent of the peri-urban population. The remaining WSS services were provided by local authorities.

The model of commercialisation implemented in Zambia shares its origins with privatisation elsewhere, and thus suffers from similar problems arising from the use of inappropriate models of provision in developing-country contexts. In practice, the twin policy goals of ensuring commercial viability and meeting social objectives have been shown to be incompatible, if not contradictory, under the new system. The conditions that prompted commercialisation have not improved significantly since the reforms were implemented. WSS access is similar to pre-reform levels, commercial utilities remain reliant on external support, and levels of investment are insufficient to improve infrastructure or expand networks.

### III. Tariffs and Affordability of Water

Tariffs for all water utilities in Zambia are set according to the category of housing, which is classified as low-cost, medium-cost or high-cost for cross-subsidisation purposes. The "tariff rationalisation" process started in the early 1990s, since when tariffs have increased by between twofold and eightfold in real terms. Low-cost water charges have increased more than medium-cost charges, and in some provinces even more than high-cost tariffs. Because of the policy of cost recovery, therefore, and the associated increase in tariffs and reduction in cross-subsidy, tariffs remain unaffordable for many of Zambia's poor, and pricing has become more socially regressive during the period of commercialised operations.

Poverty is a major problem in Zambia. Most recent estimates suggest that 68 per cent of the population live in poverty.

When poverty is widespread, access to water in commercialised systems of provision is influenced by the affordability of connecting to the network, and of the water supply itself. Affordability is often measured according to the share of household income allocated to payments for water. If households spend more than 3 per cent of their income on water, the tariffs are considered to be unaffordable.

Using the same method, we found that low-cost water charges are unaffordable for the poor in all urban centres except those in the Southern province. Overall, water is unaffordable for 60 per cent of households in Zambia as a whole.

### IV. Decline in Access to Safe Water

After commercialisation, the proportion of the population with access to safe water declined from 72 per cent in 1992 to 57 per cent in 2002 at the national level. The overall deterioration in rates of access to safe water has been less dramatic in urban centres than it has been nationwide. But there has been a significant decline in the number of residential connections following commercialisation, and urban households have increasingly come to rely on public taps, boreholes, wells, ponds and so forth.

The conflict between social goals and commercial provision of the water supply is plainly visible in the slums or so-called peri-urban areas where most of the urban population live. Commercial utilities are reluctant to supply water in these areas because cost-recovery is very difficult. Political imperatives force the government to devise some solution to the lack of access to safe water in the slums, especially in the face of internal and external pressures. The impetus provided by Millennium Development Goals (MDGs), for example, is particularly pertinent. Currently, the government and the regulator emphasise increasing the number of commercially

Table 1  
Affordability of Water Tariffs by Urban Household, 2002–2003 (%)

Share of Monthly Expenditure on Low-Cost Water in Mean Household Income						
	Lusaka	Mulonga	Western	Southern	Nkana	Chipata
<b>Extreme poor</b>	7.4	7.9	9.0	3.5	5.3	14.0
<b>Moderate poor</b>	5.2	5.6	6.3	2.5	3.7	9.9

Source: Dagdeviren (2008).

Table 2  
Investment in the Water and Sanitation Sector, 1998–2002

	Actual Government Capital Expenditure as % of Budgeted Capital Expenditure	Actual Expenditure* as % of Capital Expenditure Required to Maintain Existing Access Rates	
		Low-cost strategy	Medium-cost strategy
<b>1998</b>	3.1	8.9	2.4
<b>1999</b>	2.4	11.0	2.9
<b>2000</b>	3.0	6.9	1.8
<b>2001</b>	12.3	7.7	2.0
<b>2002</b>	8.8	8.2	2.2

Source: Dagdeviren (2008).

\* Including donor funds in the sector.

operated public taps (kiosks), which can be viewed as a quick-fix solution to meet the MDG for water. These interventions in the peri-urban areas will relieve the problems associated with lack of access to water in the short term, but it is doubtful if such measures are sustainable or even desirable in the medium to long term.

