

Investing in urban water and sanitation systems

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Introduction

Providing water and sanitation services (WSS) to the urban poor in developing countries is a daunting task. Urbanization continues unabated, and more people now live in urban areas than in rural ones (World Bank, 2009). Extending services in large urban areas to keep up with demand is challenging enough: growth in small towns and intermediate-size cities that require new infrastructure increases the complexity for delivering, and financing, services for all (UN-Habitat, 2010).

Water and sanitation infrastructure is expensive. Establishing and sustaining services over time that meet the needs of all requires financing – especially if those services are to reach vulnerable groups. Yet in many cases, traditional approaches to development finance have reached their limits or need to be re-thought. ‘Free’ money, for instance, such as cash grants or gifts in the form of donated equipment or installations from overseas donors or philanthropic organizations, has sometimes proved more a curse than a blessing. Too often, this kind of financing has resulted in service providers that are simply unsustainable. Countries are left with oversize or poorly maintained facilities that cannot be operated because funds are lacking for recurring expenses. At the same time, the accumulation of debt, even at concessionary terms, has weighed heavily on the finances of developing country balance sheets. As a result, there is insufficient funding to upgrade or manage existing services.

Inadequate financing for urban WSS has also made it hard to expand networks beyond core urban centres. Unserved groups – newcomers to urbanized areas, slum dwellers and small-town inhabitants – have only limited access to formal WSS services, which in turn limits their access to better health, education and economic activities. Of course, lack of finance is only one of many factors contributing to this predicament. Lack of awareness of the positive impact that adequate WSS can have on human development; weak governance; graft and corruption; inadequate technical solutions; and inadequate human resources are some of the other factors that have so far prevented the development of WSS in line with rapid population growth

and urban expansion. Yet, though financing is not a sufficient condition for extending services, it is a necessary one. There is therefore a need to better understand where financing for WSS should come from and in what form, in order to address the vulnerabilities and make improvements at the required scale.

Financing urban water and sanitation

What needs to be financed?

Adequate WSS can be seen as a loop between upstream and downstream services, as shown in Figure 8.1.

Providing access to water is usually considered the main entry-point in describing the delivery of WSS – typically from a well or a hand pump or via a reticulated network system (either through a house connection, a yard tap or a standpipe). To ensure water quality in line with World Health Organization (WHO) guidelines (WHO, 1997) for urban drinking-water quality), water treatment is necessary. Investing in upstream water-resource management is also critical, so that sufficient water resources of adequate quality are continuously available with limited negative impact on other uses of water.

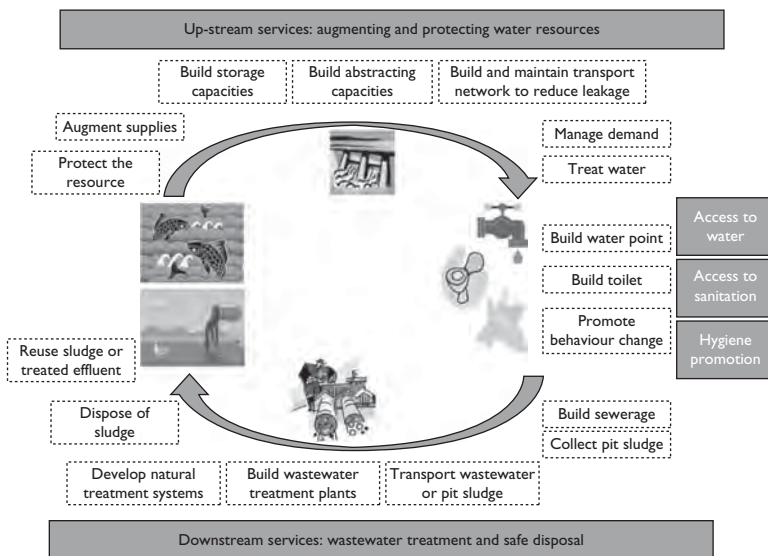


Figure 8.1 The value chain of sustainable water and sanitation services

Source: OECD, 2011b.

Sanitation as a whole is defined by the WHO-UNICEF Joint Monitoring Programme (JMP) (WHO/UNICEF, 2010) as the ‘methods for the safe and sustainable management of human excreta, including the collection, storage, treatment and disposal of faeces and urine’.¹ Providing access entails investment in the first segment of the sanitation value chain – that is, ensuring that people are adequately separated from their excreta. Two main kinds of collection facilities exist: on-site sanitation systems (such as dry-pit latrines or ventilated, improved pit latrines) and waterborne, network-based systems. For both kinds, adequate investment in treatment and disposal is necessary to control the impact of the wastewater (the residual sludge on the environment, for instance) and to maintain the good quality of the other water resources. The recycling or reuse of treated wastewater can also reduce water consumption and generate by-products useful in agriculture or energy production.

What are the costs of providing WSS in low-income urban areas?

Water and sanitation services typically require substantial up-front capital investment in long-term assets. If adequately maintained, those assets can provide benefits for several decades. The bulk of the investments are for underground infrastructure (particularly piped networks), which complicates monitoring the condition of the assets over time. Without sustainable systems for continuing repair and maintenance, even such relatively simple equipment as a hand pump can fall into disrepair. Overall, it is estimated that annualized operations and maintenance (O&M) costs add between 20 and 40 per cent of the capital expenditures (Shugart and Alexander, 2009; Fonseca *et al.*, 2011). The common failure to provide and pay for these O&M costs leads, in practice, to WSS providers that are financially fragile and unable to provide good quality services to customers.

Providing WSS to the urban poor using conventional, networked approaches requires financing not only for individual connections, but also for extending the primary distribution networks – since unserved communities usually lie at the periphery of cities, physically far from the bulk water-supply network. Furthermore, informal communities are often situated on marginal lands, steep hillsides or, more generally, where construction is complicated and expensive. Cost estimates for new connections vary widely, depending on technology. In many places, the poor must pay the costs of the household connection as well as a portion of the cost of the primary network, if they are to get the service extended into their neighbourhood. Those costs are beyond the reach of what a poor household can afford.