## V. Decline in Investment in the Water Sector

Full cost recovery is the chief goal of commercialising public utilities, but so far this has been impossible in Zambia. The main reason is the high levels of unaccounted-for water (UFW), which is the water produced but not billed for. The factors that contribute to rising levels of UFW include leakages in the system because of lack of maintenance and poor infrastructure, water wastage as a result of unmeasured consumption coupled with fixed payments, and vandalism. On average, about 50 per cent of the water produced by the commercial utilities was unaccounted for in 2006. In other words, they could earn revenue for only half of the water they produced.

Hence the commercial utilities have little capacity to invest in improving or expanding infrastructure without transfers from the government or aid from donors. Financing from these sources, however, has been meagre since the start of the commercialisation programme. The government always underinvested in the sector. As Table 2 shows, its actual investment amounted to between just 2 and 12 per cent of its planned capital spending on the WSS from 1998 to 2002.

At the onset of commercialisation, a government-funded project suggested that between US\$407 million (a low-cost strategy) and US\$1,553 million (a medium-cost strategy) would have to be invested every year in the period 1994–2003 to rehabilitate the existing system and expand the network in order to obviate any reduction in access rates. Actual capital expenditure in the sector, even when combined with donor funds, has never exceeded a trivial proportion of the levels required by the low-cost and medium-cost strategies.

Lack of investment in the sector has repercussions for the continued high levels of UFW. It will be difficult to curb UFW unless the water infrastructure is repaired, maintained and extended. Thus far, the commercialisation programme has emphasised tariff rationalisation. Unless investment needs are met, no tariff rise can achieve full cost recovery in the sector without aggravating the problems associated with the affordability of water and access to it. If investment needs remain unmet, WSS provided by commercialised enterprises will persist in a “vicious circle” of low investment levels, high system losses, unaffordable tariffs and low access levels. This circular process counteracts the potential for truly autonomous self-sufficient enterprises as envisaged by commercialisation, and more importantly it robs WSS services of the potential to meet social policy objectives.

## VI. Regulation of WSS

It is widely known that the neoliberal paradigm has dominated the policy agenda for public sector reforms for about three decades. The naive views of the earlier years have evolved and the complexities of these reforms, including corporatisation and privatisation, are now recognised. There seems to be acknowledgement that there is no universally applicable

blueprint for utility sector reforms. These considerations were expressed by the World Bank in a landmark publication on reforming infrastructure (Kessides, 2004). A thorough review of the changing views on utility sector reforms since the 1980s can be found in Bayliss and Fine (2007). The new wisdom highlights the importance of regulation for the success of public sector reforms, though this in itself may be problematic and is very similar to universal application of a model derived from developed-country systems.

Attempts have been made in developing countries to introduce models of independent regulation that are akin to the schemes for WSS provision in developed countries. It is assumed, however, that the financial and technical resources needed for this form of regulation are available to the regulatory agency in the developing country. In Zambia, independent regulation has taken the form of assessment by the regulator, NWASCO.

The assessment has focused on the performance of, and “yardstick competition” between, each utility. NWASCO, however, is underfunded and understaffed, and the development of regulatory practice continues to be *ex-post* when it should be considered a prerequisite. Moreover, if measures were to be implemented in an attempt to achieve social objectives, evidence from elsewhere indicates that the functions of the regulator necessarily expand (to encompass cross-subsidisation, for example), and therefore further strain is placed on limited financial and technical resources.

Even when the regulatory agency has sufficient capacities and is closely aligned to the idealised model, the evidence suggests that the successful operation and regulation of WSS is uncertain and often remains problematic. As Parker and Kirkpatrick (2006) maintain, if the regulatory agency is to function as intended, it needs strong institutional and legal frameworks that provide the means through which rules and regulations may be enforced. Without this supporting environment, the regulatory agency’s actions may be futile.

Often, the legal and institutional environment runs counter to the neoliberal reforms and to the associated independent regulatory agency, and thus reform is not as effective as intended. This is evident in Zambia, where the mechanisms for enforcing regulatory rules and penalties (essential as a disciplinary measure in the regulatory system) remain unclear. Similarly, institutional roles and the responsibility for tackling affordability and extension of supply to the poor are somewhat obscure.

Despite the shortcomings of regulation in Zambia, NWASCO seems to be striving to improve performance in the WSS sector and has already made significant progress in benchmarking, transparency, reporting and engaging users in the process.

## VII. Policy Recommendations

The commercialisation of the WSS in Zambia has proven to be less than effective because of inherent design flaws. The reforms stressed tariff rationalisation and cuts in government transfers. At present, commercial utilities persist in a “vicious circle” of low investment levels, high system losses, unaffordable tariffs and low access levels. The commercial

efficiency incentives to minimise costs, as well as efforts at cost recovery, counteract the system's potential to be effective in meeting social policy objectives, such as affordable tariffs and network expansion.

There is nothing inherently wrong about autonomous and regulated public water utilities. In fact, reforms to improve public sector performance—including finances, cost recovery, quality of service and transparency of transactions—are welcome. The problem lies with the initial conception of the reforms—that is, the commercial provision of an essential public service. This is especially problematic in countries where household income levels are low, poverty is common and a compensating social welfare system is absent. The more specific policy lessons concern the issues discussed below.

### *Investment and subsidies*

The means by which the conflicting goals of efficiency and social policy may be reconciled involves making significant levels of investment to expand and improve networks, as well as cross-subsidisation among consumers, which in turn should provide a viable system of WSS provision. Experience in other countries suggests that while cross-subsidisation is important in providing socially progressive tariff structures (the integration of valuable commercial consumers into the cross-subsidisation structure is an important factor here), this measure alone is not sufficient because benefits accrue mainly to those connected to the network. The poor are generally excluded, since there is little incentive to expand network access for them (Komives et al., 2005). Cross-subsidisation is also inadequate as an isolated policy when consumers consist mainly of poor and low-income households, as is the case in Zambia and other low-income economies. Meeting the sector's investment needs is essential to

improving the effectiveness of cross-subsidisation and ensuring the utilities' financial viability, since such a step would help reduce the unit cost of production through both the scale effects and lower UFW rates.

### *Access in slums and peri-urban areas*

The problem of access to the water supply in peri-urban areas is much more pressing, not only in Zambia but in many developing countries. Low-cost and quick-fix solutions may be important in mitigating the adverse effects of lack of access to water in the slums. But a decent solution that is sustainable over the long term is beyond the commercialised world of WSS systems, the utilities and the regulators, since it requires concerted interventions from numerous government departments, including housing, urban planning, infrastructure development and so on. It may be important to meet the MDGs, but the MDG for water does not distinguish among different forms of access (such as access from wells, public taps, residential pipes, continuous access and restricted access). It is important to improve the quality of access to water in general, and for slum dwellers in particular, and to that end we have to think beyond the MDGs and 2015.

### *Assigning an institutional mandate to monitor the affordability of water for the poor and their access to it*

In developing countries where poverty is extensive, it is essential that the affordability of water and access to it, especially by low-income groups and the poor, be overseen and monitored regularly. Responsibility for this, and the means of intervention, should be determined on the basis of each country's needs and institutional structure. ■

**Hulya Dagdeviren and Simon A. Robertson,**  
University of Hertfordshire.

---

## References:

- Bayliss, K. and B. Fine (2007). *Privatization and Alternative Public Sector Reform in Sub-Saharan Africa: Delivering on Electricity and Water*. London, Macmillan.
- Dagdeviren, H. (2008). 'Waiting for Miracles: Commercialization of Urban Water Services in Zambia'. *Development and Change* 39 (1), 101–121.
- Kessides, I. N. (2004). *Reforming Infrastructure: Privatization, Regulation, and Competition*. Oxford and New York, Oxford University Press for the World Bank.
- Komives, K. et al. (2005). *Water, Electricity and the Poor: Who Benefits from Utility Subsidies?* Washington, DC, World Bank.
- Parker, D. and C. Kirkpatrick (2006). 'Privatisation and Regulation in Developing Countries', in C. Robinson (ed.), *Regulating Utilities and Promoting Competition*. London, Institute of Economic Affairs.

*The views expressed in this brief are the authors' and not necessarily those of the International Poverty Centre, IPEA or the United Nations Development Programme.*

### **International Poverty Centre**

SBS – Ed. BNDES, 10º andar  
70076-900 Brasilia DF  
Brazil

povertycentre@undp-povertycentre.org  
www.undp-povertycentre.org  
Telephone +55 61 2105 5000

INTERNATIONAL  
**Poverty**  
centre