Figure 8.2 shows the costs of providing service at each stage of the value chain. They include capital expenditures (CapEx), the capital invested in constructing or purchasing fixed assets such as concrete structures, pumps, pipes and latrines. All the remaining costs are recurrent and include O&M, capital maintenance (CapManEx), the cost of capital (CoC) and direct and indirect support costs.

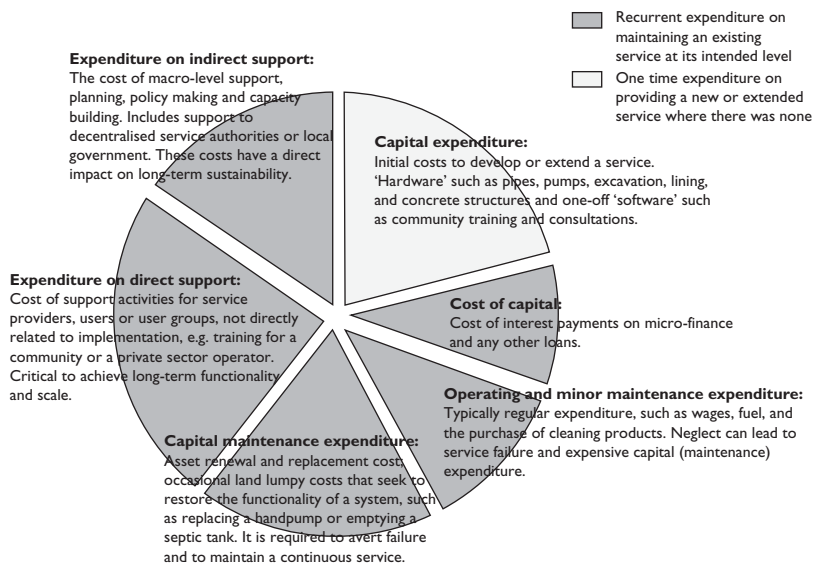


Figure 8.2 Cost components for delivering water and sanitation services defined by WASHCost, IRC International Water and Sanitation Centre
Source: Fonseca et al., 2011.

Who pays?

Finance for the water sector traditionally comes from three sources: 'tariffs', including payments from customers to service providers, as well as households' own investments; 'taxes' (i.e. allocations from domestic government budgets); and 'transfers' from external development agencies and philanthropic organisations (OECD, 2009). Financing can also come in the form of loans from commercial banks and development banks, or as investment income (structured as a bond or as shareholders' equity) from domestic or international private operators. The latter type of financing must ultimately be repaid out of the primary sources of income, such as tariffs, taxes and transfers (OECD, 2010).

Users contribute a substantial amount, and not only through user fees

User fees are the main financing source for WSS, either through fees for network services or through users' own investments in sanitation (latrines and septic tanks) (Ghosh Banerjee and Morella, 2011). User fees are often not enough to finance capital expenditures required to extend network services to (poorer) unserved areas. Notably, contributions are typically inequitable: better-off users pay less for high-quality piped water, whereas poor users pay higher tariffs for poor-quality water sold from street vendors (UN-Habitat, 2010).

The financing of water services via user charges is usually marred by a well-documented ‘vicious circle’ that plays out in numerous countries in the Global South. Tariffs are typically kept low for ‘social’ or political reasons – in other words, for fear of triggering social unrest or losing elections following a water rate increase. As a result, tariff revenues usually do not cover capital maintenance expenditures or expansion costs – and in some cases do not even cover O&M costs. A study of seven African countries found that operating cost-recovery ratios ranged from 65 per cent in public companies in Zambia to 160 per cent in Senegal, where services are run by a public–private partnership (Ballance and Trémolet, 2005). When tariff revenues fail to cover operating costs, the existing service deteriorates and funds for extending services dry up, hurting the groups that need them the most: typically those living on the fringes of urban centres or in slum areas in the centre. The same vicious cycle operates even more acutely for sanitation services: in that case, funds may not even be clearly earmarked, because of fragmented institutional arrangements and difficulties in charging for sanitation services.

For these reasons, a broad consensus has developed at both national and international levels that it is unrealistic to rely exclusively on user finance for full cost recovery. The costs are simply too high for user fees alone to sustain service levels for existing customers and to achieve universal coverage.

Public finance is almost always needed to plug the gaps

Although there are no reliable ways, yet, to estimate how much governments allocate to the WSS sector, the Global Annual Assessment of Sanitation and Drinking Water (GLAAS) (WHO, 2010) found the governments surveyed allocated roughly 0.48 per cent of their GDP to WSS annually. Foster and Briceño-Garmendia (2010) provide a highly detailed overview of investments and needs for various infrastructure sectors, including WSS, but only for Africa. These data show that the contribution of public investment in water and sanitation is higher than previously thought. Domestic public-sector financing usually includes matching funds from overseas aid. When WSS are managed by public-sector entities (as they are for the vast majority of urban WSS in developing countries), public-sector financing can fund the utility’s operating deficits or subsidize new investments, including those for new connections (paid to the utility or, in some cases, to customers directly).

Official development assistance is on the rise but not optimally allocated

Official development assistance (ODA) provides substantial funding to the WSS sector. Aid to WSS declined temporarily in the 1990s, but it has risen sharply since 2001. In 2008–09, the total annual average aid commitments to WSS were US\$8.1 billion (OECD, 2011b). Between 2002 and 2009, the average annual increase in bilateral aid (aid from a government agency of a

single donor country) for WSS was 18 per cent; the corresponding increase in multilateral aid (aid from an agency that pulls resources from several governments) was 10 per cent (OECD, 2011b). According to the 2010 report by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) (OECD-DAC, 2010), the share of aid to water and sanitation in the aid programmes of DAC member countries has also risen since 2001, though at a more modest pace. In 2008–09, aid to water and sanitation represented 8 per cent of DAC members' bilateral sector-allocable aid (OECD, 2011b).

Between 2003 and 2008, loans represented slightly more than half the total aid for WSS. Projects for 'large systems' in urban areas were predominant and accounted for 57 per cent of total contributions to WSS in 2007–08. Out of that total ODA for large systems, 68 per cent were concessionary loans. By contrast, financing for basic drinking water and on-site sanitation was almost exclusively in the form of ODA grants (90 per cent of the total ODA). In that same period (2003–08), the primary targets for aid to water and sanitation were regions most in need of improved access: the poorest countries received 43 per cent of total WSS aid, two-thirds of it in the form of grants (OECD-DAC, 2010). Substantial aid for WSS also goes to middle-income countries, where unserved populations are relatively low. Finally, aid allocations tend to stress drinking water over sanitation, though it remains difficult to assess the relative allocations with precision. Certainly, when development projects combine both water and sanitation, drinking water tends to receive the lion's share.

The large-scale capital investment on which external financing tends to focus often goes to water-production facilities (dams, reservoirs, wells or canals), water and wastewater treatment facilities and network upgrading. Donors may even come together to share the costs of such large projects. The Ziga dam, which supplies water to Ouagadougou, the capital of Burkina Faso, and the enlargement of the Ngith conduit, which guarantees Dakar's long-term water supply in Senegal, were both built with shared donor funds. For donors, large-scale capital projects can be easier to manage, because transaction costs can be shared over a large project and because relatively few interlocutors are involved. Governments also tend to prefer large-scale capital projects: they are highly 'visible', and so better than smaller projects for building political capital. That is particularly true for the WSS sector, where most of the assets are underground and therefore more difficult to account for (or take credit for) politically.

The limited role of private financing

In poor urban areas of developing countries, local private providers have made an important contribution by self-financing with personal or family income, and taking out commercial bank loans when needed. Often, these smaller providers partner with other businesses: local private water providers, for instance, typically have interests in construction businesses.

In small towns in Cambodia, for example, local private operators routinely make an initial investment of as much as US\$10,000 in a small water-treatment plant and a distribution network within an urban centre. Under the MIREP programme, a public subsidy was added to local private investment, bringing the total initial investment as high as US\$33,000 per small town (on average, fewer than 3000 inhabitants). (MIREP is a French acronym for a programme designed and implemented by GRET, a French non-governmental organization (NGO) with French government support in Cambodia.) Similar examples are well documented in Mauritania (Cardone and Fonseca, 2003) and in Maputo, Mozambique (Trémolet, 2006a). The World Bank estimates that small-scale providers serve about 25 per cent of the urban population with water in Latin America and East Asia, and 50 per cent in Africa. As for sanitation, such providers serve as much as 80 per cent of the population in African cities (Bill and Melinda Gates Foundation, 2006). Unfortunately, though, because small-scale providers usually operate in the informal sector and crucial information about their activities is lacking, it is extremely difficult to obtain aggregated data on which to base a market analysis.

The international private sector also plays a role in urban WSS, but its ability to bring in financing is limited. A review of 15 years of private-sector participation in infrastructure in developing countries (Marin, 2009) points out that private financing of urban water utilities (i.e. new capital brought in by private operators) represented only 5.4 per cent of the total investment commitments in private infrastructure between 1990 and 2000. Based on figures from the Public – Private Infrastructure (PPI) database,² Marin found that investment commitments by private operators (made in the year of financial closure) fell sharply in the wake of the Asian financial crisis, from a peak of US\$10 billion in 1997 to a low of US\$1.5 billion in 2003, and have not recovered since. Furthermore, private-sector investment commitments are highly concentrated in a few countries such as China, Malaysia and the Arabian Gulf states; only a handful of projects have been undertaken in low-income countries. Private operators are reluctant to take over the entire management of a utility (particularly in countries that are seen as risky); they are more interested in investing solely in water- or wastewater-treatment facilities. In riskier countries, private operators are turning to management or lease contracts, with minimum financing requirements but high expectations for the returns on their equity.

How existing financing fails to reach the urban poor

We discuss four reasons for this failure under the subheadings in this section.

Subsidies are inadequately targeted

It might seem straightforward to subsidize those too poor or vulnerable to afford user fees. In practice, however, problems abound in structuring

effective programmes for allocating subsidies. Allocation by geography ignores the reality that in urban areas the boundaries between poor and non-poor areas are not clear cut. Allocation by amount of living space overlooks the fact that poor people tend to live in crowded homes. According to a study done for the African Development Bank, 'One of the reasons for failure in the [WSS] sector has been the unwillingness by direct providers to segment customers to a sufficient degree ... and then to target services accordingly' (Franceys *et al.*, 2006, section 3.4, p24).

On one principle, however, there is unanimous agreement: the most efficient way to deliver subsidies for water to poor households is to subsidize the charges for a connection to the water distribution network (Water and Sanitation Program, 2002). High connection charges usually represent the single greatest obstacle to the poor in gaining access to reliable, affordable services. A connection also reduces costs associated with the negative impact of non-piped water on health, because piped water is usually safe to drink. (Vended water may be contaminated at various points along the transport chain.) A 2005 study found that the total costs of acquiring a private water connection could be the equivalent of between four and six months' income in India, 12 months' income in Ghana and as many as 43 months' income in Uganda (Franceys *et al.*, 2006, section 9.9). Connection subsidies can be transferred directly to the household or channelled to the service provider, based on the provider's output. Subsidies to providers can be designed so as to incentivize them to extend their services to poor areas, and, at the same time, to leverage any private financing available. In addition, the water connection cost can be billed in small instalments, along with the charge for monthly usage. There is no reason to require these costs to be paid up front, as a heavy lump sum, which would keep the poorest of the poor from accessing the service. Similar connection fees for sanitation can be useful, to offset the lump-sum costs households must bear for toilets. In urban areas, however, charges for sanitation services must account for the costs of collecting and treating fecal sludge or wastewater, as well as for the various ways sanitation services are delivered (e.g. via household toilets or by providing community or public toilets). In spite of this complexity, eliminating sanitation subsidies is not the answer; instead, new designs are needed for effectively allocating them.

Land tenure remains a prerequisite for financing

People who lack title to their land are usually excluded from subsidy programmes financed by their government or utility. For related discussion of the difficulties of securing affordable housing finance where title to land is missing or uncertain, see Chapter 6. There may be some valid reasons for this: water and sanitation policy may need to be aligned with broader urban planning and housing policies to prevent the consolidation of slums

into more permanent housing areas. The land title may need to be used as collateral for securing the payment of the connection charge. Programmes run by NGOs or philanthropic organizations have sought to address this problem by providing subsidies for connections to users without land title, but the scale of these programmes remains limited.

Large service providers receive the bulk of available financing

The channels for collecting and transferring public funds vary by country, but, in general, international donors provide funds for WSS through a ministry of finance. From there, the funds are allocated to ministries of water or sanitation, which then distribute WSS funds, typically to national or municipal utilities. Funds in the form of concessionary loans are guaranteed by the ministry of finance on behalf of the ministry of water and the utility. Given this pattern, it is easier (and perceived as less risky) for larger WSS utilities to receive the bulk of public financing available for WSS. ODA flows tend to be centralized, and go to the service provider in the capital city. Yet most WSS financing needs are in peri-urban areas (usually not served by the main utility) or in small and medium-size towns (or other decentralized entities).³ This mismatch can lead to a number of difficulties – for example, the adoption of inadequate or overdesigned technological solutions; long time lags between the investment decision and its implementation; and an inability to allocate funding in small, targeted amounts, rather than only to one-off, bulky, capital-intensive projects.

This funding pattern persists even though large utilities operating in a capital city may serve only a small proportion of the city's total population. Throughout the Global South, small-scale independent providers (usually referred to as SSIPs) often lack access to formal sources of finance, for any of several reasons: because WSS loans are simply unavailable in their regions, because the SSIPs lack credit history, because interest rates are too high (reflecting the relatively high perceived risk), or because local financial markets are not geared up for financing them.

Small and medium-size towns attract less funding than cities do

As noted earlier, even though WSS funding is mostly centralized, funding needs are increasingly decentralized. Water and sanitation services themselves tend to be decentralized, and are managed at the municipal (city) or regional level. The decentralizing trend in WSS services is based largely on the assumption that a local government (town, municipality or district) understands local needs better than the central government does. But it also stems from the fact that a high percentage of urban growth is expected to take place in small and medium-size towns (see Pilgrim *et al.*, 2004). Decentralization also holds local officials transparently accountable to consumers (Helmsing, 2002; WaterAid, 2008; Lockwood and Smits, 2011).

This decentralized structure complicates the ability for central governments to allocate funding to WSS effectively. Allocating funds to decentralized service providers requires support structures in the central government and a financial-allocation mechanism, such as a challenge fund, to give relatively small cities and towns the incentive to compete for access to public finance. Much remains to be done to understand how such support structures can be designed and executed effectively.

Reaching the poor: the role of financial innovation

In light of the financial crisis that has crippled public finance in many global markets, it is important to define innovation in the context of WSS financing. In some cases, innovation is as simple as dividing the lumpy connection charge into instalments. Other innovations require a shift in assumptions about who can provide finance for WSS and who can obtain it. The generic assumption that finance is about providing infrastructure loans to national governments, for instance, has shifted to focusing on how to improve services for consumers in low-income areas. Broadly speaking, financial innovation to reduce poverty has been accompanied by a policy shift from supply-driven approaches to demand-led ones.

Several long-term trends have contributed to financial innovation. Decentralization has been one important factor. A raised awareness at a global level of the scale of the WSS challenge has also contributed to the sense of urgency, along with the realization that international aid and subsidies as designed may be both inadequate and ineffective in addressing the coverage deficit and the poorest individuals. Professionally, the water and sanitation sector, which was focused in the past on civil engineering solutions, has begun to attract a wider diversity of expert interest. In particular, a more recent influx of expertise in the social sciences and economics has led to efforts to balance supply-side approaches with financial innovations that focus on understanding and stimulating demand. More recently, advances in access to information and to mobile technology, including the ability to transfer money electronically, have led to unprecedented real-time collection of information and outreach to even the poorest urban dwellers (Hughes and Lonie, 2007; Ivatury and Mas, 2008; ITU, 2010). As a result, new opportunities, previously not possible, are emerging for a wider range of stakeholders to participate and affect positive change. Slum dwellers are forming federations to upgrade their communities; solidarity mechanisms are arising that enable individuals and businesses in the Global North to provide grants and loans to individuals and businesses in the Global South (Akvo, 2011). Likewise, those taking part in developing financial aid to the WSS sector are increasingly looking for ways to leverage market-based (i.e. commercial) mechanisms. For example, though development finance has traditionally been applied to capital investment, donors are now working

to apply grants and even concessionary loans for such purposes as strengthening the operational efficiency of a utility, building business-development skills for non-utility service providers, financing connection fees for the poor and facilitating scalable models of service delivery.

In what follows, we identify several innovations in finance for WSS in poor urban and peri-urban areas, with brief case studies that exemplify the spectrum of arrangements and activities taking place. At this stage, experience is still too meagre to determine which approaches work better than others, or whether any of them are applicable in more than one context: success is typically contingent on local factors. Table 8.1 presents a framework for understanding the dynamics of innovation for urban WSS.

Table 8.1 Sources of finance for the urban water and sanitation sector

	Sources of finance	Traditional	Innovative
Public ↑ ↓ Private	Government	Fiscal transfer Cross subsidy Latrine subsidy Connection subsidy	Debt/equity swap Means-tested subsidy Municipal credit pool
	ODA grants	Direct grant Technical assistance	Revolving fund Seed finance Output-based aid Project development facility Partial risk/credit guarantee Credit enhancement
	ODA loans	Concessionary loan	Municipal development fund Line of credit Output-based aid
	Non-ODA grants (NGOs, philanthropic organisations)	Technical assistance Solidarity mechanism Direct grants	Revolving funds Microfinance start-up
	Non-ODA loans (IFIs and others)		Microfinance Municipal bond Working capital loan Solidarity mechanism Line of credit
	Private equity	Direct foreign investment Local private sector	Seed capital
	Individuals/users	Revolving funds Microfinance Tariffs Direct equity (self-financed)	Remittances

Source: OECD (2011a).

The importance of household-level finance

Although the financial contribution to WSS from households is often not captured in global figures, consumers – and especially the poor – pay more than any other group of consumers for WSS. For example, GLAAS (WHO, 2010) showed that households' own investments (particularly in on-site sanitation and water storage facilities) were the largest source of financing for WSS in Africa.

That statement holds whether the measure is simply cash outlays (e.g. the daily costs of water) or the health, education, social and economic losses that result from a lack of safe and clean services. The examples in Boxes 8.1 and 8.2 highlight some of the ways household-level finance is being leveraged to improve services.

Box 8.1 Demand-led approaches in urban slums

In many countries, federations of urban poor and slum dwellers are working to address issues of poverty, including WSS. These federations are deeply involved in community-led schemes, and at their core are community-based savings groups, formed and managed by the urban poor themselves. Women in particular are attracted to doing business with savings groups because such groups provide flexible terms on loans, which are often taken to deal with family crises. But savings-group loans are also used for longer term housing improvements and income-generating activities. When clusters of savings groups federate, their capacity to support broader changes also increases. Not only can they become effective advocates for slum upgrades, they can also implement them across an entire city, and sometimes even at national and international levels. Shack/Slum Dwellers International (SDI) is a good example of what is possible.

Although such federations are 'demand-led', they are by no means isolated from government or from international agencies. In many cases, city and national governments and international agencies have acknowledged and supported the federations because of their success in addressing urban poverty. Federations typically seek partnerships with local governments to achieve secure land tenure, and street numbers and addresses for the poor, which empowers slum dwellers to take advantage of their rights as citizens, such as voting.

All federations apply the savings model – that is, they create individual savings accounts for their members – as a means to provide credit for housing and other upgrading. The savings accounts demonstrate to local and national governments the ability of the poor to mobilize and overcome extreme poverty, often at a lower unit cost than government or international agencies can achieve. Further, the savings model depends on a cost-recovery philosophy that holds even the poorest and most marginalized people responsible for their accounts. Importantly, the federations work to ensure that poor people are dissuaded from taking loans whenever possible, and, if they do, to minimize the size of the loans. This effort contrasts sharply with supply-oriented approaches, which tend to maximize loan sizes: indeed, staff performance in donor and other agencies is often measured by the number and amounts of loans signed.

Source: d'Cruz and Satterthwaite, 2006

Even as the role of savings is growing, NGOs have been testing microfinance in recent years, and in particular microlending as a means to finance household connections to utility networks. In general, microfinance institutions (MFIs) are not well versed in how to develop specific products aimed at sustainable WSS delivery. But they do have experience with short-term loans for such products as household water filters, water storage devices, some kinds of latrines and hygiene products. Beyond that, MFIs do have experience in managing credit, but many have only limited understanding of the nature of demand for WSS finance, or of how to help poor communities finance projects that do not have a straightforward way of generating income.

Among the barriers to microfinance for water and sanitation are high transaction costs (given the small size of dedicated WSS loans) and the relatively large need for follow-up during the loan cycles. When these costs of capital are included in the loan, they only increase interest rates.

Box 8.2 Sanitation surcharges in Burkina Faso

Discussions of innovative finance tend to focus on drinking water and its delivery; investments in sanitation are typically considered too expensive, and with too little cost recovery, to attract commercial finance. In Burkina Faso, the National Water and Sanitation Office (ONEA) is responsible for water and sanitation in urban and peri-urban areas throughout the country. Faced with limited effective demand for sanitation services and limited funding, ONEA imposed a surcharge on the water bills of its existing customers to extend services to the poor.

The scheme has a 27-year history. In 1985 the Ministry of Water authorized fees for sanitation services through a water surcharge. A similar surcharge was also imposed on water usage in Ouagadougou, the nation's capital, in order to develop a strategy for on-site sanitation, school latrines and a sewerage network for the city centre. One key point of the strategy that was finally approved was that households are expected to finance their own latrines.

ONEA, through its sanitation surcharge, finances such activities as training masons in building on-site sanitation facilities, or providing supplies of construction materials at appropriate quality standards. ONEA also finances campaigns to promote sanitation and social mobilization to generate demand. Where necessary, poor households get small capital subsidies, but the goal is to minimize government funding of capital costs. ONEA does not apply the sanitation surcharge to building networked sewerage, but does use it to fully fund hygiene education in schools and to construct school latrines. (Parents pay for latrine maintenance.) ONEA subsidies are available to all urban households, whether or not they are connected to the network.

Source: Savina and Kolsky, 2004.

Indeed, there is some question whether the MFI approach to WSS is even sustainable. Many microfinance institutions claim they are – and that their default rates are lower than those of large banks. But their financial health is hard to document: many MFIs are non-governmental or not-for-profit organizations, lacking transparent monitoring systems, and their overheads are highly subsidized by their donors.

A more localized way to leverage household funds for WSS connections is through cross subsidies and surcharges to utility bills. One example of a surcharge is described in Box 8.2.

Supporting domestic private-sector investment in WSS

Traditional models for financing WSS have tended to ignore domestic firms in the private sector, including SSIPs, MFIs and commercial and cooperative banks. The reason is that urban SSIPs tend to operate informally and outside the scope and recognition of the formal utility and government. Likewise, microfinance and commercial banking activity in the WSS sector has been largely non-existent. But in many cities, SSIPs are an integral part of the service provision, particularly in low-income areas (utilities in those areas usually have a mandate to provide services, but lack the financial and technical capacity to do so).

SSIPs operate as service providers, but they can also do the drilling and construction work (employing masons, artisans and so forth) that are critical for service delivery, sometimes in formal partnership with a utility. Not surprisingly, informal SSIPs operate under greater regulatory uncertainty than their formal counterparts, but both are constrained by their limited ability to access finance. One way to improve the operating environment for SSIPs is to develop opportunities for collaboration with utilities and NGOs, in which a common goal is to extend services to the poor. In recent years, several examples of such partnerships have emerged; one example is described in Box 8.3.

Box 8.3 Use of design-build-lease contracts in Vietnam to support small-scale providers

In Vietnam, a design-build-lease project was undertaken in two towns, each with a population of about 10,000. Under this scheme, private contractors design, build and operate the town water system, borrowing funds from the water utility. After a grace period, which enables the contractor to build up cash reserves in case of a shortfall during the design and construction phases, the contractor repays the utility, with interest, out of revenues from the new system.

To avoid costly delays, all stakeholders are encouraged to take part early on in determining the feasibility of the design and the reliability of the cost estimates, as

well as in reaching agreement on tariffs. Although the tariffs are not high enough to recover the full cost of the system, it is important for the contractor and the long-term viability of the scheme that the local authority (and the users) agree to a minimum consumption of five cubic metres (about 1320 U.S. gallons) of water per billing period. To cover connection costs, users have preferred a higher monthly tariff over a larger up-front charge; likewise, they agree to small but relatively frequent tariff increases over time rather than larger but less frequent increases. After addressing issues such as these, the local authority must vote on whether the plans are viable, and whether the utility is allowed to buy shares in the new system in order to kick-start investment.

This approach has several benefits. The contractor who builds the system must operate it, which counters any inclination for overdesign. Because revenues are directly tied to tariffs, the operator has an incentive to provide network connections for customers, as well as a good service, including billing and collections. For the utility, the risk of fronting an equity investment (usually a 15 per cent stake) is managed because the assets – which are likely to grow in value under the scheme – belong to the utility, providing the utility with an incentive to maintain oversight over the contractor. Likewise, the contractor is bound by a performance bond, which is forfeited if the contractor does not meet its obligations. Importantly, a competitive market for operators thrives in Vietnam, which increases the likelihood of success for the utility and the local government. Towns smaller than the ones discussed here may offer provincial or regional utilities – or even a local utility in a nearby urban centre – a chance to invest profitably in piped connections for the townspeople, while supporting local economic development. Preliminary observations suggest that stakeholders in these schemes may need help understanding the implications of their contractual rights and obligations. But, happily, research findings also suggest that a small-town water supply can be profitable for small enterprises, provided the players do the advance work needed to get the incentives right and properly address the risks.

Source: adapted from Cardone and Fonseca, 2006a. Reprinted with permission from UN-Habitat.

Strengthening the financial health of utilities

As the main service providers in urban areas, municipalities and utilities face considerable pressure to extend WSS to ever-growing neighbourhoods. Even well-managed utilities cannot maintain the pace of urban expansion, in part because most new urban residents are poor and lack secure land tenure.

In the late 1990s it was expected that the international private sector could and would fill the investment gap – the difference between WSS needs for universal service coverage and what local utilities could provide. Since then, experience with large-scale private-sector investment has not been particularly

successful, especially in low-income countries. The reasons include mismatched expectations, lack of a transition strategy to implement tariff reform, and a lack of tangible successes by private operators in extending WSS (for a myriad of reasons not entirely under the control of the private operators). Meanwhile, a consensus has developed that, though water and sewer utilities should be publicly owned and controlled, they should also operate according to sound business principles: strong revenue management, efficient customer service, competent operations and structures for maintaining accountability. If a utility can effectively recover its costs and, ultimately, finance itself, the government and ODA funds that would have subsidized it should, at least in theory, be freed up to focus on other targeted, pro-poor activities.

The strongest utilities tend to be found in capital cities, though in many countries a single utility is responsible for all water services at the state or national level. In some cases, the strategic use of external, private-sector expertise can help to catalyse shifts to autonomous utilities (see Box 8.4).

Box 8.4 Transforming water services through a public–private partnership

In anticipation of the shift to democracy in South Africa, the City of Johannesburg created a contract management unit (CMU), which focused on how to rapidly transform public services, including water supply and sanitation. Johannesburg Water was created as a ‘ring-fenced’, public company from the city’s seven dispersed water utilities and departments.⁴

The CMU sought to ‘reboot’ the utility as a professional and competent company with a single operating culture, and to rebrand it to its customers. To that end, the CMU engaged a consortium of Suez Water, a multinational corporation based in Paris, and several local private companies, in a five-year management contract. From 2001 until 2006, the consortium refocused the company through staff training, customer service, revenue management and measures to operate more efficiently and expand programmes for the poor.

Source: Cardone (2006).

Enabling local governments to support the local water sector

At a national level, the innovation with the greatest impact in most low- and middle-income countries and across all regions has been the decentralization of service delivery. What hasn’t followed in many cases is fiscal decentralization to support these new responsibilities for officials at the local district, municipality, town, village or community levels. The result is that many such decentralized water services are financially weak, and particularly so when they must rely on transfers from the national government to complement tariff revenues from users.

Traditionally, utilities have been run as an extension of national or local governments, and utility budgets have been combined with those of other urban departments. Their governance has been dominated by political appointees. In the urban setting, a shift from a public water department to a ‘ring-fenced’, publicly owned water utility is a challenge. Many governments are loath to give up control of the utility’s revenues. For their part, however, many utilities see the value in distancing government from their day-to-day activities, say, through corporate governance structures.

National governments often meet calls to decentralize fiscally with the retort that local governments lack the capacity to absorb – meaning spend – what budgets they have. And it is true that the ‘absorption capacity’ of local levels is a problem, even in middle-income countries.⁵ But the mismatches between budgeting and actual spending often grow directly out of the allocation process of the central government.

This traditional, supply-side attitude of national governments toward localized service delivery has recently evolved into new thinking about the role of fiscal transfers and how they might stimulate market approaches to improved delivery of public services. For example, given a clear policy toward the WSS sector (and an accompanying framework for guiding expenditures), fiscal transfers that enable local governments to meet their responsibilities to deliver WSS can empower those governments. The transfers can be direct, or they can take the form of debt repayments or guarantees – and they can be earmarked to improve access and services for the poor.

When services are decentralized via fiscal transfers, the absorptive capacity of local governments has been shown to improve when elements of direct democracy are introduced. A good example is participatory budgeting, in which representatives of poor communities take part in planning and budgeting for services to their own communities (for in-depth discussion of this topic, see Chapter 4. Participatory budgeting has expanded in many areas throughout Brazil as well as elsewhere in Latin America, including Argentina, Bolivia, Colombia, Ecuador, Mexico, Peru and Uruguay, as well as in Africa and Europe).

Another mechanism for national government to support networked WSS infrastructure finance at the municipal level is through Municipal Development Funds (MDFs) (see Box 8.5).

Box 8.5 Using Municipal Development Funds to stimulate innovation

Municipal Development Funds (MDFs) can either work as substitutes for grants and fiscal transfers to local authorities, or act as a bridge for local authorities to access private credit markets. Under the first model, the MDF, funded by the government and donors, on-lends to the local authority at concessionary rates, often in conjunction with subsidized loans and grants (again, from donors and/or the central government).

The objective is to stimulate a market for domestic finance, while introducing local authorities to the uses of municipal borrowing. In developing countries where the market is relatively weak, the MDF can seek to incorporate investment priorities of the central or state governments, and work with the local authority to ensure that preparation for a project is robust and thorough.

One MDF, in the Philippines, the Local Water Utilities Administration (LWUA), is a specialized lending institution mandated by law to promote and oversee the development of provincial waterworks systems throughout the country. LWUA extends financial, institutional development, technical and watershed management assistance to water districts and to Rural Waterworks and Sanitation Associations (RWSAs). LWUA secures its funding by selling equity subscriptions to the national government, as well as through concessionary loans or grants from International Finance Institutions (IFIs) and bilateral agencies.

Under the second model, which is perhaps more appropriate only in further-developed countries, an MDF can work to strengthen both the municipal and financial sectors to support transactions between the two. Here, the MDF tends to lend at commercial interest rates, and works with commercial banks and other private-sector lenders to inform its funding decisions. The MDF typically requires that private lenders assume the credit risk of the municipal loans, in order to help the municipality develop a credit history.

Source: adapted from Cardone and Fonseca, 2006a. Reprinted with permission from UN-Habitat.

Another mechanism that has become common in developing countries is the creation of dedicated water-sector funds managed at a national or a district level. These funds are often created for a social purpose, as part of broader water-sector reform. They can be structured either as sinking or revolving funds, depending on their objectives, and they can often be disbursed more rapidly and flexibly than funds made available through the budgeting process. Such water-sector ‘piggy banks’ can also pay for elements of infrastructure that communities cannot afford. But national funds face challenges similar to those faced by the proliferation of other funds: a lack of ‘good’ projects and channels for disbursing the money.

From the perspective of international agencies, decentralization has raised practical questions. Traditionally, a donor agency seeking to implement urban WSS projects would obtain a memorandum of understanding (MoU) from the central government, then work with the national utility or transfer money through the government or the relevant sector ministry. Interaction between the donor and local government was minimal, and for good reason: at local levels of governance, administrative, financial and technical constraints loom large. Many district, municipal and town officials simply lack experience – technical

or otherwise – in WSS. These constraints become even more pronounced in small urban and peri-urban informal communities, which have traditionally been overlooked – and even ignored – by central governments as well as donors.

Conclusions: How can financial innovation be scaled up?

Despite the many examples of innovations, they remain islands of success. Greater dissemination of experience and information about successes, failures and lessons learned is needed across all regions, particularly in the use of innovative approaches. To achieve sustainable financing for urban WSS, one must recognize the linkages between water, sanitation, housing and other factors in the urban environment.

One common problem is that financial innovations have been put in place only as pilot projects or case studies, often implemented by outside agencies that are superficially connected with local governance. Such arrangements make scaling up impossible, even citywide.

The challenge of scaling up infrastructure services stems from a lack of understanding about how to effectively and appropriately coordinate the parallel financial buildup to a scale that both works and is big enough to yield measurable improvements. Support and coordination structures are needed to ensure that whatever factors led to success at a small scale can be replicated at the larger one. Those factors might include the status of health and level of education in the target communities, or the amount of ‘capacity building’ needed for the target service providers and local governments.

In urban areas, providing access to WSS must also be seen in a broader context of improving shelter and livelihoods among the poor. Thus in evaluating the costs associated with WSS, it is also important to remember what else those costs are buying: a reduction in the costs of healthcare, improvements in housing and education and an increase in economic activity, all made possible by providing safe and secure access to WSS – and impossible without it.

Acknowledging contextual elements when considering scaling-up

All the regions considered for this report – Asia, Africa and Latin America/Caribbean – have experience with innovative finance mechanisms, and all those regions encompass low- and middle-income countries. On the whole, regional differences do not seem to matter to the success of one approach or another,⁶ but success does seem highly context-specific. For example, the ability of one South African utility to issue a bond does not necessarily mean that all South African utilities can do so – or even that issuing bonds is an optimal approach to finance services for poor people in urban areas in all regions.

Strengthening the overall capacity of local governments

To extend WSS to small and medium-size towns in a decentralized context, a key prerequisite is that the local governments can already carry out such critical tasks as water resource management, the planning of extensions to the service, contracting service providers and monitoring their performance. How much financial support these activities will need depends on the initial strength of local government and its ability to take on new tasks. If municipalities initially lack the capacity to take on these tasks, or are laden with responsibilities without finance to match, a first step may be to reinforce them through separately funded local government reform, synchronized as far as possible with reforms in the water and sanitation sector.

But what happens if towns are simply too small to acquire and maintain the capacities needed to manage WSS on their own? Then pouring additional funds into local WSS for capital-intensive projects and technical assistance may only dilute the funds' effectiveness. This risk is particularly high if staffing at the local level is too small to fully assume WSS capacities, or if staff, once trained, is lured away by more attractive employment elsewhere (DFID-IWA, 2011; Lockwood and Smits, 2011). One solution to this need for 'critical mass' may be to modify the structure of various small WSS markets by finding ways to aggregate.

For example, in Hungary, small towns are encouraged to form an association to access financing from the European Union for upgrading water facilities. In Brazil in the 1970s, the National Water Supply and Sanitation System (PLANASA) created state-level water companies in each Brazilian state; the companies took charge not only of providing infrastructure, but also of operating the systems nominally owned by the municipal governments.

Formalizing small-scale providers

Similar issues emerge in scaling up a successful pilot project in slums. Here, however, market forces may have more leeway, because informal, private operators are already providing whatever services exist. These small, private operators can be encouraged to move into the formal sector and, perhaps, to form associations to obtain financing. The process was tested with good results in Asunción, Paraguay, where small-scale water service providers known as *aguateros*, operating in previously unserved areas of the city, were encouraged to bid for output-based aid contracts in small towns and rural areas. To do so, they associated themselves with formally established construction companies and complied with a formal method of contracting.

It does little good to scale up distribution without a compensatory increase in operating capacity. Financing is needed to grow informal providers into medium-size enterprises able to take on new businesses and penetrate new markets. This aspiration underlies the appeal of the franchising model, whereby established companies roll out operating models in smaller towns.

Developing a strategic approach to introducing innovation

Donors often focus too much on single points of engagement, rather than commit to a long-term programme with a transition period that includes consideration and sensitivity to political and economic reality. Traditional finance mechanisms and their accompanying supply-side thinking are often deeply entrenched in the incentives and structures of the institutions that ‘do’ development finance, in national governments and in other external support agencies. Perhaps most difficult to change is the mindset about the poor – both by ‘outsiders’ and among the poor themselves – who are traditionally viewed as beneficiaries of aid, rather than empowered agents of change. Consequently, achieving success with innovative mechanisms simply takes longer, requiring learning, coordination, patience and a consistent local presence in poor communities to take root. The trade-off is that once an innovative mechanism does take root successfully, experience suggests it multiplies and spreads to other communities and institutions.

Providing capacity building and support to access finance

In nearly all of the successful cases outlined in this report, external support agencies provided transaction support and helped to build up the technical and financial skills of project implementers, whether individuals, communities or private operators. In some cases, such as the work of the Water and Sanitation Program in Kenya, this transaction support is institutionalized: each pilot project aims to build a new, local cadre of business-development specialists who can provide technical and financial audits, as well as support when the pilot is scaled up.

Many facilities and funds exist whose mission is compatible with improving WSS – there is plenty of financial supply. Only a few, however, mainly international organizations, are able to capture those funds. To enlarge the recipient base, project preparation costs should be minimized and the application process should be simplified as much as possible. Standard operating procedures for assessing the viability of projects should be developed. And wherever possible, community members should take part in project development. The goal is to make facilities and funds accessible to a much wider range of stakeholders than before, particularly to locally based institutions and groups.

Additional financing is only part of the solution to provide sustainable services

Scaling up WSS finance is often misunderstood to mean only the mobilization of additional resources to finance water services. A more correct understanding begins by stressing its goal, the scaling up of service delivery of safe water and sanitation. The additional finance (most likely innovative finance) then serves as a catalyst for reaching that goal.

In scaling up, it is important, too, to recognize that, though demand-led approaches work more effectively than one-off, supply-driven approaches, the most successful of the former also retain the key elements that grounded their successful origins as small, pilot projects: proximity to customers, mechanisms for cost recovery, community-led decision making and effective management. Finally, finance should be considered a means to an end, not an end in itself. The real goal is adequate, accessible, affordable and sustainable water and sanitation for all.

Notes

- 1 This definition excludes other environmental health interventions such as solid-waste management and surface-water drainage.
- 2 <http://ppi.worldbank.org>
- 3 Only certain lending organizations, such as the European Bank for Reconstruction and Development, active in Eastern and Central Europe, can provide financing at the municipal level.
- 4 A 'ring-fenced' utility would have its own set of financial accounts so as to increase financial transparency.
- 5 See, for example, www.dplg.gov.za/speeches/21Sep2005PR_imbizo.doc and www.dwaf.gov.za/Communications/MinisterSpeeches/2005/MinMEC5Jul05.doc.
- 6 The Latin American/Caribbean region could be an exception, where direct democracy and social movements may influence approaches to community mobilization and development, seen most prominently in the use of participatory budgeting.

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